

**IMPROVING KNOWLEDGE TRANSFER:**  
**A REALIST EVALUATION OF THE IMPLEMENTATION OF KNOWLEDGE**  
**TRANSFER PATHWAYS BY A HEALTH RESEARCH FUNDER**

BY

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## ABSTRACT

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Organisations whose mission is to fund health research are increasingly concerned with ensuring that the research they fund is used productively. The resulting interest in the concept of “knowledge transfer” has involved introducing policies to prompt researchers to think about their role, not just as knowledge producers, but as translators of research findings. In New Zealand, researchers can be asked, in their application for funds, to provide an account of what will happen to their research results. They are then judged on the quality of that account. However, little is known about how effectively this type of policy influences researchers to do more to make connections with those who use their findings.

Using the explanatory power of the realist evaluative approach, this thesis examines the implementation of new instructions by the Health Research Council of New Zealand (HRC) for providing knowledge transfer pathways in research applications. A focus of the research is on how these instructions change (or do not change) the mind-set of researchers. Key informant interviews were held, and the scholarly and grey literature examined, to develop an initial theory on how researchers would be influenced by such instructions. Individual interviews were then held with researchers, seeking their reflections on what they had originally written in a specific knowledge transfer pathway and how this then matched up with what actually happened; these interviews were then used to refine the initial theory. Finally, an on-line survey was conducted with those who sat on the HRC’s research assessing committees in the 2014/15 funding round in order to refine the theory further.

The final theory identified six mechanisms, which under different contexts, explain how the HRC’s knowledge transfer policy works (or does not work) to prompt researchers to reason differently. A continuum of reasoning in the form of a dimmer switch was used to explain circumstances where researchers may become more mindful of what is involved in knowledge transfer, but were not likely to markedly

change their behaviours. Based on the assumption that the HRC wants to be more active in encouraging researchers to undertake activities other than producing research results, two recommendations are made: (1) knowledge transfer policies should support self-reflexivity by different groups of researchers rather than creating more hoops within the research application process, and (2) the processes by which knowledge transfer sections are judged needs to be strengthened if researchers are going to be confident that this is a “serious” part of the application process.

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Any part-time PhD inevitably involves snatched moments tying together threads of thinking. Many of my moments occurred walking down the hill each morning. My journey started with the fizzing light of Wellington harbour, down through the botanic gardens and past the settlers' graves into the city. The same city my mother arrived from London as a young women, ready for the cultural shock of the last colonial outpost and a new baby. I dedicate this thesis to her: Susan Middleton (1934-2015).

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## 1 INTRODUCTION

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*Science delays knowledge transfer. It all stays in the ivory tower. We know that it takes something like 10 or 15 years to take hold. It's just because researchers don't do the job of talking to the 95 percent of clinicians who aren't working as academics.*

Researcher interviewee

Health research endeavours are inherently oriented towards change – change in knowledge, in clinical practice and in health behaviours – but what does it mean to try and increase the likelihood, and sometimes the speed, with which this change occurs. This thesis investigates the growing interest by health research funders in requesting statements on how research is expected to be used in funding applications. Various titles “knowledge transfer pathways” or “research impact statements”, these requests centre on the expectation that researchers will be encouraged to *think* more about their role as translators of research findings, and not just as producers of research.

To explore whether these new requirements prompt deeper thinking by researchers on how they influence change, an evaluation of new requirements by one health researcher funder (the Health Research Council of New Zealand) was undertaken. Using the explanatory power of the realist evaluative approach, a focus is given to how requirements to provide knowledge transfer pathways change (or do not change) the mind-set of researchers.

While the terminology has shifted, laments about the gap between research and its use are longstanding (Caplan, 1979; Weiss, 1979). Recent evidence on the size of the delay in applying research results in the health sector (Westfall, Mold, & Fagnan,

2007), has meant that improving the timely realisation of research results is an international concern attracting considerable policy attention by agencies that fund health research (Tetroe et al., 2008). Surveys of health funders reveal how a common first step is to ask researchers to provide a credible account of what will happen to their research results and to then be judged on the quality of that account (Davies, Powell, & Nutley, 2015; Tetroe et al., 2008)

In this introductory chapter, I outline the key elements of the policy introduced by the Health Research Council (HRC) to increase the uptake of the research it funds, concentrating in particular on the claims for how the policy is expected to work. I locate these claims in the broader scholarship on how best to close the gap between research findings and their eventual use, and compare the policy adopted by the HRC with other international funders of health research. Finally, I lay out my key research questions and discuss the way the thesis is structured according to the application of the realist evaluative approach.

## 1.1 CLOSING THE GAP BETWEEN RESEARCH FINDINGS AND THEIR USE

There is no shortage of literature and commentary on the difficulties of ensuring that high-quality research findings are translated into policy and practice in a timely way. New developments under labels such as evidence-based medicine (Black, 2001), implementation science (Eccles et al., 2009) and translational research (Cooksey, 2006) have been introduced with the goal of increasing the timely use of research evidence in health care policy and practice. These developments draw on scholarship which stresses the importance of social interactions to spread new knowledge (Rogers, 2003), the complexity of how research moves into policy and practice (Caplan, 1979; Weiss, 1979) and the ways in which values, perceptions and (micro) politics influence the construction of research-based evidence (K. Smith, 2014).

Despite longstanding concerns about getting research into practice, the terminology in this area is surprisingly inconsistent (McKibbin et al., 2010). Throughout this thesis I use the term “knowledge transfer” to define the phenomenon I am investigating, while recognising that in the literature a wide range of terms exist – for example, , knowledge translation and exchange, knowledge mobilisation, implementation research, and research impact. The language used by the HRC in its communications to New Zealand health researchers refers to “knowledge transfer”, and because my fieldwork covers researchers funded by the HRC, this term is used to capture the topic of this thesis. I found no consistent definition of what the HRC meant when it used the term “knowledge transfer”, so when communicating with interviewees about this study, I provided the following Canadian Institutes of Health Research definition of knowledge translation as an explanation of what was meant by the concept. In this definition, knowledge translation is:

the exchange, synthesis, and ethically-sound application of knowledge – within a complex system of interactions among researchers and users – to accelerate the capture of the benefits of research through improved health, more effective services and products, and a strengthened healthcare system (Tetroe, 2007, p. 1).

## 1.2 THE HEALTH RESEARCH COUNCIL’S KNOWLEDGE TRANSFER POLICY

In 2010, New Zealand’s Health Research Council (HRC) made changes to the processes that it uses to distribute the approximately \$NZ87 million per annum it receives from the New Zealand government<sup>1</sup>. The legislative mission of the HRC is to benefit New Zealand through health research, which it fulfils by calling for applications from researchers to undertake research projects. These applications are assessed by peers

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<sup>1</sup> At \$87 million the HRC’s investment represents the second highest single investment in contestable science and research in New Zealand. The highest is \$NZ183 million invested in economy, society and environmental research.

for their scientific excellence. These assessments involve a set of scores which then form the basis of judgements about which research projects to fund. In 2010, researchers who put in applications for funding were asked to provide “knowledge transfer pathways”, and were told that these pathways would be judged as part of the overall process of deciding what research to fund (Health Research Council, 2011). For a sub-set of HRC funds (that is the Partnership Programme, the New Zealand Health Delivery investment stream and an earlier District Health Board fund), the judging process for applications for funding gave even greater weight to the scoring of these pathways in the peer review process.

These new instructions were described as a change that would strongly encourage researchers to undertake research that is likely to produce a valuable outcome, wherever their research sits within the “bench to bedside” continuum (Health Research Council, 2011). Moreover, by including knowledge transfer as a component of their scoring, the HRC expected to encourage and incentivise researchers to “look beyond the outputs of their work and understand specific areas where they can proactively help in the dissemination and, where appropriate, the implementation of their results” (Health Research Council, 2011, p. 14). In other words, new behaviours were expected from researchers, involving a new farsightedness (for example, the ability to look beyond the outputs of their research), and a new understanding of the type of actions that are likely to ensure research results are applied. Box 1.1 presents the key phrases that are used as a short-hand throughout this thesis to capture the key components of the HRC’s policy.



**BOX 1.1: KEY PHRASES USED TO DESCRIBE HRC'S POLICY**

**Knowledge transfer policy** – the introduction from 2010 of new instructions in the HRC's research application process for knowledge transfer pathways. I have grouped this change as a single policy though it contains a number of variants according to the different types of research funded by the HRC. These are discussed in more detail in section 4.1.2 in Chapter Four. I have also defined these instructions (and their variants) as a policy: applying the definition that a policy is a course of action taken by an organisation to shape the world around it (Scott & Baehler, 2010). When introducing the new instructions to provide knowledge transfer pathways the HRC provided an hypothesis of how the new instructions will produce the desired result of improving the uptake of research.

**Knowledge transfer pathways** – the written sections in research applications outlining the expected use of the research and how this use will be achieved. These sections include actions recorded by researchers in response to instructions asking for both dissemination plans and knowledge translation plans.

**Knowledge transfer actions** – the activities a researcher undertakes to increase the likelihood their research findings are used. These actions can involve face-to-face exchanges, education sessions, networks and communities of practice, interactive workshops, web-based electronic communications and research steering committees (as specified by Mitton, Adair, McKenzie, Patten, & Perry, 2007).

### 1.3 RELATIONSHIP TO INTERNATIONAL DEVELOPMENTS

The introduction of instructions for “knowledge transfer pathways” as a way of closing the gap between research findings and their eventual use is not unusual internationally. Previously, researchers would note journal articles and conference presentations as their key “knowledge transfer” activity when drafting research applications. Now, for many areas of research, researchers are expected to provide accounts of how their research will be disseminated and used, list the activities other than research they will undertake, and be assessed on the strength of what they plan to do.

In a knowledge transfer planning guide for health researchers Reardon, Lavis, and Gibson (2006) provide worksheets for researchers to help them understand potential audiences and a list of knowledge transfer methods grouped according to what is known about their effectiveness. Generally, effective methods include the following:

- Academic detailing/Education outreach: use of a trained person who meets with providers in their practice setting to provide information with the intent of changing the provider's performance. An example is a lunch meeting held in a group practice setting to review evidence on managing a particular condition.
- Interactive education sessions: small group workshops where participants are provided with ample opportunities for discussion in order to apply learning to their own setting.

Less effective methods include:

- Didactic lectures: sessions where the audience passively receives information with little or no interaction between audience and presenter. Conference-style presentations are typical examples.
- Education materials: the mass mailing of published or printed recommendations for clinical care, including clinical practice guidelines, audio-visual materials and electronic publications.
- Electronic communication: the use of the internet or intranet including web sites, email, list-serves or interactive web-based tools (chat rooms, bulletin boards).

Academics have raised concerns that providing lists of relevant knowledge transfer methods to researchers misses the opportunity to develop a more nuanced understanding of the ways in which research is taken up. One review of the emerging knowledge transfer guidance for United Kingdom researchers warns of the dangers of a “a check-list” approach to planning knowledge transfer activities “driven by the notion that the more boxes ticked the stronger the impact plan” (Ward, Smith, Foy, House, & Hamer, 2010, p. 6). Scholars have offered alternative forms of guidance based on: (1) frameworks where researchers are encouraged to think through a range of issues and questions built around the importance of seeing the knowledge transfer process as a dynamic, multidirectional and interactive process (Ward et al., 2010), (2) audit criteria to evaluate past applications and identify areas for systematic

improvement (Ruppertsberg, Ward, Ridout, & Foy, 2014), and (3) a sequenced research contribution framework that starts with prompting researchers to think about knowledge transfer outputs (such as seminars, briefing papers or press coverage) before moving to observed or measured reactions to the research and changes in behaviours and practices (Morton, 2015).

These checklists represent the tip of a body of academic work on research utilisation. A recent overview outlined 25 models and frameworks developed to demonstrate the complexity of what happens when research-based knowledge is taken up in policy and practice (Davies et al., 2015). However, divergent views have been expressed over how much these models and frameworks actually inform the final knowledge transfer pathways designed by researchers. Critics of the call for knowledge transfer pathways complain that researchers get driven by these demands into creating overly ambitious claims about the social, business or public policy outcomes likely to flow from their work (Public Policy Group, 2011). Questions are raised as to how much the plans themselves merely become part of “playing the game” to win funding (Hunt, 2009), and whether or not they prompt deeper thinking by researchers about how they can understand and influence change in their particular area. Despite a call for knowledge transfer plans and pathways, a widely agreed standard for assessing these pathways is not yet available (Ruppertsberg et al., 2014).

What is available to researchers are detailed explanations of the dynamic and non-linear ways in which knowledge (often research-based knowledge) moves into policy or practice. Nilsen distinguishes between five different types of implementation theories models and frameworks: (1) determinant frameworks which emphasise that implementation is a multidimensional concept (for example, the Consolidated Framework for Implementation Research), (2) classic theories which describe change mechanisms (for example, the theory of diffusion), (3) implementation theories that explain various aspects of implementation (for example, organisational readiness), (4) evaluation frameworks, and (5) process models (for example, the Knowledge-to-Action

framework) (Nilsen, 2015). He argues that the latter process models provide the most practical advice for those researchers wanting to operationalise the thinking contained within them, and typically these emphasise the need for careful deliberate planning.

## 1.4 GAPS IN WHAT WE KNOW

The gap this thesis fills is to pay attention to the implications of new policies being put in place by research funders to increase the likelihood the research they fund is implemented. When describing the change these policies want to create, a great deal of emphasis is given to how these new policies will result in researchers thinking differently about their role. Whether researchers do (or no not) think differently is underexplored. The indications are that there are likely to be differences between the different disciplines in health research but how these frame their subsequent behaviours as researchers is uncertain.

For the researcher, generating new knowledge is a relatively straightforward concept compared with the more unknown territory of getting knowledge to those who might need it. The traditional role of researchers is challenged by arguments that knowledge transfer does not happen on its own accord and relies on researchers taking some responsibility for the implementation of research ideas. Researchers must now acquire new competencies, such as the ability to network with different stakeholders and absorb different kinds of information. Lehoux et al. (2010) describe how understanding what is situated both upstream and downstream of complex problems becomes as important as researching the problems themselves, with the result that the search for collaborators and managing collaborative work becomes a more prominent part of researchers' activities.

These new competences link to commentary arguing that new modes of knowledge production are emerging. New understandings are contrasting Mode 1 research

(conventional scientific research driven by curiosity) with Mode 2 research (where research emerges from active two-way partnerships between researchers and other stakeholders) (Gibbons, Limoges, Nowotny, Schwartzman, & Scott, 1994). These concepts were developed as reflective essays and more recently the authors have called for more empirical investigation to understand the new paradigm of Mode 2 knowledge and the way it is interacting with the dynamics of disciplinary cultures and institutional arrangements (Nowotny, Scott, & Gibbons, 2006).

A body of work has grown up concerned with understanding the relationship between research-evidence, policy and practice. A relatively common conclusion is to recommend more active exchange and conversations between researchers and end-users (see, for example, Constandriopoulos, Lemire, Denis, & Tremblay, 2010; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Mitton et al., 2007). In New Zealand, Blewden, Carroll, and Witten (2010) investigated the use of social science research in policy development and concluded that a two-way conversation between researchers and policy-makers builds mutual understanding about respective realities in ways that are critical to bridging the research to policy gap.

Health research funders have responded to these insights by introducing policies designed to create an incentive for these conversations. However, there has been little critical examination of the impact of these policies on the behaviour of health researchers. Some evidence suggests there are challenges for researchers in balancing these new responsibilities with academic demands (Estabrooks et al., 2008). Furthermore, given the diversity of meanings over what constitutes the “use” of research (Lyall, Bruce, Firn, Firn, & Tait, 2004) there is potential for confusion over what researchers are expected to be held responsible for. Studies identifying how research is actually used regularly point out that a range of factors are involved; many of which lie outside the control of researchers (see, for example, Newson et al., 2015; Nutley, Walter, & Davies, 2007).

Demands for researchers to document their knowledge transfer intentions can be understood as a visualisation of their research work. Such a visualisation means the work becomes accessible to others who may evaluate it (Henkel & Vabø, 2006). Peer review of scientific approaches have a long history of harnessing the collective authority of the scientific community to decide scientific merit and allocate research resources (Kogan, Bauer, Bleiklie, & Henkel, 2007). The call for knowledge transfer pathways is different. Buried within the explanations of why these new requirement are being introduced is an implicit belief that writing a knowledge transfer pathway (or impact statement) is likely to result in new behaviours by researchers. For example, the Research Councils United Kingdom's explanation to researchers on why new pathways to impact sections are being introduced into its research application process states that it expects researchers will *think* more about the resources needed to carry out more knowledge transfer activities:

The aim is not to change the type of research you undertake, but to encourage you to think about the potential contribution that your research can make to the economy and society from the outset and the resources required to carry out appropriate and project specific knowledge exchange/impact activities (Research Councils United Kingdom, 2012).

In a bulletin for the World Health Organisation on how best to ensure that knowledge from research studies is translated for use in health services management, Chunharas places an onus on researchers to “understand the complex nature of decision making in health services organisations” (Chunharas, 2006, p. 2). In a best practice guide on funding research in small developed economies Harlan and O'Connor (2015) claim researchers may become more aware or conscious of pathways for translation of their work when they provide plans for how their research will be used. Box 1.2 summarises a range of explanations for knowledge transfer policies. Collectively, these quotes demonstrate that the HRC's expectation that its knowledge transfer policy would

result in new behaviours from researchers is not uncommon. The HRC explicitly stated they expected that:

By making knowledge transfer a component of impact assessment [the process used to judge applications], we are encouraging and incentivising researchers to look beyond the outputs of their work and understand specific areas where they can proactively help in the dissemination and, where appropriate, the implementation of their results (Health Research Council, 2013, p. 23).

**BOX 1.2: EXAMPLES OF EXPLANATIONS OF WHAT IS EXPECTED TO HAPPEN AS A RESULT OF KNOWLEDGE TRANSFER POLICIES**

[UNDERLINING EMPHASIS ADDED]

<p>Explanation to researchers from the Research Council United Kingdom (RCUK) on why new pathways to impact sections are being introduced into its research application process.</p> <p>(Research Councils United Kingdom, 2012)</p>	<p><i>The aim is not to change the type of research you undertake, but to <u>encourage you to think</u> about the potential contribution that your research can make to the economy and society from the outset and the resources required to carry out appropriate and project specific knowledge exchange/impact activities.</i></p>
<p>Explanation to researchers from the Science Foundation of Ireland (SFI) on why Impact Statements are now requested in its funded applications along with impact declarations as the research progresses.</p> <p>(Science Foundation Ireland, 2013)</p>	<p><i>To <u>stimulate</u> researchers to consider how best to maximise the impact of their research and how to maximise the engagement of users of their research.</i></p>
<p>Explanation in a guide for those agencies involved in allocation and distribution of research funding. The guide was prepared by the Science and Innovation Group of the Small Advanced Economies Initiative (SAEI) which brings together officials and experts from New Zealand, Israel, Singapore Denmark, Finland, and Ireland to consider research policy issues of common interest.</p> <p>(Harlan &amp; O'Connor, 2015, p. 8)</p>	<p><i>It is important to recognise that an ex-ante approach to assessing impact also offers the chance <u>to change behaviour and expectations</u>. This can be classed as a type of formative evaluation, designed to affect the conduct of researchers through its implementation. If done well, there is opportunity to improve delivery of relevant research and increase translation of research through engagement between funders, key stakeholders and researchers. Researchers <u>may be more aware or conscious of pathways for translation of their work</u>.</i></p>

<p>Explanation in a bulletin by the World Health Organisation on what is needed to build an interactive integrative approach to translating knowledge and building a “learning organisation” in health services management.</p> <p>(Chunharas, 2006, p. 3)</p>	<p><i>...the translation of knowledge from research to support to the management of health services will be made more effective <u>if researchers understand</u> the complex nature of decision making in health services organisations and are aware of the need to use a more interactive mode of translation rather than a linear supply-push model.</i></p>
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In the health sector, what counts as effective knowledge transfer actions by researchers varies between the biomedical and social science traditions. This difference mirrors the distinctions made between the discovery nature of basic research, undertaken generally with no particular application in mind, and the more problem-focused applied research. Within the biomedical tradition, the knowledge transfer problem has been perceived as a gap between discovery research and its transformation into commercial outputs – with a consequent focus on the existence of barriers in the process of translation from “bench to bedside” (Cooksey, 2006). Engrained in the biomedical view of knowledge transfer, is the concept of moving stages, or along pipelines, as successive groups of researchers address a specific problem in the movement from bench to bedside (Molas-Gallart, D’Este, Llopis, & Rafols, 2015).

In the social science tradition, there is less emphasis on a “gap” and more about how knowledge is socially situated to the extent it is difficult to separate researchers who produce the knowledge from the practitioners who might use it (Greenhalgh & Wieringa, 2011). As a consequence, in the social science tradition, partnerships between researchers and end-users are recommended based on ideas concerning engaged scholarship (Van de Ven & Johnson, 2006) and participatory research (Jagosh et al., 2012).

While I refer to the importance of “closing the gap between research findings and their eventual use” at the beginning of this chapter, it is worth stressing the debate on the



usefulness of such terms. Critics have highlighted that conceiving of the gap as a knowledge transfer problem, where formal explicit knowledge has been produced by the research community and needs to be transferred to the practice community, is based on a misunderstanding of how and why the gap exists (Harvey, 2013). Stressing the complex collaborative and context-specific ways that research is taken up in policy or practice, a number of scholars recommend the use of metaphors such as knowledge linkage and exchange (Lomas, 2000) or knowledge mobilisation (Davies et al., 2008) as a way to recognise this interplay. Reviews of the knowledge transfer literature have found a large amount of commentary urging researchers to think about how their research is used (Mitton et al., 2007), but whether the use of different terms has an influence on the way researchers themselves think about their particular role in this process is not known.

A large amount of energy has been spent discussing the problem of the uptake of research, but there is only an emergent literature on the effectiveness of potential solutions. While health funders regularly expect researchers to collaborate more with decision-makers as a solution to problems with the translation of research findings, “parallel attention has not been paid to the implications of such partnerships for the health researchers themselves” (Estabrooks et al., 2008, p. 1068). De Jong and colleagues point to the rich body of literature based on interviews with researchers constructing what happened to increase the take-up (or impact) of research results, while at the same time the way these researchers “respond to impact policies appears to receive little attention” (de Jong, Smit, & van Drooge, 2016, p. 102).

Newson et al. (2015) followed the experiences of 50 health intervention studies and concluded that there was no simple formula for determining which health intervention research should have been funded in order to achieve optimal policy and practice impacts. A significant number of detailed models and frameworks have been developed to demonstrate the complexity of what happens when research is taken up in policy or practice (see, for example, Buxton, 2011; Damschroder et al., 2009; Morton,

2015; Ward, Smith, House, & Hamer, 2012), yet little is known about how much researchers themselves read and engage with these models and frameworks. Davies et al. (2015) looked internationally at the approaches to encourage research use by funding agencies. They found these agencies were struggling to apply the theoretical literature. As one of their interviewees explained, while they believe theory is very important, “a lot of complicated models with arrows going in every direction have not been particularly helpful” (Davies et al., 2015, p. 65).

## 1.5 KEY RESEARCH QUESTIONS

The concept of knowledge transfer is developing at a time when there are concerns that the vast pool of global health research is underused and is not being translated rapidly enough into new or improved health policies, products, services and outcomes (Landry, Amara, Pablos-Mendes, Shademani, & Gold, 2006). This thesis focusses on the experiences of one health research funder who has adopted a policy to increase the use of the research it funds. The policy is implemented through instructions in the research application process to provide knowledge transfer pathways. Little is known about how the reasoning of researchers is changed by these policies, even though this particular policy is advocated as a way of influencing the behaviour of researchers, and ultimately as a way to increase the likelihood that research funded by government is applied in health policy and practice.

Researchers who bid for funds to carry out research projects already expect their projects to eventually lead to some sort of change. Yet, the explanations for why knowledge transfer policies are being introduced by research funders is that they expect to change the mind-set researchers bring to their research. I am using the term “mind-set” in this thesis to refer to the mental attitude or motivation that a researcher brings to their research practice.

**The key research question is:** How does the HRC's knowledge transfer policy work, through new instructions in the research application process, to change the mind-set of researchers?

**The sub-questions are:**

What ideas about how knowledge transfer occurs do researchers draw on when they provide written accounts of what they will do in a research application?

What variables are important when implementing new knowledge transfer instructions?

## 1.6 BOUNDARIES

My background informed a number of choices concerning the boundaries around this investigation. Much of my work as a senior policy official over the last 15 years (in both the Ministry of Health and the Ministry of Research, Science and Technology) has been shaped by the shift away from the idea that research should be left to itself to yield new discoveries. My time in research, science and technology policy coincided with the rise of the knowledge economy, foresight thinking, and evidence based policy (Ministry of Research Science and Technology, 1996, 2005, 2010). I observed at first hand the relationship between government and the HRC; a relationship characterised by the contrast between the traditional researcher-initiated application process overseen by the HRC, and the more directed process run by the Foundation for Research Science and Technology.

From my observations, the HRC straddled an interest in wanting to be acknowledged as an important source of evidence to improve health policy and practice in New Zealand, along with being an upholder of traditional peer review processes.

Committed health researchers had always strived to ensure their research results made a difference, but the 2010 changes suggested the HRC wanted to be more active in encouraging a wider pool of researchers to think about their roles as translators of research. My own background in applied health research alerted me to the likelihood this new policy would be very conditional in achieving its results, particularly when I saw directions to provide knowledge transfer pathways being introduced across all of the HRC investment portfolios. These developments gave rise to the questions explored in this thesis.

Having inhabited the worlds of policy formation, I was very aware that in attempting to prompt a change in how researchers engaged with the HRC, the HRC was likely to be confronted with diverse implementation chains, passing through many hands (including research assessors) and unfolding over time. The realist researcher is advised to apply “sustained thinking to work through a theory of how a policy works, time to defined expected outcome patterns and imagination to figure out what mechanisms to look for and where to find them” (Pawson & Tilley, 2004, p. 22). My background allowed me to identify the many layers around knowledge transfer and hopefully the imagination to spot a mechanism. I was able to draw on my previous policy networks to gain access to key informants, and the support of the HRC to gather key data. Overall, my past experiences combined to bring an understanding of the practical nous of policy making, deep knowledge of the long run relationship between the HRC and government, and an empathy for the challenges of applied health research.

## 1.7 THESIS STRUCTURE

The following chapter (Chapter Two) draws on literature that examines the diffusion of innovation, research utilisation, implementation science and the sociology of

science to start the process of developing an initial theory of *how* knowledge transfer policies are expected to work.

Chapter Three introduces the realist approach being used to evaluate the knowledge transfer policies introduced by the HRC. The realist evaluative approach developed by Ray Pawson and colleagues provides a process of thinking through how an intervention achieves its effects by prompting the researcher to search out what it is about an intervention that makes it work, and then testing these ideas as a set of emergent propositions in an ever-widening array of conditions (Pawson & Tilley, 1997).

The subsequent three chapters (Chapters Four, Five and Six) develop and refine a series of propositions to explain how and why the HRC's policy works (or does not work) for different groups of researchers. The realist approach recommends exploring the initial theory of what causes a policy to work through the different lenses of those most affected.

Chapter Four develops an initial theory of how the HRC's knowledge transfer policy is expected to create a change based on the perspectives of those that design knowledge transfer policies, supplemented by a review of the HRC's planning and accountability documents.

Chapter Five presents the results from testing that initial theory against the experiences and perspectives of the researchers themselves. The question being explored in depth is whether researchers actually react and reason in the ways expected by those that design knowledge transfer policies.

Chapter Six tests the refined theory of how researchers react and reason against the views of those that sit on assessing committees for the HRC. Research assessors have a pivotal role in judging the quality of written knowledge transfer pathways, so their perspectives are influential in shaping how the HRC's knowledge transfer policy is implemented

Rather than a straight yes/no verdict as to whether the HRC's knowledge transfer policy works or not – in line with the realist evaluative approach – the aim of this thesis is to look beyond solely what works to what preconditions make certain outcomes more likely, for which people and in which contexts.

In Chapter Seven, the findings from the three phases of fieldwork are drawn together in a final set of propositions for how the HRC's knowledge transfer policy might work to change the mind-set of researchers as a result of new instructions in the research application process. Given that other research funders apply a similar knowledge transfer policy, the final conclusions are designed to be abstract enough to underpin the development of policies of a similar type across other research funders, yet concrete enough to inform the next steps in knowledge transfer policy development by the HRC.

Finally, Chapter Eight offers concluding thoughts on what the findings add to the overall literature and where else further investigation could be undertaken. Realist evaluative approaches are not without controversy as the key ideas can be difficult to operationalise (Porter & O'Halloran, 2012). Consequently, a section in the concluding chapter also considers what was learnt in this thesis on how to turn the principles of the realist approach into practical application.

## 2 KNOWLEDGE TRANSFER IN THE LITERATURE

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*Knowledge transfer has infused the academic literature, infiltrated the policy discourse, raised the aspirations of funding bodies, and entered the lexicon of universities' strategic visions.*

(Davies, Nutley, & Walter, 2008, p. 188)

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In this chapter, I start the realist process of developing an initial theory of *how* knowledge transfer policies work by examining the literature. The aim is to identify what change the Health Research Council's (HRC) policy expects to create, and how this change has been measured by others. Knowledge transfer as a concept has been shifting over the last 20 years. One-dimensional linear views of knowledge transfer have been rejected in favour of more complex notions involving greater interactions between researchers and end-users. The HRC is not alone in implementing new knowledge transfer requirements in the research application process in order to encourage these interactions. Recent scholarship has started to build an evidence-base of the ways in which researchers might reason differently in response to new knowledge transfer requirements. In this chapter, I investigate this scholarship for insights into how New Zealand researchers might conceivably reason in response to the HRC's policy. Finally, in a third section, I present what the literature suggests should form the basis of a "knowledge transfer pathway" in a research application.

The literature reviewed in this chapter is selective. An emphasis is given to scholarship that provides insights into how knowledge transfer policies work, with the concepts explored coming from three broad traditions of scholarship: (1) the diffusion of innovation literature, which stresses the importance of social interactions to spreading new knowledge, (2) the research utilisation literature which delineates the complexity by which research moves into policy and practice, and (3) the sociology of

science literature, which provides an understanding of the potential responses by researchers to knowledge transfer policies.

## 2.1 THE WAYS HEALTH RESEARCH FUNDERS ARE EXPECTED TO OPERATE

A group of scholars has examined how research funders operate as boundary agencies that mediate between the interests of the research community and the broader public interest (as exemplified by the work of Guston, 2001). In summary, a boundary agency does three things (Waterton, 2005). Firstly, they provide a space where common languages and ways of working across the two domains of science and policy can be created. Secondly, they bring together the different parties (researchers, bureaucrats, regulators, and decision-makers) working in these different domains. Health research funders are generally able to unite stakeholders through their overall mission to improve human health. Thirdly, they dwell in the interstitial spaces between the social worlds of science and policy, while carving out distinct lines of accountability to each one. Morris and Rip (2006) identify the appeal for research funders of upholding the culture of science in order to create a bond with the scientific research community without jeopardising their relationship with government.

Dutch research (de Jong et al., 2016) provides an example of how new knowledge transfer expectations – in this case, the expectation researchers would provide more societal impact information in research grants – needs careful positioning to take account of the role of research funders as a boundary agency. Focus groups among researchers examining the impact of the new requirement for more societal impact information found a “puzzled academic community” (de Jong et al., 2016, p. 111). These findings led the authors to conclude that the Dutch research funder was not successfully playing its role as a *buffer* between government and the academic community. In focus groups, the participating researchers voiced concerns about whether there was a tension between societal impact judgements and academic excellence, alongside confusion that they were being asked to explain activities that had been part of their daily work for some time (de Jong et al., 2016).



The policies adopted by health research funders are likely to be influenced by the long-standing arguments that research neither can nor should be planned. These arguments were summed up most famously by Vannaver Bush after World War Two when he argued that the United States Government should fund basic research which would deliver ongoing progress to the country in terms of economic growth, national security and health (Bonvillian, 2014). The idea being that the government would invest in “basic science into one end of an innovation pipeline, hoping that industry would pick up the early- and late-stage technology development” resulting in new technology products emerging from the other end of the pipeline (Bonvillian, 2014, p. 1). Since then, scholarship on how new ideas are taken up and used has challenged this simple pipeline approach. Arguments are made for consortiums between researchers and users to overcome gaps in the pipeline – gaps popularised as the “valley of death” (OECD, 2010). In the health sector the rise of “translational research” involves identifying specific translation gaps to be bridged. T<sub>1</sub>, for example, is related to the transfer of basic discoveries into human clinical testing, T<sub>2</sub> refers to the dissemination and adaption of successful clinical discoveries into daily clinical practice, while T<sub>3</sub> deals with the dissemination of new clinical treatments (for example, the development of guidelines for clinical practice, patients and the general population) (Molas-Gallart et al., 2015).

At the same time, health research funders look to social science understanding to support their overall mission to improve health. Within the public health field there are numerous studies providing insights into how research informed knowledge can be shared and applied in healthcare settings. These call for attention to be paid to political, psychological and organisational factors. Davies et al. (2015) sourced 18 evaluation studies (generally based on case study methodologies) of what health based agencies have learnt from their efforts to improve knowledge mobilisation (another term for knowledge transfer). They summarised the key learnings in the following summary of what is known about successful approaches;

These tend to tailor research-based resources to the preferences and access needs of different audiences and interactive approaches are generally more effective than passive dissemination, although there remains a role for traditional approaches (e.g. some agencies found that service organisations did use their evidence briefings without any interaction with the agency). Ongoing networking activities between researchers, policy makers and practitioners also seem promising. Partnerships between practitioners and researchers, working together to facilitate evidence use (e.g. using action planning and service improvement techniques) and co-production approaches (involving potential users in all stages of the research process) seem fruitful but require substantial and sustained resources, clear processes and efforts to ensure the partnerships are meaningful to all parties. (Davies et al., 2015, p. 129).

Sampat (2012) portrays a tension within health research between the science and health constituencies. Those from a science perspective (in the main biomedical researchers) argue that progress against specific diseases comes from any unplanned research, while those from a health perspective (more commonly, a public health social science perspective) are more attuned to the concept that research funding should reflect the overall burden of health disease. In New Zealand, constituencies attuned to both the overall burden of disease and the significance of New Zealand's Treaty of Waitangi, are likely to also argue for an indigenous understanding of what will improve health outcomes (Sporle & Koea, 2004a, 2004b).

The heightened interest by health research funders in moving health research, particularly clinical findings, quickly into practice has led to an interest in creating one-off targeted investments in applied research on top of an ongoing biomedical investment. Sampat (2012), for example, identifies what he terms "safety valve" investments by the United States National Health Institute (NIH) which allow the NIH

to target research at particular diseases and priorities, while still maintaining a large base of untargeted biomedical investment and garnering ongoing political support.

Sarewitz and Pielke (2006) argue that research funders spend more effort allocating marginal increases in funding, as little is actually known about how best to design research investments to achieve desired societal outcomes. In support of their argument, Sarewitz and Pielke give a number of reasons why research funders might not attempt more radical change including: (i) the widespread belief that more research automatically translates into more societal benefits, (ii) the insulation of research policy decisions from the contexts within which the research is used, and (iii) the capture of research policy decisions by particular constituencies. For an example of the latter, Sarewitz draws on the experience of the 40-year war on cancer in the United States, where despite many millions invested in the fundamental understanding of the molecular-genetic mechanisms, only modest societal benefits have been achieved. Sarewitz suggests different disciplinary views over the best way to achieve health gains could explain why an equal focus was not given to the more public health focussed cancer prevention research (Sarewitz, 2010).

Health research funders regularly find themselves not only mediating between the interests of researchers and users but also between the different expectations of what can be achieved by biomedical and public health research. A multinational research study – Project Retrosight – investigated the payback from a diverse range of cardiovascular and stroke research funded by Australian, Canadian and United Kingdom health research funders by undertaking 29 case studies (Wooding, Hanney, Pollitt, Grant, & Buxton, 2014). A key conclusion was that when the research team had thought about the pathways by which their research could potentially be translated into practice, then this was associated with achieving wider impacts (that is, informing policy and product development, health and health sector development and broader economic benefits). The case studies also confirmed that researchers who want their work to influence users are more likely to be successful if they collaborate in some way

with them. Reflecting on the last finding, Wooding and colleagues (2014) suggest their research provides support for moves by research funders to require a discussion of the potential translation in research applications, particularly for basic research that has a clear clinical motivation. The concluding advice for research funders from Project Retrosight is that:

Research funders can justify funding research of diverse types, but should not assume academic impacts are a proxy for wider impacts. They should encourage researchers to engage potential research users in the research process, and do what they can to assist researchers to consider pathways towards impact. They should also, where relevant, consider the finding that basic research proposals that have a clear clinical motivation seem, at least in a 15 to 20 year timescale, more likely to make a wider impact (Wooding et al., 2014, p. 11).

Estabrooks and colleagues support their claims for what they describe as a new international model of *engaged knowledge translation* by health research funders by listing the following activities: (1) the Canadian Institutes of Health Research (CIHR) increased emphasis on knowledge translation, (2) the United States National Institutes of Health (NIH) requirements for knowledge transfer strategies, and (3) the UK's Medical Research Council (MRC) mandate for knowledge transfer (Estabrooks et al., 2008). Reviewing the current content on the websites of each of these agencies reveals that new terms, such as “pathway to impact statements” and “translational research”, have been added to replace the 2008 language of “knowledge transfer” or “knowledge translation”.

Since 2008, the CIHR has produced a knowledge translation guide to build the capacity of researchers to provide knowledge transfer information in proposals and to improve the capacity of assessors to judge what is provided. The MRC, by contrast, no longer refers directly to the term “knowledge transfer”, but asks researchers to provide

“pathway to impact statements” in their research applications. Applicants are advised that their impact statement should cover: (i) identifying and actively engaging relevant users of research and stakeholders at appropriate stages, (ii) articulating a clear understanding of the content and needs of users and considering ways for the proposed research to meet these needs or impact upon understandings of these needs, and (iii) outlining the planning and management of associated activities including timing, personnel, skills, budget, deliverables and feasibility.

In 2016, the NIH website<sup>2</sup> also makes no specific reference to requirements for knowledge transfer strategies, though reference is made to the establishment of four centres of translational science, as well as training programmes for clinicians in translational science. The NIH National Centre for Advancing Translational Sciences goes to great trouble to expand on the interactive nature of what they do. Their website includes a fact sheet with the following definition of translational science:

The translational science spectrum represents each stage of research along the path from the biological basis of health and disease to interventions that improve the health of individuals and the public. The spectrum is not linear or unidirectional; each stage builds upon and informs the others. At all stages of the spectrum, NCATS develops new approaches, demonstrates their usefulness and disseminates the findings. Patient involvement is a critical feature of all stages in translation (National Center for Advancing Translational Sciences, 2015).

In his overview of the different funding policies sparked by an interest in creating connections between industry and government rather than pipelines, Sen (2013) introduces the NIH centres as illustrative of a trend to overturn pipeline models of technology development.

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<sup>2</sup> <https://www.nih.gov>

Much has already been written about how the knowledge transfer field struggles with consistency in definitions and concepts (see, for example, Colquhoun et al., 2014; Davies et al., 2008; Greenhalgh & Wieringa, 2011; McKibbin et al., 2010). It is therefore not surprising to find that the sample of health research funders followed above are blending new terms, such as “pathway to impact statements” and “translational research” into older language concerning knowledge transfer.

A 2008 international survey of health research funders by Tetroe and colleagues concluded that a lack of conceptual clarity over what is meant by knowledge transfer, as well as uncertainty over who is supposed to fund the activity, has meant the eyes of health researchers “dart around in confusion”, when knowledge transfer is deployed as a reason for them to do “even more with their limited time and research grant funds” (Tetroe, et al., 2008, p. 158). Since then, the field of implementation science has been actively filling the gap in understanding what works through detailed work in different health sector contexts (see for example Grimshaw, Eccles, Lavis, Hill, & Squires, 2012), though critiques are still pointing out that this advice is not clear-cut, with inconsistent labelling, poor descriptions and an overall lack of operational guidance (Proctor, Powell, & McMillen, 2013). Harsher critiques challenge the lack of theory-building in the field (Brehaut & Eva, 2012) with insufficient attention being paid to existing theory (Salter & Kothari, 2014).

The changes being put in place by research funders sit within broader changes aimed at assessing the value of university research. The United Kingdom’s Research Assessment Exercise and the New Zealand Performance-Based Research Fund assess and fund university research according to a set of predetermined quality criteria. Much of the thinking in these research impact and assessment frameworks has come from the knowledge transfer literature, yet bitter debates have emerged on the suitability of this body of scholarship when it is applied to directly shaping the way funding is distributed to universities (Donovan, 2011).

Concerns are raised that these quality indicators compromise research by steering it away from the imaginative quest for knowledge (Penfield, Baker, Scoble, & Wykes, 2013) fail to align with the motivations of academics (Upton, Vallance, & Goddard, 2014), and do not take into account different views within different academic communities of what is quality and what is a credible impact from research (Hug, Ochsner, & Daniel, 2013). These concerns about the retrospective assessment of research quality (also known as an ex-post assessment of research impact) do not always translate into concerns over the prospective assessment of research impact (that is the ex-ante assessment undertaken by research funders). Upton et al. (2014) contend that academics are more motivated to engage with this type of ex-ante knowledge transfer policy because time and money is made available to those academics already enthused about knowledge transfer.

To sum up, the response by health research funders to calls to increase the attention they pay to knowledge transfer is likely to be shaped by the range of interests they manage. These interests are shaped by the politics between biomedical and clinical and health services research. Moreover, these policies sit within a context of an increasing interest from governments in research funders demonstrating a return in value from the research being funded and a lack of precision over which knowledge transfer policies work best.

## 2.2 THREE GENERATIONS OF THINKING ABOUT KNOWLEDGE TRANSFER

Over the last 20 years, different ideas concerning the ways in which research, policy and practice inform and interact with each other have been put forward. In this section, I discuss the trajectory of these different views. I put forward the argument that some of the uncertainty from researchers on what they are expected to do may emerge from the ways in which these different views continue to operate in parallel within health research funders' knowledge transfer policies. While there is a progression of thinking from simple linear views on how knowledge transfer works to

more complex thinking, the policies adopted by research funders are likely to include an overlay of three “generations” of knowledge transfer thinking.

Best and Holmes’ categorisation of three generations of knowledge transfer thinking tracks a progression from: (1) linear explanations of research flow, to (2) relational approaches, and finally (3) systems thinking (Best & Holmes, 2010). This section introduces these three different generations of thinking alongside their conceptual bases in the research utilisation, diffusion of innovation and sociology of science literatures. Figure 2.1 maps the way these conceptual bases have each influenced a dominant understanding of the type of knowledge transfer policy needed. The schematic in Figure 2.1 places boundaries around the three conceptual bases. Over time, however, ideas from one tradition have combined with another. For example, the emphasis in the later research utilisation literature on interactive models of research use (and resulting policies sparking engagement between researchers and end-users) mirrors the diffusion of innovation emphasis on the importance of social relations in ensuring new knowledge is taken up. These are not hard and fast boundaries, though for the purposes of presenting this overview, each of these conceptual bases is discussed in turn.

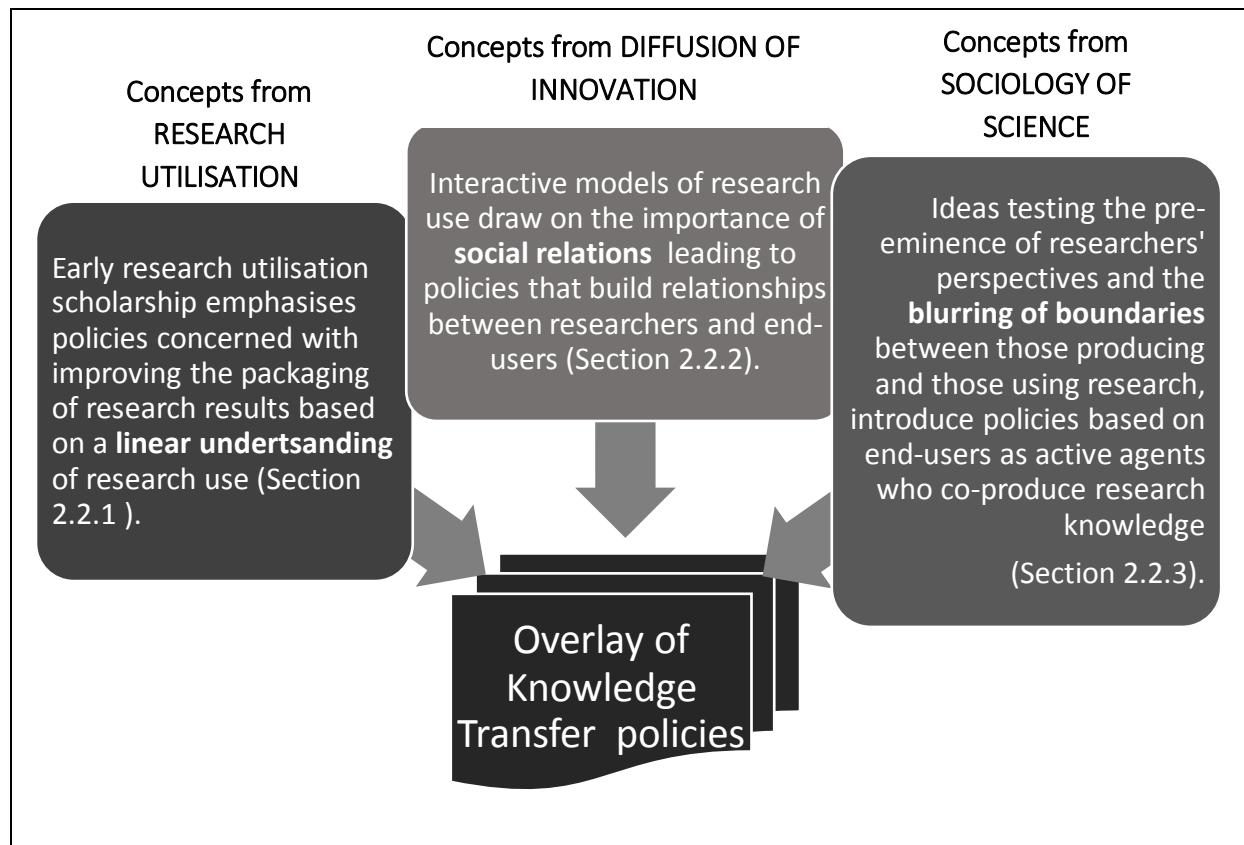
### 2.2.1 Research Utilisation

The research utilisation literature has delineated the complexity by which research moves into policy and practice, drawing from case studies of how policy-makers and practitioners actually use research. Weiss’s (1979) account of the indirect ways in which research regularly feeds into policy action has been particularly influential. Early explorations of the research-policy relationship assumed that research findings were applied in a rational process to help solve society’s problems. From 1979, Weiss pointed out that the linear rational view bears little resemblance to practice. She identified seven typologies to explain how research based knowledge is used – knowledge driven, problem solving, interactive, political symbolic, tactical,



enlightenment and societal (Weiss, 1979). These typologies are still drawn on today to help explain the variety of ways research may lead to change (see, for example, Kuruvilla, Mays, Pleasant, & Walt, 2006).

FIGURE 2.1: SUMMARY OF THREE GENERATIONS OF THINKING



In New Zealand, Gluckman's provision of a taxonomy of research impact (while it does not reference Weiss) does something similar in providing a set of categories to help explain the diversity of ways research may lead to benefits (Gluckman, 2014). He argues that if these distinctions are understood by researchers, then they are likely to result in more realistic claims being made about the benefits flowing from research in knowledge transfer pathways in research applications. As he explains:

... if at the outset, researchers are asked to state specifically the expected implications of their work [using a taxonomy of different types of

impact<sup>3</sup>] ... then the onus is placed on the researcher from the beginning to think about how their work will have impact and how this can be validated at appropriate intervals. This approach has the potential to change the mind-set of the scientist without creating detailed and unrealistic “milestones” or inappropriately tying the research to unrealistic claims about end-user potential, but highlighting end-user expected implications to end-users when it is appropriate to do so (Gluckman, 2014, p. 4).

The social science community has paid particular attention to examining why the expected benefits from research have not always accrued. The argument developed by Caplan for the need to bridge two distinct communities has been influential. He describes the two worlds of the researcher and policy maker thus:

Social scientists and policy-makers live in separate worlds with different and often conflicting values, different reward systems, and different languages. The social scientist is concerned with “pure science and esoteric issues”. By contrast, government policy-makers are action oriented, practical persons concerned with obvious and immediate issues (Caplan, 1979, p. 459).

In the last two decades, accounts of the different world views of researchers, policy-makers and practitioners have been regularly provided in the hope that explaining these differences sets the scene for finding solutions (see, for example, Dhaliwal & Tulloch, 2011). A pithy summary of what has been learnt from the body of work on the barriers to, and the facilitators of, the use of research distils two key findings: (i) the

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<sup>3</sup> Gluckman introduces a taxonomy of what can be expected from conducting research which includes advancing knowledge and developing the scientific workforce, alongside social, health, environmental, economic, and preparedness impacts, as well as increasing a nation’s reputational and diplomatic impact (Gluckman, 2014).

importance of personal relationships and contacts between researchers and decision-makers and (ii) the need for research to be clearly and accessibly presented (Oliver, Lorenc, & Innvæ, 2014). Recent commentary on what has been termed the “barriers and facilitators literature” has criticised the tendency to offer no more than a thick description of the implementation process (Ling et al., 2011). Nutley and colleagues’ review of the knowledge transfer field concluded that simple prescriptions miss the complexity of what is happening:

Simple surveys of what seems to support or inhibit the use of research can only take our understanding of the research use process so far. This means we need to attend in more depth to the ways in which these different “factors affecting” interact, in complex and dynamic ways, in complex and dynamic contexts (Nutley et al., 2007, p. 89).

Much of the research utilisation field concerns itself with seeking explanations of why end-users may not have acted on research results. Assessments of the field overall point out problems with the quality of what is produced, claiming that the field is very good at ruling out particular actions and ideas, such as the idea that the research policy nexus can be understood in terms of rational linear decision-making, but less insightful about what could be ruled in (National Research Council, 2012, p. 52). Oliver and colleagues claim that the agenda of getting evidence into policy has sidelined the analysis of how research and policy actually interact. Further, that without “understanding the complex processes of policy and knowledge mobilisation, researchers who make policy and practice recommendations may simply be ignored” (Oliver et al., 2014, p. 8).

The health-focused “implementation science” subset of scholarship provides insights about the actions that are most likely to increase the speed with which research is used in the healthcare practice. This scholarship concentrates on how best to

incorporate research into routine healthcare in a timely and reliable fashion (as summarised in a history of the journal "Implementation Science", Eccles, Foy, Sales, Wensing, & Mittman, 2012). The field of implementation science has shown an early tendency to view the research-practice relationship as linear. Despite Weiss's early work seeking to overturn the linear rational view of research use, aspects continue to endure in the body of work providing clinical guidelines, tool-kits, training and tailored communication materials to help ensure that the practice of health professionals is in line with the evidence. The growth of best practice reviews, on-line repositories and linkage websites, as well as think-tanks that re-package ideas and research to more effectively communicate to target groups, provide evidence of an enduring interest in improving the supply and accessibility of research. A linear view of how research operates endures in the language used to characterise the gap between health research and health practice as one of a series of "translation gaps". These gaps are sourced back to the gap between the description of a new clinical intervention and initial clinical trials (T1 or first translation gap) and the gap between evaluation of new interventions in health technology assessment studies and the embedding of the new intervention in clinical practice (T2 or second translation gap) (Cooksey, 2006).

Those agencies whose whole existence is concerned with the production of research struggle to break free from seeing research as the starting point of a linear succession of impacts. A survey by Davies and colleagues of agencies engaged in knowledge mobilisation found, for example, that despite a recognition of the importance of linkage and exchange (discussed more fully under the following diffusion of innovation section), "many agencies experience a strong pull back to the creation of knowledge products, with a strong emphasis on the rigours of the underlying research base and the credibility of the evidence sources" (Davies et al., 2015, p. 124).

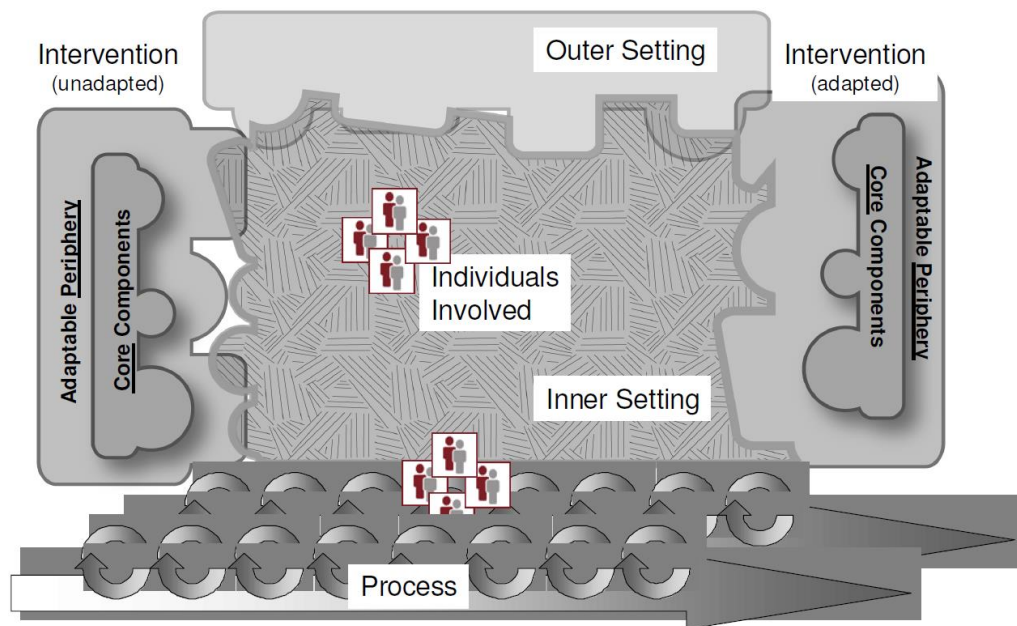
Best and Holmes (2010) suggest the linear view is likely to be a good choice in situations where there is a supportive culture and incentives for practitioner behaviour

change, and where the ideas involved have a high relative advantage, low complexity, low risks and costs. The latter point is confirmed by research on the way research results are packaged and presented to health policy-makers (Innvaer, Vist, Trommold, & Oxman, 2002). Those producing these products are advised to consider a variety of context- and issue-related factors when preparing them, including the culture of receiving institutions towards research-based knowledge, the polarising potential of the issue under investigation, and how closed or open the policy community is (Moat, Lavis, & Abelson, 2013). Equally, the findings from implementation science have been concerned with advising on the best audience-specific knowledge transfer strategies to apply in different situations (for example when best to use clinical guidelines, audit and feedback, or training tool-kits).

As the research utilisation field has developed, scholarship has accumulated on the factors most likely to influence the use of research. The linear view of research endures in policies that conceive of research as a knowledge product that merely requires better tools for translation. The research utilisation field as a whole, however, is increasingly emphasising the different features which need to *interact* to increase the likelihood new knowledge is used. Figure 2.2 provides an example of this scholarship presented in the form of a “framework” of the essential constructs that are believed to influence (positively or negatively) the implementation of new innovations. Damschroder et al. (2009) Consolidated Framework for Implementation Research (CFIR) provides an overarching typology of the theories related to dissemination, innovation, organisational change, implementation, knowledge transfer and research uptake. In total, 19 theoretical models are combined to produce a “meta theoretical framework”. As displayed in Figure 2.2, the CFIR presents the many levels which interact to influence the creation and spread of innovations: the micro (the characteristics of individuals), the meso (the organisational setting), and the macro (the broader policy and inter-organisational context). The authors explain that the shapes in Figure 2.2 are deliberately made to be irregular in order to demonstrate that adaptations are often needed to fit particular settings (Damschroder et al., 2009). The CFIR is just one of a number of visual representations that have

developed to convey the rich and complex ways new knowledge moves into practice. At the end of the chapter, I explore in greater detail the role these frameworks and models play in helping researchers decide what to include when they draft a “knowledge transfer pathway” in their research applications.

FIGURE 2.2: CONSOLIDATED FRAMEWORK FOR IMPLEMENTATION RESEARCH (CFIR)



(Damschroder et al., 2009)

### 2.2.2 Diffusion of innovation

In contrast to the early research utilisation scholarship, later scholarship has increasingly conceived of the relationship between research and its ultimate use as an interactive rather than a linear process. The evidence offered by Rogers (2003) of the extent to which knowledge diffusion occurs via *social relations* has been particularly influential. With its origins in the scholarship on technological innovation, scholarship on the diffusion of innovation is concerned with all forms of knowledge, not just knowledge formed by research, yet the ideas have been influential in encouraging research funders to adopt particular types of knowledge transfer policies. An extensive body of commentary and research has come out of Canada, for example,

arguing for policies that provide more opportunity for researchers and decision-makers to engage in ongoing exchange (see specifically, Lomas, 2000; Reardon et al., 2006).

Systematic reviews assessing what has been learnt from research on how new ideas are taken up have reinforced the importance of a researcher having personal contacts with users and building trust through quality relationships over time (Constandriopoulos et al., 2010; Greenhalgh et al., 2004; Mitton et al., 2007). Examples of efforts to create institutional arrangements based on this relational view of how research is taken up are seen internationally in networks designed to create sustained interactions between academics and health services (Oborn, Barrett, Prince, & Racko, 2013; Rycroft-Malone et al., 2011) as well as in the creation of individual boundary spanners and brokers who actively orchestrate social networks to create promising areas of research enquiry (Fuchs, 2010).

Health research funders have put in place specific policies mandating partnerships between researchers and users, and occasionally between researchers and the wider public. Investigations have been undertaken on what helps makes these partnerships work. Nutley and colleagues explain that these partnerships are not merely for the handoff of research findings, but are a process of engagement with research users covering multiple stages, for example, “developing research questions, clarifying the research design, interpreting the research data and communicating the research implications” (Nutley et al., 2007, p. 286). Research on what helps makes these partnerships work emphasises the importance of: (i) active rather than forced or tokenistic partnerships (Sibbald, Tetroe, & Graham, 2014), (ii) playing particular attention to the “real life” concerns and needs of clinicians who are agents on the ground (Heaton, Day, & Britten, 2015), and (iii) building trust to create momentum over time and produce resilience in the face of obstacles (Jagosh et al., 2012).

A recent review of 13 integrated knowledge translation projects looked at what was happening in collaborations between researchers and decision-makers (Gagliardi,

Berta, Kothari, Boyko, & Urquhart, 2016). The study highlighted that while collaborations between researchers and decision-makers were expected to reveal differing perspectives, expectations and values enabling more effective and sustained partnerships, few of the studies reviewed actively tested any theory or explained the nature of the meetings that were the foundation of the collaboration. Gagliardi and colleagues concluded that whether involving decision-makers throughout the course of a research initiative actually achieves better outcomes is likely to depend on a number of conditions that are only just starting to be understood.

### 2.2.3 Sociology of science

In contrast to the other two conceptual bases, the sociology of science studies tracks the social and political context of changes in science and technology and illuminates the dominant interests in the research culture and the way these raise barriers to new knowledge transfer expectations. In this scholarship, the use of research is not viewed as a politically neutral exercise in the transmission of facts, nor is the researchers' perspective pre-eminent as the sole knowledge producer. A number of the ideas introduced under the sociology of science concern the blurring of boundaries between those producing and those using research. The type of knowledge transfer policies recommended as a consequence are based on end-users as active agents who co-produce research knowledge.

Greenhalgh and Wieringa challenge the notion that research-based knowledge is an objective, context-free product which needs to be "summarised, packaged, prioritised and presented in a form understandable and useable by practitioners" (Greenhalgh & Wieringa, 2011, p. 507). Their narrative review of the knowledge translation literature proposes that the way disciplines such as philosophy, sociology and organisational science conceptualise knowledge as created, constructed, embodied, performed, or negotiated offers a lens into a richer knowledge transfer agenda.



This richer knowledge transfer agenda includes arguments away from concepts such as knowledge translation with its emphasis on closing a gap between research and action to be replaced by “ideas about learning, contribution and co-production” (Oliver et al., 2014, p. 5). These ideas have been developed from two key sources: (1) an interest in system thinking and (2) a recognition of the shift in research practice from what is termed Mode 1 science to Mode 2 research (Gibbons et al., 1994).

#### 2.2.3.1 *System thinking*

System thinking highlights how knowledge transfer works in ways that are conditional, contextual and relational. Best and others describe a system thinking approach that:

... recognises that relationships are shaped, embedded and organised through structures that mediate the type of actions that occur among multiple agents with unique rhythms and dynamics, worldviews, priorities and processes, language, timescale, means of communication and expectations (Best et al., 2009, p. 628).

While there is general agreement that the concept of knowledge transfer in the system thinking approach is a complex, non-linear and locally contingent process, the consequent shape of effective knowledge transfer policies is less certain. Greenhalgh and colleagues’ systematic review for the National Health Service highlights the richness of what is involved in a system view when they sum up the extensive literature on how best to spread and sustain innovation in health service delivery (Greenhalgh et al., 2004). The review uses links across 13 distinct disciplinary traditions to develop a model of diffusion encompassing the different attributes of an innovative idea, the likely adoption by individuals and the potential to be assimilated into a system. Overall, the authors advocate a move away from linear views of implementation towards richer more complex accounts of the process of change, including a greater consideration of the role of individuals within the change process. Within the system thinking approach, a stronger focus is given to the importance of

change agents, opinion leaders, or champions as described in Rogers's diffusion of innovation theory (Rogers, 2003).

A contrasting before-and-after picture by McDonald and Viehbeck (2007) provides some insight into the ways researchers might work within a "systems thinking approach". Using the experience of a tobacco control project based on Wengers' notion of community of practice, McDonald and Viehbeck describe an early "research as enlightenment" approach that portrays researchers as believing their research should naturally lead to the enlightenment of intended users simply by being presented at conferences and published in peer-reviewed journals. They portray these researchers as choosing research questions based on "personal interests and curiosities" that will appeal to their peer reviewers and have little relevance for needs of practitioners trying to address social and health mandates. For McDonald and Viehbeck, "true knowledge translation rests with creating systematic opportunities for meaningful, focused interaction or exchange between parties that share a common desire to improve a common practice" (McDonald & Viehbeck, 2007, p. 142). They advocate for development of communities of practice which are dynamic social structures where the focus is "not only on *sharing* best practices but also on *creating* knowledge and resources to advance the practice or issue of interest" (p. 142, italics in original).

The community of practice approach suggested by McDonald and Viehbeck endorses the view that researchers should be part of networks with members of a community of people with whom, over time, they will collaboratively develop "a shared history, language, stories, resources, and technical standards. There is an expectation that social capital and cohesion will be generated through mutual negotiation, norms of reciprocity, and the creation of trust between members." (McDonald & Viehbeck, 2007, pp. 142-143). A realist review on how mandated research and practitioner networks operate (McCormack et al., 2013) found support for the importance of opinion leaders and facilitator roles, but it was difficult to know in which contexts these networks work best, with some support for the idea that a change agent working

to bring networks together is more likely to succeed if they are a good “fit” in terms of cultural compatibility.

Buried within the system thinking approach are challenges to the neutral position of researchers. Arguments are presented for an “engaged scholar”, who is a researcher that partners with other actors whose aims might be clearly agreed or might evolve as learning from research is integrated within the system (Best & Holmes, 2010; Van de Ven & Johnson, 2006). However, as Morton points out, it is possible that researchers within an engaged approach have to choose whether:

... to place themselves on the sidelines of public policy in order to maintain a critical stance in relation to developing agendas, or work specifically to challenge or change dominant agendas either through championing voices seen as outside policymaking, or creating debate around the nature of policy trends (Morton, 2015, p. 5).

A growing sub-set of literature is exploring the implications of the new university performance management systems –also known as the “impact agenda” – on academic life (see, for example, Martin, 2011). This literature highlights the difficulties in managing ambiguous loyalties, reconciling different interests and negotiating competing goals between academics and practitioners. While arguments for greater co-operation between practitioners and academics rest on the potential to increase the likelihood research results are used, experiences of co-production also invoke concerns about boundary clarity and the need to protect academic freedom and independence (Nutley, 2010).

A further strand of thinking, questions whether the call for more knowledge in a shorter period of time will actually result in the type of useful knowledge needed. The slow science movement (see [www.slow-science.org](http://www.slow-science.org)) emphasises the necessity of slow and thorough thought about goals, means and processes for the beneficial

achievement of science. One study of the effect of the accelerated pace of academic work on postdoctoral scientists (Müller, 2014), expresses concerns that the temporalities of their work and career could result in these researchers pursuing research questions that are more predictable in terms of their outcomes.

#### 2.2.3.2 *A shift from Mode 1 research to Mode 2 research*

The ways in which research based knowledge enters complex systems has given rise to new understandings about the practice of research. These new understandings have contrasted Mode 1 research (conventional scientific research driven by curiosity) with Mode 2 research (where research emerges from active two-way partnerships between researchers and other stakeholders) (Gibbons et al., 1994).

Greenhalgh and Wieringa (2011) tease out the different ways knowledge transfer is viewed within these two forms. Whereas in Mode 1 research knowledge needs to be translated in order to be applied, by contrast, in Mode 2 research the knowledge generated is considered to be part of the application from the outset. The expectation is that the researchers involved anticipate and reflexively engage in the consequences and impacts that their research activities generate and are therefore producing what is described as *socially robust* knowledge (Hemlin & Rasmussen, 2006; Nowotny et al., 2006). Fieldwork in universities has shown a discrepancy between the popularity of the Mode 2 concept – which has inspired research funders to call for more solution-focused research – and the reward structures in universities that are often not compatible with the production of Mode 2 research (Hessels & Van Lente, 2010).

#### 2.2.3.3 *Policies still in their infancy*

While system thinking and Mode 2 research is being actively promoted, practical tools and strategies have yet to emerge that are specifically directed to research funders. At this early stage, the best summary of knowledge transfer policies built from system thinking involves calls for all stakeholders (researchers, research participants and

research users) to be active collaborators in the modelling and solution-seeking process around an issue of collective importance. Furthermore, there is an expectation that researchers will be part of wider networks that develop ongoing social capital and cohesion, though this involvement may result in challenges to the “neutral” stance of researchers and require ongoing negotiation to manage different goals and interests.

## 2.3 IDEAS OPERATING IN PARALLEL

The growing rejection of one-dimensional linear views of knowledge transfer and movement towards more complex notions of relational and system thinking approaches is a trajectory well described by other scholars (Ferlie, Crilly, Jashapara, & Peckham, 2012; Nutley et al., 2007). Yet, while there is a progression of thinking from simple linear views to more complex thinking, policies to improve knowledge transfer continue to draw on concepts from within one or more of these three generations of thinking, with the consequence that at any one time these ideas may be operating in parallel.

What this means in practice is that agencies whose mission is the production of research are still likely to be juggling policies based on different premises:

- **Linear views of research** underpin knowledge transfer policies that expect researchers to tailor their research results for different audiences. These are likely to be more effective in situations where the research results have a high relative advantage to the status quo, have low complexity, and involve low risks and costs to implement.
- **Relational approaches** to knowledge transfer emphasise closer collaboration between research creators and users. These are more likely to be effective in

situations where the organisational culture of the user favours evidence-informed planning, decision-making and resource allocation.

- **System thinking** encourages researchers to be part of networks with whom they can develop ongoing social capital and cohesion resulting in new forms of co-creation of knowledge and ideas. However, the type of policies that create these environments are still in their infancy and raise challenges to the neutral and objective stance of researchers.

One consequence of the overlay of ideas of how knowledge transfer works is the high potential for confusion for researchers in knowing what is required when they are asked to undertake more knowledge transfer activities. The following section discusses in greater depth the results from a diversity of studies that ask researchers what they do in response to different types of new knowledge transfer expectations. These studies identify the potential for confusion, alongside caveats over what researchers are prepared to be accountable for, and cynicism over what is being requested.

## 2.4 WHAT IS KNOWN ABOUT HOW RESEARCHERS RESPOND?

A picture of a mixture of caveats, confusion, careerism and cynicism emerges from studies exploring how researchers respond to different types of knowledge transfer policies. The majority of studies report on surveys and focus groups that were designed to explore what researchers do when asked by research funders to do more to influence others to pick up the results of their research. Some of the commentary and empirical research assessing the effect of the rise of research performance metrics on academic careers is also included in the following sections, as these provide a lens into the ways different research disciplines have different experiences with respect to knowledge transfer.

#### 2.4.1 Caveats over what researchers are responsible for

Concerns are regularly voiced over how much the impact from particular pieces of research can be attributed to the actions of researchers. This question has been the focus of much United Kingdom discussion as the latest version of the Research Excellence Framework (REF) apportions funds to university research based in part on case studies on the impact of pieces of research. The debate on the feasibility of including impact case studies in the suite of performance measures is vigorous across disciplines. A wealth of commentaries point out the complex interplay between what researchers can do to increase the use of the research and factors outside their control and claim that certain disciplines have a particular advantage (Allen, 2012; Martin, 2011; S. Smith, 2012).

One commentary, for example, stresses that arguments against the inclusion of case studies come from well-established academic disciplines positioned furthest from the “user”, such as some of the physical sciences and the humanities, while the “impact agenda” has been supported by members of disciplines whose research interests position them close to the user, such as the health, medical and pharmaceutical sciences or educational researchers (S. Smith, 2012). The call for impact case studies has its origins in the research evaluation literature’s scepticism about linear notions of impact, yet the way impact assessment has been converted from a labour-intensive research “craft” activity by impact researchers into a system-wide performance measure has a number of critics (Martin, 2011). Some consider this a misuse, stressing it is complex to design a measures of impact that are both economical to use and capable of reflecting the realities of research (Allen, 2012).

A number of scholars with an interest in the assessment of research impact point out that what researchers can be held accountable for is not a direct change in policy or practice, but whether researchers have had productive interactions with end-users. Spaapen and van Drooge (2011) investigate the interaction processes between

researchers and end-users in a European study looking to improve the measurement of the social impact of research. The authors concluded that the social impact of research is difficult to measure given the long time lag between research and a particular impact. Moreover, given the multiple ways research can influence change, as displayed in such frameworks as Damschroder and colleague's (2009) Consolidated Framework for Implementation Research, it is hard to attribute observed impacts to research activities. They introduce the idea of productive interactions – defined as exchanges between researchers and end users that lead to efforts by end-users to somehow use or apply research results. These interactions, they claim, are:

... closer to the process that the researcher is able to influence, that is, closer to the actual practice of the researcher doing research and interacting with stakeholders (Spaapen & van Drooge, 2011, p. 216),

Concerns with what is *realistic* to expect from researchers also emerge from work on the impact of the social sciences by London School of Economics scholars who argue that the most useful way to conceive of a “a research impact” is as an occasion of influence. As these scholars explain “changes in organisational outputs and social outcomes are always attributable to multiple forces and influences”, therefore, “verified causal links from one author or piece of work to output changes or to social outcomes cannot realistically be made or measured in the current state of knowledge” (Public Policy Group, 2011, p. 5).

Davies and colleagues (2015) reflect on the rise of relational approaches to knowledge transfer suggesting that that not only do these approaches fail to give sufficient attention to meaning/power negotiations, but that much depends on researchers being able to develop new skill sets that go beyond talking about research findings to their academic peers. Such relationships are “also affected by organisational



turbulence: if there is high turnover in policy or practice (or academic) settings, then it will be more difficult to develop ongoing relationships” (Davies et al., 2015, p. 38).

Some have cautioned that researchers may not be the most appropriate people to undertake knowledge transfer roles. As mentioned earlier, Holmes and colleagues (2012) claim it is unrealistic to expect researchers to develop the broad range of skills required for effective knowledge sharing. Grimshaw and others (2012) suggest researchers should only be the messengers when they have credibility with the target audience and possess the skills needed to translate the research at hand. They argue that a more appropriate approach to knowledge transfer may be the development of knowledge infrastructures by health-care systems; infrastructures such as electronic databases and search engines, knowledge brokers and training programmes on how to search for information.

One survey of United States public health researchers publishing between 2008 to 2011 (response rate 54.5 percent) found the majority of respondents estimated they spent less than 10 percent of their time on the dissemination of their research.

Dissemination was defined as the “active approach of spreading evidence-based information to the largest audience via determined channels using planned strategies” (Brownson, Jacobs, Tabak, Hoehner, & Stamatakis, 2013, p. 1693). Only 17 percent of respondents always or usually relied on a framework or theory to guide their dissemination efforts and 34 percent always or usually involved stakeholders in their research. For more than half of the respondents, the disseminator should be a team or expert in dissemination or communication. This finding led the authors to suggest that the public health sector can learn from commercial marketers where systems are set up for the distribution, management, marketing, technical assistance and other services (Brownson et al., 2013). Initiatives linking researchers with communication specialists are a relatively popular solution to improve the communication of research results. In New Zealand, the Royal Society’s Science Media Centre offers

communication training for scientists with the aim of improving the engagement with the media and the public.

To sum up, one of the implications of the growing expectation that researchers do more to influence others to pick up the results of their research is that caveats emerge around what researchers can be held responsible for. Under the linear view of knowledge transfer research, attention is paid to where in the sequence the researcher can be held accountable for any resulting change. While researchers can be held accountable for research outputs (e.g. scholarly publications) and for delivering high quality translational outputs and media outputs, any further real world impacts will depend on circumstances outside their control. Under the relational model of knowledge transfer, particularly with its focus on skills in building relationships, the caveat is less about where in the sequence the researcher stops being accountable and more about the depth of skills and the type of preferences the researcher has for more collaborative work.

#### 2.4.2 Confusion over what researchers are responsible for

As the evidence builds that research is not the only source of knowledge that influences final decisions in health policy or practice, researchers can be left confused about the call to undertake more relational knowledge transfer activities. When the evidence-based medicine movement took off in the early 1990s it was assumed that evidence was research evidence, particularly quantitative evidence from randomised controlled trials, systematic reviews and meta-analyses. However, the resulting neglect of other forms of evidence in the delivery of care, such as professional craft knowledge, has been highlighted as the reason why research evidence on its own may not inform practitioners' decision-making (Rycroft-Malone, et al., 2004).

Canadian studies have explored how researchers negotiate the new responsibilities for knowledge transfer. (Graham, Grimshaw, Tetroe, & Robinson, 2005) surveyed 368 "applied health" researchers who had been grant funded between 1995 and 2001 to

learn about the extent to which researchers engaged in knowledge exchange activities. What they found was that researchers more frequently engaged in activities that are part of traditional academic research (such as conference presentations, peer-review publications, reports to funders) than in activities that facilitated the uptake and implementation of research results (education sessions with practitioners, policy-makers, patients, use of knowledge brokers).

When combined with their qualitative results, Graham et al. concluded that, for their researcher respondents, knowledge translation was time- and resource-consuming with few incentives and rewards, and that the researchers lacked knowledge and skills about knowledge transfer. According to the authors, the implications of the study suggested that the types of knowledge translation activities researchers engaged in related more to the expectations and requirements of their funding agency and that researchers lacked skills, experience and confidence to “interact productively with many audiences” (Graham et al., 2005, p. 28).

A United Kingdom survey of 485 principal investigators (response rate 50 percent) on the ways health services researchers disseminated the findings of their research found the majority of respondents recognised the importance of research dissemination, with respondents recognising the need to plan, identify and target key messages at specific audiences. The authors found that although most respondents would routinely “think about targeting potential end-users, only one third would do so in practice” (Wilson, Petticrew, Calnan, & Nazareth, 2010b, p. 6). They further found that dissemination of activities beyond the publishing of academic papers appears to be undertaken in an ad-hoc fashion with little guidance available from funders.

In another article, these authors raise concerns that researchers were not getting clearer guidance from funders and identified 20 frameworks that could be used by researchers to guide their dissemination activities. These covered approaches

involving persuasive communications, diffusion of innovations theory and social marketing. The authors recommend funding agencies should impose a condition in research applications that reference to a particular theory is always given in the section providing an account of the knowledge transfer pathway (Wilson, Petticrew, Calnan, & Nazareth, 2010a).

The United Kingdom's Open University surveyed their own researchers (30 percent response rate) to understand how researchers viewed public engagement in research (Grand, Davies, Holliman, & Adams, 2015). The concept of public engagement with research has its roots in broad concerns that scientists need to do more than simply tell people what they are doing, making more effort instead to engage in a two-way process of interacting and listening to generate mutual benefit. The Open University survey found researchers had a limited view of public engagement, often describing research being “conveyed” “shown” or “explained” to the public. The authors noted the *confusion* on the part of researchers “between dissemination, dialogue and collaboration” (Grand et al., 2015, p. 14). The survey was used to identify areas for future development by the University, as part of a wider strategy for what they termed “engaged research”. One area of future work was to support researchers in assessing and producing feedback on pathways to impact plans.

In subsequent commentary, one of the survey authors (Holliman, 2015) expanded on the need for researchers to produce ambitious, progressive pathways to impact plans, and for those conducting peer review of the those plans to have a framework to provide robust and consistent assessments. Holliman calls for a common understanding of what a high-quality plan looks like, explaining that this should strive towards excellence “in the same way that research is only deemed fundable when it is excellent” (Holliman, 2015, p. 1).

If the experiences relayed above are transferred to what happens in New Zealand, then the consequence for those health research funders who place increased knowledge translation expectations on researchers is that they need to help researchers develop the skills to do this well. They need to clear up any confusion for researchers on what is required and build a commonly understood assessment of what a good quality knowledge transfer plan looks like.

#### 2.4.3 Career trajectories matter

While knowledge transfer may be endorsed in rhetoric, the rewards and resources for researchers still regularly reflect the enduring value accorded to more conventional academic activities (Jacobson, et al., 2004). Health researchers have identified the risks posed to an academic career by making a major commitment to knowledge transfer. The high value placed on traditional academic output means that knowledge transfer ranks lowly when allocating their time and attention. Few researchers receive training or have experience of doing knowledge transfer and the simple lack of administrative support (for example, co-ordinating meetings) can be a barrier (Jacobson, Butterill, & Goering, 2004). For the novice researcher, too much time undertaking knowledge transfer could have a negative impact, not only on tenure and promotion, but also in limiting acquisition of grants and other career scientist awards (Estabrooks, et al., 2008).

A number of studies have looked at who is most likely to undertake knowledge transfer work. A Dutch study, mentioned earlier, reported on focus groups with more- and less-experienced researchers. For junior researchers, the challenge was to include knowledge transfer in ways that does not hinder an academic career, while for senior researchers the challenge was met by bureaucratic requirements to account for how they spend their time (de Jong et al., 2016). Others have found that senior health researchers are the ones most likely to have the skill, knowledge and capacity for the

arduous and time-consuming work of building relationships with end-users (Estabrooks, et al., 2008).

An Australian study explored the extent to which health researchers undertook dissemination actions to facilitate policy and practice impacts. The study followed the experiences of holders of 50 research grants comprising a mixture of treatment/management research, early intervention/screening and primary prevention/health promotion intervention. Using publication records, researcher interviews and expert panel assessments, it was found that experienced researchers had greater opportunities to establish a body of work, develop skills in research translation and dissemination, and use academic, clinical and policy networks to spread findings. A key conclusion was that the greater experience improved a researcher's ability to explain how a single study fitted with a body of evidence as "producing findings consistent with existing evidence and/or building a body of work regarding an intervention seem to increase the likelihood of having policy and practice impacts" (Newson et al., 2015, p. 9).

Studies of knowledge transfer between industry and the academy have underscored how much career trajectories matter: industry experience prior to accepting an academic appointment is associated with a higher likelihood of patenting in an academic career (Branco & Boardman, 2012). Seniority is generally positively associated with the likelihood to engage with industry. Interactions increase as researchers get older and their overall scientific productivity flattens (Branco & Boardman, 2012). General characteristics of trust and personal motivation appear to matter in knowledge transfer, but it is unclear how to cultivate them other than to acknowledge that the local organisational and leadership environments influence these mind-sets (Bercovitz & Feldman, 2008).

To conclude, how researchers respond to the expectations embedded in the different types of knowledge transfer policies is likely to depend to some extent on where they are in their career. Experienced researchers are more likely to have a body of work (rather than a single project) relevant to the issue at hand, and be more secure in challenging the way rewards and resources still regularly reflect the enduring value accorded to more academic activities. In circumstances where practitioner knowledge is also prized, past practitioner experiences, often combined with researcher wisdom, may also increase the chances of securing research funds.

#### 2.4.4 Cynicism over what is being requested

One of the notable differences between the general knowledge transfer literature and the sociology of science literature is the extent to which the sociology of science literature draws attention to divisions within research communities. Critics of the call to provide knowledge transfer pathways complain that researchers get driven by these demands into concocting dubiously plausible claims about the social, business or public policy outcomes likely to flow from their work (Public Policy Group, 2011). A New Zealand ethnographic study found researchers viewed new funding expectations to outline the impact of their research as merely part of “playing the game” to win funding (Hunt, 2009).

Academics are split as to whether they see knowledge transfer activities, particularly those that involve research collaborations with research users, as having a positive or negative effect on the advancement of knowledge. On the positive side, research users can be sources of stimulating problems and unique insights. On the negative side, concerns are raised that narrow short-term projects are the only ones likely to be pursued (Rynes, Bartunek, & Daft, 2001). Scientists have regularly argued that the real work of science is captured by outlining a project’s intellectual merit rather than being asked to make a prediction of whether their research will have an impact (Holbrook & Frodeman, 2011).

Literature coming out of the United Kingdom, describes the change that has come about within the lifetime of an older generation of academic researchers resulting in “an unremitting quest for funding, developing institutional strategies and targeting and scheduling programmes and results to both principals [research funders] and scientific peers” (Morris, 2003, p. 368). Holmwood (2011) suggests that the need for academic researchers to identify research users and research impact are attempts to make certain aspects of public spending more politically palatable in a time of high-austerity public finances. Further, that such calls are consistent with a neoliberal attack on the idea of the publicly funded university.

Research utilisation scholars come from a similar position of trying to overcome the obstacles to the use of research by policy-makers and practitioners. Those authors, influenced by the sociology of science tradition, emphasise the deeply social and political nature of these processes, suggesting that researchers selectively cope with new knowledge transfer policies by using an additional set of professional rules that influence whether they choose to comply or not (Morris, 2003). In the health sector, these rules can be shaped by roles as health practitioners as well as health researchers. Clinical scientists, for example, tend to be positive about knowledge transfer as it aligns with their prior training, work environments and careers. In a telephone survey of 240 health researchers (response rate 60.3 percent), Estabrook and colleagues found “applied medical school researchers” balance traditional scholarly outputs with more interactive interactions with research users, often as a result of clinical practice (Estabrooks, et al., 2008). In contrast, for basic biomedical researchers, knowledge transfer is “high risk” as it is not sufficiently valued by their peers “to form authentic knowledge that would bestow symbolic capital in their field” (Morgan, et al., 2011, p. 949 ).

K. Smith (2007) interviews with health inequality researchers found tensions between researchers who believed health inequalities research ought to be oriented towards providing policy audiences with practical solutions and those who believed academics should facilitate radical and critical thinking. In a later article, Smith expands on the



factors behind this difference (K. Smith, 2014). She outlines how, in this particular policy area, research-informed ideas (rather than the research itself) *evolved* into less politically challenging ideas in part due to the micro-political career interests of researchers who wanted to maintain credibility with policy audiences. She applies Latour and Woolgar's 1986 notion of cycles of credit within the academic system to health inequality researchers' desires to maintain credit with research funders and policy-makers.

The cycles of credit notion refers to the way the credibility of scientists' ideas depends on their ability to communicate these ideas (via publishing), which improves their credibility as scientists, in turn influencing their ability to secure future funding. K. Smith (2014) distinguishes divisions between the researchers she interviews according to three characteristics: (1) the researchers' commitment to reducing health inequalities, (2) the researchers' ideological independence, and (3) their disciplinary training or methodological approach. Interviewees with different characteristics held opposing views on the most effective ways of achieving change, which to some extent overlapped with the extent of change required. Further, Smith found instances where each charged the others with being less "academically independent", and therefore less credible with their academic peers, when they aligned themselves closely with policy interests.

To conclude, the field of science studies tracks the social and political context of changes in science and technology and underscores how knowledge transfer should not be viewed as a politically neutral exercise in the transmission of facts. Literature in this tradition illuminates the dominant interests in the research culture and the way these raise barriers to new knowledge transfer expectations. The potential for cynicism from researchers is high when knowledge transfer expectations conflict with linkages to particular ways of knowing and when expectations are not supported by the institutional arrangements which shape the environment for researchers.

## 2.5 THE ROLE OF KNOWLEDGE TRANSFER MODELS AND FRAMEWORKS

Collectively, the experiences reported in the previous section suggest that any initial theory of *how* knowledge transfer policies work to change the mind-set of researchers needs to take account of different contexts regarding: (i) researchers' career stage, (ii) beliefs around what researchers can be held accountable for (beyond producing research results), and (iii) whether researchers' disciplinary training includes an interest in the views of research users (particularly in order to maintain credit with research funders and policy-makers).

In this final section, I introduce ideas from the literature that could potentially form the basis for how researchers reason when they draft a "knowledge transfer pathway" in a research application. A significant number of detailed models and frameworks have been developed to challenge the notion that research is applied in linear ways. These attempt to demonstrate the many dimensions that need to come together to ensure new knowledge is taken up in policy and practice. Davies and colleagues extracted 25 models (see Box 2.1 for the list) to test with research funders and linkage agencies. They found that while these models and frameworks provide useful accounts of what happens, none of the models had been comprehensively evaluated and, further, when they canvassed how they were used, there was some scepticism of how directly helpful they were:

We observed a fair degree of frustration with the limitations of the existing models, theories and frameworks, which were perceived as overly complex and hard to operationalise. Although theoretical models, theories and frameworks were rarely the main drivers of agencies' knowledge mobilisation strategies, many of our agencies reported being influenced in more diffuse ways by the ideas and debates in the knowledge mobilisation literature (Davies et al., 2015, p. xxiv ).

The role these models and frameworks play is not straightforward. Nilsen (2015) helpfully teases out the difference between theories which provide a clear expectation of how and why specific relationships lead to specific events, models which have a more narrowly defined scope of explanation (often more descriptive), and a framework which does not seek to provide an explanation but fits a phenomenon into a set of categories. These distinctions may help explain why some of the models and frameworks listed in Box 2.1 fail to connect with those in agencies looking to drive change, as they often start from a position where they are not designed to offer help on what to actually do. By contrast, Jacobson (2007) claims knowledge transfer theories are becoming too grounded and utilitarian. She warns the focus on utility is leading to many models that appear “rather prescriptive and cookbook-like in form and content” (Jacobson, 2007, p. 119).

Researchers who undertook a citation analysis and systematic review of the use by other researchers of the Canadian Knowledge to Action Framework, found 146 papers that cited the framework. Yet, only 10 studies actually applied the framework to the design, delivery and evaluation of implementation activities (Field, Booth, Ilott, & Gerrish, 2014). Discussing these findings, Field and colleagues suggested that, while the conventional view is that theories, models, and frameworks are useful to underpin the process of change, in practice their application appears limited. However, they did acknowledge that their conclusion may also be an artefact of what the researchers they reviewed chose to report.

Recognising that research translation models are often too complex, academic or time-consuming for clinicians, community members and health systems, another tendency is to develop simplified models which are claimed to be more intuitive and easily applied (see, for example, Glasgow, Green, Taylor, & Stange, 2012).

**BOX 2.1: KEY MODELS AND FRAMEWORKS (DAVIES ET AL., 2015)**

The Institute for Healthcare Improvement (IHI) Model for Improvement (Langley 1996)
Plan Do Study Act (PDSA) cycles (Kilo 1998)
Ottawa Model of Research Use (OMRU) (Logan and Graham 1998)
The Promoting Action on Research Implementation in Health Services (PARIHS) Framework (Kitson 1998)
Push, pull, linkage and exchange (Lomas 2000, Lavis et al 2006)
Knowledge Dissemination and Utilisation Framework (Farkas et al 2003)
Lavis et al's framework for knowledge transfer (five questions about the research, four potential audiences) (Lavis et al 2003)
Mindlines (Gabbay and le May 2004 Gabbay and le May 2011)
The Greenhalgh model for considering the diffusion of innovations in health service organisations (Greenhalgh et al 2004)
The Levin model of research knowledge mobilisation (Levin 2004)
Walter's et al's three models of research use (Walter et al 2004)
The Knowledge to Action (KTA) cycle (Graham et al 2006)
Collaborative knowledge translation model (Baumbusch et al 2008)
The Interactive Systems Framework (ISF) for Dissemination and Implementation (Wandersman et al 2008)
The Knowledge Integration Framework (Best et al 2008)
The three generations framework (Best et al 2008, Best et al 2009)
The Consolidated Framework for Implementation Research (CFIR) (Damschroder et al 2009)
The Critical Realism and the Arts Research Utilisation Model (CRARUM) (Kontos and Poland 2009)
Normalisation Process Theory (May et al 2009)
Participatory Action Knowledge Translation model (McWilliam et al 2009)
Ward et al's conceptual framework for the knowledge transfer process (Ward et al 2009)
The Knowledge Exchange Framework (Contandriopoulos et al 2010)
The National Centre for Chronic Disease Prevention and Health Promotion KTA Framework (Wilson et al 2011)
Knowledge Translation self-assessment tool for research institutes (SATORI) (Gholami et al 2011)
School Improvement Model (Education Endowment Foundation)

Implementation science has been specifically developed to assist clinicians and researchers to understand and evaluate the factors that both inhibit and promote change in health care. The result has been the application of cognitive behavioural theory to explain how health practitioners move from intent to actual behavioural change (Eccles, et al., 2005). An overarching “theoretical domains framework” has been developed to enable researchers to elicit the set of beliefs that could potentially be mediators of behavioural change in clinicians (Francis, O'Connor, & Curran, 2012).

Grimshaw and others claim that by 2010 a substantial, if incomplete, evidence base had developed to guide knowledge transfer activities for health care practice and, to a lesser degree, for health care policy (Grimshaw et al., 2012). A good example of the research-based guidance being developed for health care practitioners is seen in a systematic review of those interventions which had the greatest potential to promote the use of research by health practitioners. The review found the use of guidelines, feedback and educational interventions were more effective when combined in multiple strategies rather than in a single intervention (Boaz, Baeza, & Fraser, 2011).

A key caveat for those interested in applying the body of implementation science research concerns the importance of taking account of the particular context and process to fully understand the circumstances that are likely to increase the likelihood new knowledge is taken up (Boaz, Baeza, Fraser, & Group, 2011). Constandriopoulos and colleagues large systematic review of organisational knowledge exchange process concluded that context was so important it mitigated against offering generalisable advice on what to do to increase the uptake of new research. As the authors explain, collective knowledge exchange and use is a phenomenon “so deeply embedded in organisational, policy, and institutional contexts that externally validated advice on what to use in all situations is unlikely to be forthcoming” (Constandriopoulos, et al., 2010, p. 468 ).

Among implementation researchers increasing interest is being shown in organisational theories of how change occurs. The result is a further grouping of theoretical models on an organisation's readiness to change as a result of research informed ideas (see, for example, Attieh et al., 2013). However, Davies and colleagues point out that the tools to assess and disentangle the role of context in knowledge transfer are insufficiently developed. They claim that while context is a key heading in many models and frameworks, there is a divergence of view within the many models. Context may be "a passive backdrop" or a "potentially modifiable and co-optable resource" for the knowledge transfer effort (Davies et al., 2015, p. 44). One framing starts to see knowledge as so socially embedded that separating it from its context is problematic. Gabbay and le May's model, for example, amalgamates explicit and tacit knowledge in clinical contexts in the form of 'mindlines' to encompass the idea of knowledge-in-practice-in-context (Gabbay & le May, 2004).

## 2.6 CHAPTER SUMMARY

This chapter started with an overview of what is known about the efforts of health research funders to introduce new knowledge transfer policies. Health research funders regularly find themselves operating as boundary agents: mediating between the interests of government and the research community, between researchers and users, and also between the different expectations of what can be achieved by biomedical and public health research.

A review of the knowledge transfer literature reveals a growing rejection of one-dimensional linear views of knowledge transfer, and a movement towards more complex notions of relational and system-thinking understandings. Different understandings (and different languages) about the ways research, policy and practice inform and interact with each other have been used to communicate to researchers what is expected of them. These progress from (1) linear explanations of research flow, to (2) relational approaches and, finally, (3) system thinking (Best & Holmes, 2010).

However, policies to improve knowledge transfer continue to draw on concepts from within one or more of these three generations of thinking, so that at any one time ideas may be operating in parallel. As a consequence, the potential for confusion for researchers in knowing what is required when they are asked to undertake more knowledge transfer activities is high.

Emerging insights from what researchers actually do to influence others to pick up the results of their research and commentary on the impact agenda confirm a level of confusion over what is expected. The increasing popularity of system thinking in order to understand knowledge transfer is seen in a wide array of knowledge transfer theories models and frameworks (see Box 2.1). However, there is little evidence that these are widely used by research funders or researchers, with a number of scholars pointing to the sheer number creating problems for those less versed in knowledge transfer research (Mitchell, Fisher, Hastings, Silverman, & Wallen, 2010; Tabak, Khoong, Chambers, & Brownson, 2012). Nilsen suggests that the intention of a number of these models is to explain and not to advise (Nilsen, 2015), so it is perhaps not surprising that they are not being directly applied, but could be seen as offering an intellectual contribution. A unifying idea across all the frameworks and models is the importance of context in shaping the potential for knowledge transfer to occur.





### 3 STUDY DESIGN AND METHODOLOGY

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*Interventions offer resources which trigger choice mechanisms (M) which are taken up selectively according to characteristics and circumstances (C) resulting in a varied pattern of impact (O).*

(Pawson, 2006b, p. 26)

The first two chapters have explained how health research funders are introducing new policy interventions under the generic title of “knowledge transfer” to increase the likelihood the results of research are used. Previously, researchers would note journal articles and conference presentations as their key “knowledge transfer” activity when drafting research applications. Now, for many areas of research, researchers are expected to provide tailored “knowledge transfer” pathways and be scored on the perceived effectiveness of these pathways. This chapter lays out the evaluative approach chosen to investigate how this policy of requiring knowledge transfer pathways actually works (or not) to prompt researchers to think about their role not just as knowledge producers but as translators of research findings.

Having established from the literature in the previous chapter that knowledge transfer policies are unlikely to change the behaviour of all researchers all of the time, a research design was needed that probed the different potential responses of researchers. The previous chapter indicated that the behaviours of researchers could be influenced by: where they were in their careers, their beliefs around what researchers can be held accountable for (beyond producing research results), and whether their disciplinary training includes an interest in the views of research users (particularly in order to maintain credit with research funders and policy-makers).

A realist evaluative design was chosen because it had the strengths of: (1) an emphasis on understanding the diversity of reasoning between researchers, (2) a preparedness to work with, rather than strip away, the complexity surrounding knowledge transfer policy interventions, and (3) an emerging body of realist theory to support the theory-building stage on what makes knowledge transfer interventions work.

The knowledge transfer field is already well served by research listing the barriers and facilitators to closer working relationships between researchers and end-users.

Typically, approaches to judging the effectiveness of knowledge transfer policies describe how the new policy seeks to bridge the different worlds of the researcher and research user, and then provides a list of factors that have helped or hindered the process. Little attention has been paid to how different types of researchers might now reason differently as a result of new policies. Describing the complexity of what happens is unlikely to be sufficient to achieve change. As others have stressed, if evidence is going to accumulate in order to improve knowledge transfer policies, then more than a thick description of the difficulties of the knowledge transfer process is needed (Nilsen, Stahl, Roback, & Cairney, 2013).

Theory-based programme evaluations have emerged as a way of dealing with complex social phenomenon, with proponents arguing that evaluators need to construct plausible and defensible models on how interventions work before evaluating them (Chen & Rossi, 1983). The realist approach developed by Pawson and colleagues fits within this general ambit, but directs evaluators towards specifying what mechanisms will generate the outcomes and what features of the context will affect whether or not those mechanisms operate (Pawson & Tilley, 1997).

The first half of this chapter explains the key principles of the realist approach and how they were applied in this investigation. The second half details the three phases of fieldwork that were undertaken in successive waves. To evaluate the HRC's

knowledge transfer policy, insights were accumulated from: (1) the designers and instigators of knowledge transfer policies, (2) the researchers whose behaviour is expected to change as a result of the policy, and (3) research assessors, who have a pivotal role in judging the quality of written knowledge transfer pathways.

### 3.1.1 Choosing an evaluative method

The question this thesis is centred on is an evaluative question, yet the aim is wider than assessing the merits of one policy change put in place by one health research funder. This investigation was borne out of a desire to understand, explain and address issues with translating the explicit and implicit intentions in knowledge transfer policies into desired changes. The choice of what study design to adopt was influenced strongly by the need to add a level of insight on what might lead to change, and not merely repeat previous studies identifying the complex forces at play in ensuring research results are used. Overall, the investigation sits within the field of policy studies; a field regularly concerned with the real-world circumstances and complexities of unpredictable policy processes involving many actors with different motivations (Nilsen et al., 2013).

Both my own experience and the review of the literature in Chapter Two, indicated that the HRC's knowledge transfer policy would be very conditional in achieving its results. A form of theory driven evaluation offered potential to understand not only the effects of a policy as related to its official goals, but also to identify the effects that go beyond those goals (Chen & Rossi, 1983). The HRC's knowledge transfer policy was clearly a complex intervention with a number of interacting components and a breadth of potential behaviours by different groups of researchers. Experimental designs where some researchers received the policy direction while others of a similar type did not, were not possible as this policy change was happening in real time across a complex open system. An uncontrolled before and after study may have theoretically

been possible by asking researchers to share examples of knowledge transfer sections they wrote before the policy change was introduced in 2010, and then these were compared with what they wrote after 2010. The problem here would have been the lack of a clear definition of what constitutes both “before and after” as directions continued to evolve over time (as discussed in detail in the next chapter).

Comparative case study research between research funders could potentially illuminate the factors affecting the implementation success of knowledge transfer policies. The literature review signaled similar international themes concerning the type of policies being put in place. Potentially, an international comparison between different funders could reveal factors which affect achieving the outcomes of this policy. In their study of knowledge mobilisation, Davies and colleagues undertook follow up interviews, a web based survey and held workshops to conclude with eight emergent organisational archetypes as an aide to helping understand the dynamics at play (Davies et al., 2015). They identified 186 health research funders, research producers and research intermediaries and examined websites for knowledge mobilisation activities to uncover claims made from the top of these organisations on what was, and was not, working.

I wanted a design that would help me draw conclusions about how the HRC’s knowledge transfer intervention actually worked in practice, as opposed to claims made from the top. In line with findings that indicate that the way policies are implemented are not straightforward – involving as they do practical difficulties, cognitive biases, and different values (National Research Council, 2012) – theory based evaluations probe the meanings and actions attached to a policy by all the actors involved. With explicit attention paid to the context of an intervention, and a focus on understanding the contribution to outcomes rather than proving attribution, theory based approaches assess the contribution an intervention makes to observed

results, rather than determining causation through comparison to a counterfactual (Alkin, 2012).

The realist approach is one form of theory based evaluation with a particular focus on how individuals reason in response to the resources offered by any intervention (Pawson & Tilley, 1997). Another potential starting point that could have been applied was complexity theory (Callaghan, 2008). Both complexity theory and realist approaches deal directly with evaluating change within open systems and share similar philosophical roots based on the assumption that social systems and structures are real, are constantly evolving, and have real effects (Westhorp, 2012). The key difference is that realism uses the language of “mechanisms” to explain causation, while complexity theory argues that the interaction of local elements following local rules at one level of a system generates complex patterns of outcomes at other system levels. The rules are not deterministic but are contingent on a negotiated order. As a consequence, any policy evaluation focuses on examining these negotiations, informed by the interests of actors, their professional practice and organisational constraints (Callaghan, 2008). Westhorp makes a convincing case that evaluators can usefully draw on both realism and complexity perspectives when evaluating different layers of reality within programmes (Westhorp, 2012).

### 3.1.2 Dealing with complex open systems

The realist focus away from what works to what preconditions make certain outcomes more likely for which people and in which context is advocated as a powerful way to evaluate complex and continually changing health services and systems (T. Lamont et al., 2016). Pawson vividly summarises his argument for the value of the realist approach against more experimental methods, such as randomised controlled trials, as follows:

The penny has finally dropped that interventions are not “treatments”. Interventions are complex processes introduced into complex environments attempting to deal with complex problems. It is impossible to control for every contingency as the trialists urge. It’s impossible to theorise away the problem as some system theorists have contrived. All that can be accomplished is for the evaluators to explain some of the contingencies of implementation and some of the caveats of context that make for programme effectiveness. The urgent need is to get across to policy-makers that no one can tell them whether an intervention will work. This plea to make better use of partial knowledge is much more honest than the simplifications and sound-bites that they are used to hearing (Pawson, 2013a).

A complexity approach could potentially explore the local rules that govern how a complex pattern of outcomes emerges from the operation of the HRC’s knowledge transfer policy. However, my concern in applying only complexity theory to the evaluation of the HRC’s knowledge transfer policy was that, while the local rules could end up being well described, the consequent opportunity to *explain* may be underdeveloped. The realist evaluative approach focus on explaining how an intervention works was an attractive feature.

### 3.1.3 Precedents from other knowledge transfer studies

While no realist literature looked directly at the same type of policy being investigated in this study, a handful of realist studies explored adjoining policies concerned with encouraging public involvement in research, participatory or collaborative research, and new forms of research and end-user networks (see, for example, Evans et al., 2014; Heaton et al., 2015; Heaton, Day, & Britten, 2016; Jagosh et al., 2015; McCormack et al., 2013; Rycroft-Malone et al., 2016; Rycroft-Malone et al., 2011). These studies were used in the initial theory-building stage to identify potential explanations of how

knowledge transfer policies are expected to work. Researchers leading these studies point to the advantages of the realist approach in incorporating the many contexts that are likely to influence whether the hoped-for outcome is achieved or not (Rycroft-Malone et al., 2011). For example, when Jagosh and colleagues sought to better understand and synthesise the benefits (if any) of participatory research, they argued that the realist approach offered a way to capture the complexity of potential outcomes (Macaulay et al., 2011).

#### 3.1.4 Understanding the diversity of reasoning between researchers

The realist approach is particularly appropriate for evaluating new initiatives that seem to work, but “for whom and how” is not yet understood (Westhorp, 2014). The realist approach looks directly at how individuals reason in response to the resources offered by any intervention. Other scholars have noted how the motivations and reasoning of researchers are often underexplored within the research utilisation literature, so a realist design had the potential to fill this gap. A review undertaken for the United States Governing Board of the National Research Council (2012) investigated three decades of work on research and policy interactions and concluded that a key behavioural tension experienced by researchers is often overlooked. Researchers face a tension between maintaining a neutral position independent from end-users and being regularly encouraged to form partnerships with end-users. Constandriopoulos et al. (2010) noted a tendency within the current research utilisation literature to disregard the complexity of human motivations and attribute intrinsic group-based preferences to both researchers and end-users.

#### 3.1.5 The choice of methods

Realistic evaluation involves the evaluator learning the policy, practitioner and participant ideas that constitute the particular intervention and govern its impact (Pawson & Tilley, 1997, p. 207 ). Methods can draw on qualitative, quantitative or mixed methods. In choosing what methods to adopt the challenge for evaluators is to

combine the strengths of both quantitative and qualitative data to produce a coherent explanation of how a policy is achieving its effects (Pawson & Tilley, 2004). Qualitative data can describe key processes though such methodologies struggle with generalisations, while quantitative data can describe outcome patterns and the relationship between causal variables but cannot elucidate the underlying processes that generate these patterns.

### 3.2 WHAT DOES THE REALIST APPROACH INVOLVE?

As Ray Pawson and his colleagues explain, the cornerstone of a realist project is the distinctive viewpoint on how an intervention brings about change. Change occurs through the reasoning and reaction of people and not through the mere existence of a particular policy intervention. The realist school of philosophy asserts that both the material world and social worlds are real and can have real effects, and that it is possible to work towards a closer understanding of what causes change by unearthing the explanatory forces (Pawson & Tilley, 1997). Researchers are prompted to seek out what it is that makes a particular intervention or policy work, and then examine that emergent theory (or theories) in an ever-widening array of conditions (Pawson, 2013b).

Six of the key principles that inform realist thinking are outlined below, culminating in a table that explains how these principles were applied in this study. These principles are informed by a realist philosophy of science which assumes that “social systems and structures are ‘real’ (because they have real effects) and also that human actors respond differently to interventions in different circumstances” (Wong et al., 2016, p. 2). Pawson and colleagues have extended their realist thinking to making sense of secondary research and, more recently, coined the term realist synthesis to describe this approach (Pawson, 2002; Pawson, Greenhalgh, Harvey, & Walshe, 2004). This investigation collected and evaluated primary data, so fits the earlier terminology of realist evaluation used originally by Pawson and Tilley (1997). Both realist evaluation and realist synthesis draw from the same shared realist philosophy, so in



the following section the term “realist approach” is used when introducing a fundamental idea that can apply to realist synthesis or realist evaluation.

### 3.2.1 Principle One: Realism is theory-led

A realist approach assumes that policies and interventions are “theories incarnate” (Pawson & Tilley, 2004, p. 3). That is, whenever a policy is implemented, it is testing a theory about what might cause change, even though neither that theory nor the testing may be explicit. A realist approach is essentially a process of theory testing. Theories are articulated as Context-Mechanism-Outcome propositions or CMOs (Pawson, 2006b).

As Pawson (2013b) explains, the social world is made up of an infinite number of complex events and to simply describe all the complexity commits an evaluator to an everlasting task. The value of theory is that it directs the evaluator to vital explanatory components within an intervention seeking to bring about change. The realist approach differs from other theory-based evaluative approaches in the construction of Context-Mechanism-Outcome propositions as the basis of these explanatory components.

In realist research, the process of comparing the theory with practice via CMO propositions is undertaken in order to develop a final middle-range theory able to unify both the big policy ideas and the day-to-day realities of implementation. Pawson and Tilley draw on the writings of Merton (1968) when explaining that the aim of a realist evaluation is to culminate in a middle-range abstraction of a kind “abstract enough to underpin the development of programme types (or, in this case, knowledge transfer policies generally) yet concrete enough to withstand the testing in the details of programme implementation” (Pawson & Tilley, 1997, p. 116).

#### 3.2.1.1 *How was this applied?*

The methods chosen for this study aimed to make the theory within one particular knowledge transfer policy (that of the Health Research Council of New Zealand) explicit, and then to successively test that theory in order to conclude with an understanding of not only how the HRC's knowledge transfer policy works but also of the conditions that influence its success. While much is theorised about how new ideas and knowledge are taken up and used, showing decisively which knowledge transfer policy will work in which situation is still an underdeveloped area. The specific research question for this study recognises the potential for different mind-sets from different researchers to influence whether the HRC's knowledge transfer policy works in the ways expected.

#### 3.2.2 Principle Two: What works for whom in what circumstances and why?

A realist question is expected to contain elements of “what works, how, why, for whom, to what extent and in what circumstances, in what respect and over what duration?” and apply realist logic to address the question (Wong, Greenhalgh, Westhorp, Buckingham, & Pawson, 2013). Rather than focus on straight-forward judgements about the worth of a particular policy, the realist approach seeks to identify the varieties of successes and failures that result from any policy and the factors that contribute to all of the eventual outcomes. The attraction of this approach lies in the experience of many evaluations that real-life policies are rarely either entirely successful or unsuccessful, but have patches of success and failure. Rather than looking for one effect from a particular policy or intervention, a realist researcher seeks out all the policy outcomes both anticipated and unanticipated (Hewitt, Sims, & Harris, 2012).

### 3.2.2.1 *How was this applied?*

This study starts with a question on “how” the HRC’s knowledge transfer policy works and “for whom” (that is, for researchers), concentrating on the circumstances likely to change the mind-set of researchers. An initial theory is developed over the likely circumstances which is then tested and refined. The aim is to identify the likely scope of benefits and the scale of effort required if the HRC wants to take further actions to improve knowledge transfer. This investigation starts with the assumption that the HRC’s knowledge transfer policy does not change the behaviour of all researchers all the time. The conclusions at the end of this investigation do two things. They provide specific advice on how the HRC can improve the implementation of the policy and they provide insights into the broader thinking and theorising about how research funders can effectively play a more active role in encouraging the use of the research they fund.

### 3.2.3 Principle Three: Pursuing a theory of *why* an intervention has worked

The analytical unit on which a realist evaluation is built is the CMO proposition. A CMO proposition explains how an intervention or policy works to achieve an outcome (O) because of the action of some underlying mechanisms (M) which only come into operation in particular contexts (C) (Pawson & Manzano-Santaella, 2012). As the body of realist research grows, debates are emerging over how best to identify a context or a mechanism.

Some of the problems have emerged when researchers have broken down a policy or programme into its constituent C, M, and O categories, and in doing so have lost the explanatory elements between the components. Scholars have stressed that attention needs to be focused on applying the CMO proposition as a whole, rather than a discrete listing of parts, as this structure drives the explanatory power of the theory (Pawson & Manzano-Santaella, 2012). Others have pointed out that in practice the

realist researcher is confronted with the problem of identifying the contextual elements that really matter given the breath of possibilities involved (Marchal, van Belle, van Olmen, Hoérée, & Kegels, 2012). A useful rubric to bear in mind is to cast the CMO proposition as an “if-then proposition” in order to focus on the casual nature of what is being tested (Pawson & Manzano-Santaella, 2012).

#### 3.2.3.1 *How was this applied?*

At the start of this investigation, initial definitions were established in order to help the process of deciding which aspects of the HRC’s knowledge transfer policy will be labelled context and which would be labelled mechanisms. Context (C) was conceptualised as the prior arrangement of social rules, norms, values and interrelationships which sets limits on the efficacy of the HRC’s knowledge transfer policy. A crucial task was to investigate the extent to which pre-existing contexts “enable” or “disable” the intended mechanism of change (Pawson & Tilley, 1997, p. 70). The contexts most likely to make a difference to how the HRC’s knowledge transfer policy operates were developed from the literature review, and then further illuminated through interviews with policy designers and researchers.

Mechanisms (M) are the heart of explanation in realist evaluation. Pawson and Tilley’s original explanation, that any programme or policy mechanism involves reasoning plus resources, has been developed further to encompass the idea that mechanisms are inside people’s heads (Westhorp, 2014). The researcher’s role becomes one of bringing the mechanisms out of people’s heads in order to understand more about how people use the resources offered by a policy to effect change. The following definition, which has the advantage of being built from a review of 49 realist studies and writings, was applied in this investigation:

A mechanism is an element of reasoning and reactions of (an) individual or collective agent(s) in regard of the resources available in a given context to bring about changes through the implementation of an intervention (Lacouture, Breton, Guichard, & Ridde, 2015, p. 8).

Insights into what mechanisms were at play in the HRC's knowledge transfer policy came mostly from an analysis of the grey literature (the policy and planning documents) and interviews with both policy designers and researchers.

Finally, outcomes (O) represent the desired change from an intervention. Realist research works by explaining outcome patterns. In an ideal world outcomes should be quantified through baselines; including before and after measures. Quantifying outcomes in this way was difficult in this investigation. What was most helpful was to focus on applying the CMO proposition as a whole by bringing each of the individual CMO definitions together as an explanatory proposition, as advised by Westhorp (2014).using the following sentence; "in this context, this mechanism generates this outcome".

#### 3.2.4 Principle Four: The cumulative power of an iterative series of inquiries

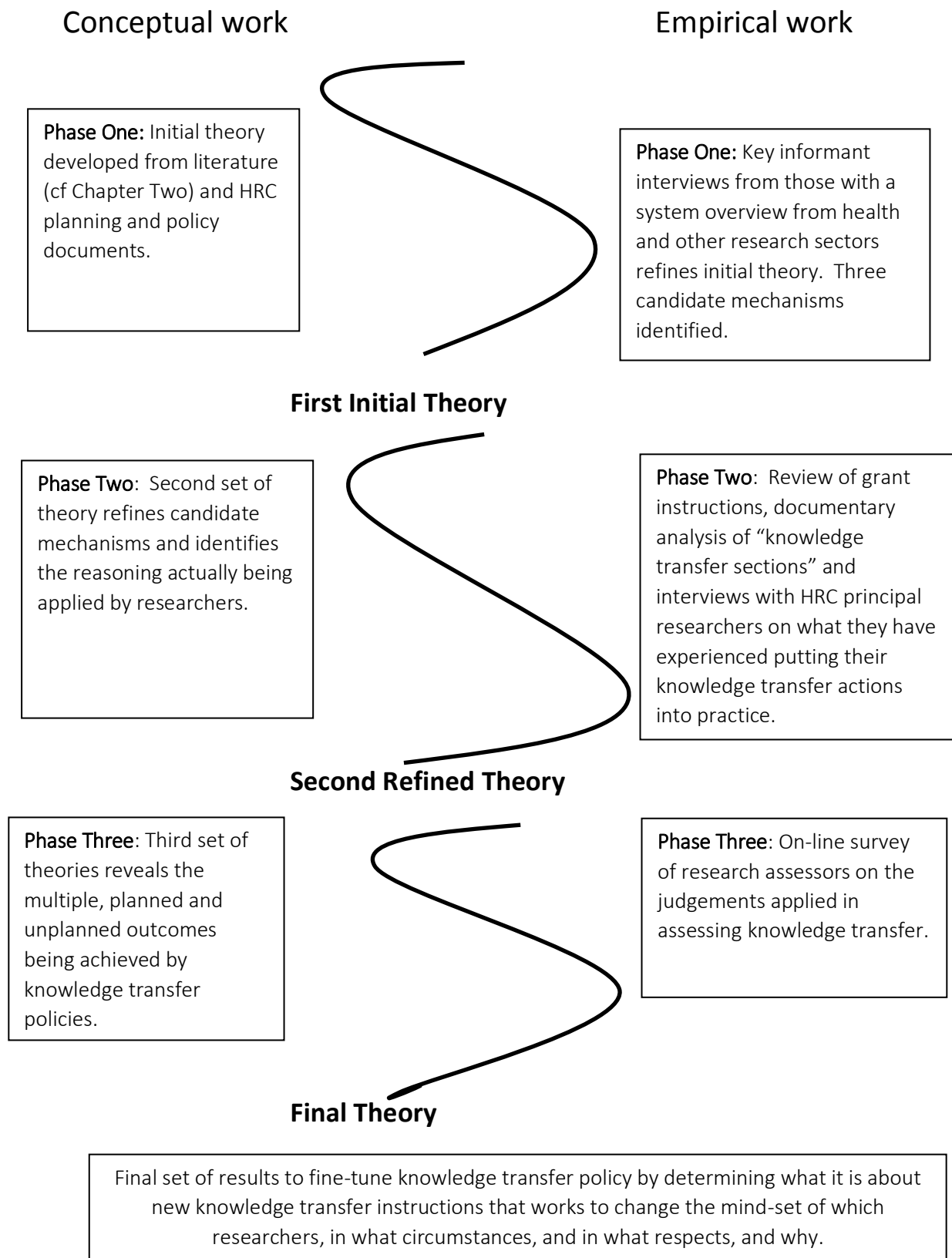
Pawson and Tilley stress that progress in realist research emerges through a process of theory building and theory testing; through a programmed sequence of iterated evaluations which call systematically upon bodies of more abstract social science as well as the findings from primary research. The expectation is that the combination of qualitative and quantitative evidence should offer something more than "weight of evidence" but should also invite a sense of explanatory completeness or synthesis or closure (Pawson & Tilley, 1997, p. 158). Emmel (2015) applies the metaphor of "zigzagging" to describe how the realist researcher develops their theory of what causes change. The gradual refinement and winnowing down of CMO propositions is

at the core of the realist approach. The ultimate aim is to conclude with a middle-range theory that is not abstract to the point of addressing larger theories of social and cultural forces, but equally represents more than a random set of observations, or as Pawson explains “transcends mere description” (Pawson, 2013b, p. 8).

#### *3.2.4.1 How was this applied?*

Figure 3.1 overleaf, adapted from Marchal (2011), demonstrates the switching between conceptual and empirical work that was undertaken to develop and refine emergent middle-range theory at each phase. The diagram underscores how the process of zigzagging is a useful image to keep at the forefront when envisaging a realist design. Key informant interviews in Phase One were used in combination with the grey and academic literature to develop the first initial theory. A further set of interviews in Phase Two validated and modified the initial theory to conclude with a second refined theory, while a survey in Phase Three adapted further the second theory to conclude with a final theory. Conceptual work at each phase mined the literature for further explanatory insights.

FIGURE 3.1: PROCESSES USED TO DEVELOP FINAL THEORY



### 3.2.5 Principle Five: Realism employs any method that helps explain CMO propositions

The realist approach is not strictly a method to follow, but a way of thinking (Westhorp, 2014) or a logic of enquiry (Pawson et al., 2004). In practice, this means that while the realist principles listed in this section are expected to be applied, there is latitude over the particular research methods adopted. A recent review of the methods being used in 40 realist evaluation studies found the most common pattern was to combine multiple semi-structured interviews with documentary analysis and ethnographic observations (Manzano, 2016). The realist researcher is described as a pluralist who employs any methods that help explain the intervention in terms of CMO propositions (Hewitt et al., 2012), with the best sampling strategy being to collect as wide a diversity as possible of what is termed “evidential fragments” (Emmel N, 2013).

In-depth contextualised studies of research practices, including ethnographic methods, are being called for to deepen the understanding of the impact of research assessment and performance metrics on academic research (Hammarfelt & de Rijcke, 2015). Ethnographic methods could have also been used for this investigation as a way to test initial realist theories. Examples are emerging of realist evaluative work that uses ethnographic methods as part of refining initial realist theories about what is causing an intervention to work (see, for example, work by Benger et al., 2016). Given my early interest in the creation of knowledge transfer pathways the potential to observe this activity using ethnographic approaches was limited. Observing researchers writing knowledge transfer pathways was likely to be less insightful than asking researchers in interviews to reflect on what they had done.

#### 3.2.5.1 *How was this applied?*

A mixture of methods was used in this investigation for obtaining evidence about the Cs, Ms and Os. The evidential fragments collected spanned policy and planning



documents, instructions to researchers, the subsequent written responses in research applications, two sets of semi-structured interviews and one on-line survey. More details of how data was collected and analysed is presented in the second half of the chapter. The analysis of this material followed advice that confidence in the quality of any particular piece of realist research needs to come from achieving immersion (that is, spending enough time in the study to really understand what is going on), collecting data meticulously and analysing the resulting information systematically, thinking reflexively about findings, developing theory iteratively as emerging data are analysed, and seeking alternative explanations (Wong et al., 2013).

### 3.2.6 Principle Six: Realism involves an ongoing quest for knowledge

In recent writings, Pawson quotes Popper when he stresses that realist theory building does not rest on absolutes or rock-bottom certainties, but is more akin to driving piles into a swamp where attempts are made to build firmer and firmer footings (Pawson, 2012). One way to achieve these footings is to build from the theorising of others who have sought to tease out contexts, mechanisms and outcomes in similar situations. Pawson introduces the idea of “reusable conceptual platforms” where the final theories developed by realist researchers form the bases of further refinement and additions by other researchers (Pawson, 2013b, p. 86).

#### 3.2.6.1 *How was this applied?*

While no realist literature looked directly at the specific policy being adopted by the HRC, as explained earlier, a handful of realist studies explored adjoining policies. These were used in the initial theory building stage of the investigation to identify potential contexts and mechanism that may be important.

### 3.2.7 Summary of principles

While the realist evaluative community debates detailed conceptual and methodological issues, there is agreement on the broad principles (Jagosh, Tilley, & Stern, 2016). I have distilled six broad principles from the writings on the realist approach and applied these in this study in the ways summarised in Box 3.1.

BOX 3.1: APPLICATION OF REALIST PRINCIPLES IN THIS STUDY	
Realist principles	Applied in this study
<b>One:</b> A realist approach is <b>theory-led</b> and starts with an underlying vision of change followed by a process of comparing the theory with practice in order to develop a final middle-range theory. Middle-range in the sense of being abstract enough to unify the big policy ideas with the day-to-day realities of implementation.	The study started with a description of the initial theory underpinning the HRC's knowledge transfer policy which was then tested and refined to conclude with: <ul style="list-style-type: none"> <li>(1) specific advice on how the HRC can improve the implementation of the policy</li> <li>(2) insights into the broader thinking and theorising about how research funders can effectively play a more active role in encouraging the use of the research they fund.</li> </ul>
<b>Two:</b> Attention is paid to not what works but <b>what works for whom in what circumstances</b> . Rather than focus on straightforward judgements about the worth of a particular policy, the realist approach seeks to identify the varieties of successes and failure that any policy experiences and the factors that contribute to all of the eventual outcomes.	While much is theorised about how new ideas and knowledge are taken up and used, showing decisively how knowledge transfer policies engage the motivations of researchers is an underdeveloped area. This investigation fills this gap by asking "how does the HRC's knowledge transfer policy work to change the mind-set of researchers?"
<b>Three:</b> Realism involves pursuing a theory of <i>why</i> an intervention has worked using <b>Context-Outcome-Mechanism (CMO) propositions</b> .	Throughout this investigation CMOs were developed and tested using the following explanatory sentence: "In this context, this mechanism generates this outcome".
<b>Four:</b> Realism draws on the cumulative power of an <b>iterative series of inquiries</b> .	A three-phase research design iterated between the perspectives of those that design knowledge transfer policies (Phase One), those that are the recipients of the policy (Phase Two) and those that implement the policy (Phase Three).

<p><b>Five:</b> The realist evaluator is a <b>pluralist</b> who employs any methods that help explain the programme or policy in terms of CMO propositions.</p>	<p>Interviews with policy-makers and researchers, reviews of policy and planning documents, and a survey of those appointed to assess research applications were used to build and test successive CMO propositions. These methods were chosen in order to collect as wide a diversity as possible of evidential fragments to explain what happens.</p>
<p><b>Six:</b> Realism attempts to build firmer and firmer footings in <b>an ongoing quest for knowledge</b>. The final theories developed by realist researchers form the bases of further refinement and additions by other researchers as “reusable conceptual platforms”.</p>	<p>Attention was paid to building on past realist research. While no realist literature looked directly at the same policy being investigated in this study, a handful of realist studies explored adjoining policies which were used as a conceptual resource in Phase One.</p>

While claims are made that realist evaluations are likely to produce findings that are useful to policy-makers (Marchal et al., 2012), others warn that those who commission realist evaluations need to understand that the realist approach does not judge programme effectiveness but “strives instead to enlighten decision-makers about programme theory” (Hewitt et al., 2012, p. 257). Wong et al, (2013), however, are more confident that “analytic purchase” in realist research does not come merely from providing enlightenment but by providing advice on what to change. The change may be to “the context or provide resources in such a way as to most likely trigger the right mechanism(s) to produce the desired outcomes” (Wong et al., 2013, p. 2). My aim in this investigation was not to provide a straight yes/no verdict as to whether the HRC knowledge transfer policy works or not, but to look beyond solely what works, to what preconditions make certain outcomes more likely, for which researchers, and in which contexts.

Realist approaches are gathering momentum, particularly in healthcare research, though they are not without controversy, as the key ideas can be difficult to operationalise (Porter & O’Halloran, 2012). Substantial variation on how the realist approach is applied has been reported (Pawson & Manzano-Santaella, 2012; Salter & Kothari, 2014). Rycroft-Malone and colleagues sum up some of the frustrations when they reflect that Pawson and Tilley’s (1997) book on realistic evaluation “whilst

innovative is not a methodological recipe for doing realistic evaluation” Rycroft-Malone et al. (2010, p. 11). A section in Chapter Eight (section 8.1) summarises what was learnt in this thesis on how to turn the principles of the realist approach into practical application.

### **3.3 STUDY DESIGN**

The rest of this chapter provides details of methods used in each part of the investigation and starts with some broader context for the study.

The setting for this investigation spanned New Zealand government agencies with a policy interest in how research-based knowledge is taken up and applied generally. These included the Science and Innovation section of the Ministry of Business, Innovation and Employment and those with a specific interest in how knowledge moves in the health sector, such as the Ministry of Health, Health Workforce New Zealand and the Health Quality and Safety Commission. New Zealand has a large taxpayer-funded health system. It faces challenges to re-balance how care is delivered to better respond to the changing pattern of need generated by those with long-term health conditions and to provide new technological opportunities within a fiscally constrained environment (Mays, 2013). The changes being put in place by the HRC sit within a broader policy direction in the health sector to “get better and faster at sharing new ideas and evidence and putting them to work throughout the system” (Minister of Health, 2016, p. 27).

The study design was reviewed and approved by the Victoria University of Wellington Pipitea Campus Human Ethics Committee. All those interviewed and surveyed were made aware that the study did not have a direct relationship with the HRC, though the HRC was aware of the study and was interested in the final results. The ethical

principles underlying this research followed the code developed by the Association of Social Science Researchers (1996). All the data gathered were aggregated so as not to be attributed to individual respondents. Individual research projects were described in the broadest terms possible in order to avoid the research community being able to identify principal researchers. Written consent was sought from all those interviewed and interviewees had the opportunity to request a copy of the interview transcripts for any further review and comment. Access to the research data was restricted to the investigator and thesis supervisors; data was held in a secure password-protected system.

A copy of the information sheet as well as interview schedules and the final on-line survey are attached as appendices. The information sheet for researchers (see Appendix One) stressed that this investigation was not an audit of their claims of knowledge transfer activities, but an opportunity to contribute to developing theory on how researchers think about knowledge transfer. This statement was developed in response to concerns raised by the HRC that researchers may not want to take part in discussing what happened in specific projects given that knowledge translation claims can be overplayed.

### **3.4 PHASE ONE: HOW ARE KNOWLEDGE TRANSFER POLICIES EXPECTED TO CREATE CHANGE**

The first phase of research comprised a period of theory building, using existing ideas about knowledge transfer policy from the literature, combined with planning documents and interviews with key informants on the design of knowledge transfer policies. Collectively, these data sources resulted in an initial theory of *how* the HRC's knowledge transfer policy was expected to influence the reasoning of researchers in return for the resources required to carry out research. The following sections detail the type of data collected and how the data were analysed.

### 3.4.1 The knowledge transfer literature

The most useful route into the building of the initial theory was not exclusively from the published literature but from the grey literature produced by funding agencies and other commentators. The planning and strategy documents sourced from the websites of different international funding agencies often contained a telling phrase on the way researchers' minds were expected to be changed or focused as a result of new knowledge transfer requirements. Box 1.2 contains a list of these phrases, which were an important starting point to identify the mechanisms by which researchers were expected to reason and react in response to new knowledge transfer requirements. Another source of ongoing insight was the London School of Economics Impact of Social Science blog<sup>4</sup>. The blog encourages debate on the way in which the nature of academic scholarship is changing by presenting the research and scholarship from a wide diversity of academic contributors. Whilst not meeting the accepted standards of peer review, the blog often provided critical and timely insights into what was influencing the thinking of researchers. As a consequence, throughout this thesis a number of references to particular blog posts are included, in line with Pawson's advice that "nuggets of wisdom" in realist research can come from many sources (Pawson, 2006a).

### 3.4.2 Planning documents

The HRC's planning documents helped distil more clearly the ways the HRC expected to influence change. A close reading of the HRC's planning documents from 2010 was undertaken in order to extract what is supposed to be done by researchers to increase knowledge transfer, how it is supposed to be done and why it is supposed to be done that way. In the realist approach, the "why" usually provides clues as to the theory of change, while the elements of the policy itself are the theory of action (Dalkin, Greenhalgh, Jones, Cunningham, & Lhussier, 2015). Realists look for mechanisms that are "inside people's head" in order to understand how individuals use the resources

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<sup>4</sup> <http://blogs.lse.ac.uk/impactofsocialsciences>

offered by a policy to effect change. This theory of change is different to the logic of how policy is expected to work. The introduction of the instructions into the research application process is the policy logic in this investigation.

In the review of documents, particular attention was paid to references to the term “knowledge transfer” and the context in which it was used across the HRC’s annual Statements of Intent, Annual Reports, Briefing to Incoming Ministers and one-off reports summarising the impacts of the HRC’s investment. No one definitive statement of the HRC’s knowledge transfer policy emerged from this review. The theory of action – that is, the elements of policy the HRC had put in place to drive change – evolved yearly, which would have presented problems if a more rigid evaluative design was being used to track how the policy was resulting in change. Pawson’s recent writings on the realist approach advise the realist researcher to map the contours of complexity at the start of any evaluation, because the history of an intervention, the period in which it was implemented and the order and uneven pace of implementation all count for understanding how an intervention works (Pawson, 2013b). With this in mind, Chapter Four outlines the results of the first phase of research using Pawson’s set of VICTORE categories (Volitions, Implementation, Contexts, Time, Outcomes, Rivalry and Emergence) as a way to capture the complex and evolving nature of the HRC’s knowledge transfer policy (Pawson, 2013b, p. 43).

### 3.4.3 Key informant interviews

Eight interviews were held with informants from the Health Research Council (2), Ministry of Health (1), Ministry of Business Innovation and Employment (3), Health Workforce New Zealand (1) and Health Quality and Safety Commission (1) in early 2014. Sampling sought to recruit those responsible for designing knowledge transfer policies as well as those who would have a system-wide view of health research

characteristics. Participants were identified from relevant policy networks<sup>5</sup> and by asking initial participants to suggest key individuals to interview. All interviews were held face-to-face, were semi-structured, audiotaped and took approximately 45 minutes.

An initial concept map was used in the interviews to help in communicating what was meant by “knowledge transfer policies” as part of the mapping of pre-existing contexts in which the HRC’s policy is embedded. Box 3.2 contains an outline of the key ideas in the concept map, while an updated version is presented in section 4.1.4. Those interviewed were used to thinking about the totality of research and science system, so the concept map focused on different types of knowledge transfer policies based on where they intervened in the system. The concept map grouped policies that intervened at: (1) the level of the individual, (2) the organisational level, and (3) the institutional level.

**BOX 3.2: KEY IDEAS IN CONCEPT MAP FOR KEY INFORMANTS**

Micro level: change prompted by actions at the individual level	Meso level: change prompted by actions shifting the focus towards knowledge transfer within organisations	Macro level: change prompted by actions changing the context and culture of organisations
Knowledge transfer policies which intervene at the micro level by influencing what individual researchers do in their regular grant applications.	Knowledge transfer policies which intervene at the meso level providing funds to cover the extra “development” costs after research is completed.	Knowledge transfer policies which intervene at the macro level by creating new institutions and/or networks with a mandate to bring researchers and users together.

While the starting premise of the study was that knowledge transfer policies that intervened at the individual (or micro level) would be investigated, locating these policies within the broader landscape of knowledge transfer policies was an important

<sup>5</sup> These networks comprised previous colleagues in science policy roles as well as recent colleagues in policy positions in the health sector.



step to align with realist advice that the focus of an evaluative inquiry needs to consider policy ideas and their history as important subject matter (Pawson, 2013b). After discussion with key informants, the concept map was refined further to include what interviewees thought was important to understand about knowledge transfer policies.

Interviews with key informant went on to probe: (1) why policy-makers thought knowledge transfer policies were a good idea, (2) how researchers were thought to act differently as a result of particular knowledge transfer policies, and (3) what were the distinctive characteristics that shaped the type of knowledge transfer policies being put in place in the New Zealand health sector (Appendix Two). Interviews were transcribed and entered into Nvivo and coded according to the three categories above.

#### 3.4.4 First initial theory

To complete Phase One, an initial theory was developed by identifying potential Content-Mechanism-Outcome (CMO) propositions from the literature and HRC planning documents and then refining these in the light of key informant interviews. The analysis involved iterating between what realists term the “folk theories” (Pawson & Tilley, 1997) used by key informants to describe and understand how a policy is expected to work and the explanations put forward in the scholarly literature and grey literature. The result was an initial set of candidate theories in the form of Context-Mechanism-Outcome statements, with the aim of further phases being to strengthen the explanatory power of these initial statements.

### 3.5 PHASE TWO: HOW DO RESEARCHERS REACT AND REASON?

In Phase Two, a combination of theory building and theory testing was undertaken using three sets of data: (1) the instructions from three selected HRC funds on what researchers needed to cover in their knowledge transfer plans, (2) what was actually

recorded by researchers in these plans, and (3) interviews with researchers on how what was written compared with what actually happened and views on knowledge transfer generally.

### 3.5.1 Instructions on what researchers need to cover in their knowledge transfer plans




Investments made between 2010 and 2014 by the three funds formed the heart of the sample in Phase Two:

1. New Zealand Health Delivery research portfolio (NZHD)
2. District Health Board Research Fund (DHBRF)
3. Partnership Programme research (PP)

These HRC investment funds (or portfolios) were those where the most obvious efforts were being made to influence researchers to undertake more knowledge transfer. The review of planning documents in Phase One had highlighted that the existence of these funds was regularly referred to when the HRC was called on to explain how they were making “knowledge transfer a priority”. For each of these funds, a set of instructions existed on what should be recorded in “the knowledge transfer section” of the grant application form. The actual titles used in each grant application form varied. Instructions under each of these titles were assembled into a table and sent back to the HRC for confirmation that these were an accurate representation of what researchers were asked to record in their grant applications. Further refinements reflecting different emphasises in different years were added by the HRC. The final set of instructions were analysed for their “fit” against the three generations to knowledge transfer outlined Chapter Two (that is, the linear model of research flow, the relational and system thinking) in order to explore how much what was requested by the HRC reflected the underlying literature on how research ideas are taken up and used.

### 3.5.2 What was recorded by researchers in knowledge transfer sections?

The written sample of knowledge transfer sections covered research projects commissioned between 2011 and 2012. These projects were deliberately chosen in order to explore in follow-up interviews how what was written compared with what happened. Box 3.3 displays the process used to create a sample of researchers who had received funding for projects that had, or were about to, finish. Narrowing the sample to those researchers who had recent experiences of completing a particular project increased the chances researchers would be able to recall a specific knowledge transfer experience. Sixty-three percent of those approached agreed to contribute their original knowledge transfer section (26 sections from 41 delivered emails), and 15 principal investigators also agreed to be interviewed about how their original knowledge transfer plans were implemented.

BOX 3.3: RESPONSES TO KNOWLEDGE TRANSFER REQUEST								
District Health Board Fund (DHBRF)			New Zealand Health Delivery (NZHD) 2011			Partnership Funds		
Emails sourced from specific DHBF website - 17 completed projects			Emails sourced from HRC list of successful projects in 2011 for NZHD portfolio – 18 projects expected to be completed in 2013/2014			Emails sourced from request to HRC to identify 20 proposals from the HRC's Partnership Fund (including RPNZHD) that finished 2011-2013		
14 Principal Investigators emailed (3 Principal Investigators had had two projects)			15 emails sent (3 Principal Investigators had two projects)			16 emails sent (number of projects completed in timeframe)		
								
5 sent sections as requested	5 no reply	4 emails failed	7 sent sections as requested	7 no reply	1 declined	14 sent sections as requested	3 no reply	1 declined
3 available for follow-up interview			4 available for follow-up interview			8 available for follow-up interview		

The 26 written responses were loaded into a Word database. The documents were manually coded for both explicit references to knowledge transfer theories, frameworks or models, and implicit activities commonly recommended as being an effective means of knowledge transfer from two systematic reviews (Grimshaw et al., 2012; Grimshaw et al., 2001) and a Knowledge Transfer Planning Guide for researchers (Reardon et al., 2006). Box 3.4 provides a list of the codes developed to identify the implicit activities recorded by researchers. Three worked examples of a coded knowledge transfer section are also provided, with identifying information removed to demonstrate how the coding was applied.

The type of research projects in the documentary database included: research designed to influence *both* health policy and practice ( 19), research focused solely on influencing health practice (5), and research on an issue of health policy (2). Grimshaw and colleagues stress the relative importance of knowledge transfer will vary according to the type of research being translated and the different target audiences (Grimshaw et al., 2012), but the high numbers in this sample hoping to influence both policy and practice indicated an overall commonality in who the researchers were attempting to influence.

**BOX 3.4: CODING OF WRITTEN KNOWLEDGE TRANSFER SECTIONS WITH WORKED EXAMPLES<sup>6</sup>**

<b>Use of existing networks (EN)</b>  Definition - Coded for comments suggesting existing clinical and other networks involving the researcher will diffuse findings. Includes Reardon's category of the "use of trained person who meets with providers in their practice setting to provide information with the intent of changing provider's performance"(Reardon et al., 2006).	<b>Interactive education sessions (IE)</b>  Definition - Participants have ample opportunity for participation and discussion, to apply learning to their own setting, and to practice new skills. Coded for mention of hui (a New Zealand term for a social gathering or assembly), workshops and specialised symposia.	<b>Opinion leaders (OL)</b>  Definition - Use of individuals who are identified based on their high profile within a discipline or practice group. Often the researcher explicitly states these individuals have been identified as opinion leaders as a result of their technical competence, social accessibility or high status in the system (Grimshaw et al., 2012).
<b>Tailored to overcome identified barriers (OB)</b>  Definition - A process within the research used to identify barriers so that the resulting knowledge transfer plan is developed to overcome the specific barrier(s). Coded for development of knowledge brokers. Also coded for acknowledgement that methods of feedback will be guided by research partners and participants, as recommended by a kaupapa Māori research approach (that is led by a Māori world view).	<b>Audit and feedback (AB)</b>  Definition - A summary of clinical performance over a specified period of time (eg general practitioner receive information about their pattern of referral for back x-rays in the past 6 months compared to the average of family practitioners in the same area).	<b>Electronic communication (EC)</b>  Definition - Use of the internet including websites, email list serves and interactive web-based tools.
<b>Education materials (EM)</b>  Definition - Distribution of published or printed recommendations including clinical practice guidelines and training materials.	<b>Relevant journals and conferences (JC)</b>  Definition – includes where the audience passively receives information but there is little or no interaction between audience and presenter.	<b>Attribute of project that increases the chances it will be used (AP)</b>  Definition – a proposed improvement that could easily be implemented without significant cost or clinical resources or part of a change already underway.
<b>Media (M)</b>  Use of television, radio, newspapers, magazines, to increase awareness or change behaviour.	<b>Early commitment to use research (CR)</b>  Definition -Stakeholder groups and/or influential sponsors assembled purposely for research projects to shape projects to meet their needs and make commitments to use the results.	

<sup>6</sup> List of codes informed by (Grimshaw et al., 2012; Grimshaw et al., 2001; Reardon et al., 2006)

### Example One: Summary of Knowledge Translation Plan

The Key Decision-Maker, Dr Z (DHB), in partnership with Ms Y (Primary care Health Organisation), will take overall responsibility for implementation of the Tool-kit and ensuring planning and services are responsive to emergent results **(OL)**. We will produce a detailed explanatory account of implementation processes and outcomes, yielding essential knowledge on how to implement the Tool-kit, and how to incorporate it into routine decision-making, allowing it to be more widely adopted across NZ. **(OB)** We will use Reardon's knowledge transfer planning guide to shape the key messages, the audiences and transfer methods (EXPLICIT THEORY). To ensure the findings are available for transfer to other primary care settings and to innovations in other specialties, we will work with Agency W to have the results available on their website (we are already negotiating with them to host the Tool-kit). We will also make the reports available to the Ministry of Health for hosting on the National Health Board's Health Improvement and Innovation Resource Centre. Because the Tool-kit will be modified to incorporate the results of this study, we will also make the updated version available through these websites and via distribution on CD to all DHBs and PHO groupings. **(EC)** We will work with DHB to support their emergence as a leader, or 'knowledge-broker', in a potential primary care clinical network. **(OB)**

### Example Two: Knowledge Translation Plan

The decision-makers have a long established partnership with the research team. The study design has been specifically tailored to provide the decision-makers with the information they require to support the full roll out of [Clinical tool], should the results prove positive. The decision-makers will be members of the operations committee and will have full contribution to decisions around study design and operations. **(CR)** Dissemination of the results will be primarily to the DHB decision-makers and associated organisations [specific examples given] and subsequently through research avenues including conferences and journals **(JC)**. The study design aligns perfectly with the planned timeframe for roll out of the new service in the Region B. As part of the study design, the new model will be implemented with three specific areas in Region B (and if proved successful, the model will be implemented fully the year following completion of the study. **(AP)** In this way, this research is not only of significant value internationally in its own right; but moreover these findings will directly inform how services for older people in the Region B and across New Zealand will be developed now and over the coming decade.

### Example Three: Dissemination Strategy

The dissemination strategy is an integral part of the proposal. The Centre has well established and demonstrated links with industry, unions and relevant Government Departments, which will be used to disseminate significant results and outcomes from the research programme **(EN)**. We will be advised and guided by the XY Research Consultation Committee to ensure the appropriate and suitable dissemination of data and information relevant to Māori **(OB)**. The action-oriented participative involvement of industry stakeholders and the Stakeholder/Industry Advisory Group will ensure that the findings and results of the study are disseminated to each of the industry sectors involved in the project via existing stakeholder communication channels for example meetings, newsletters, web based articles and notices **(CR)**. This will be supplemented by industry workshops and meetings **(IE)** The results of the research programme will also be published in New Zealand and international industry and scientific peer reviewed journals **(JC)**.

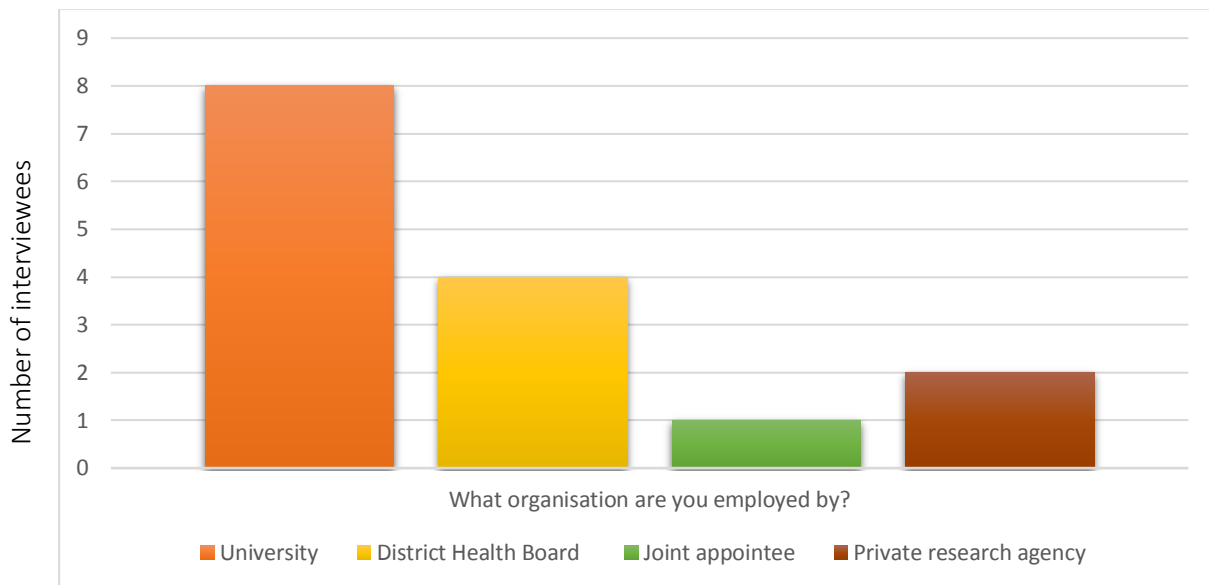
### 3.5.3 Interviews with researchers

Fifteen researchers were prepared to be interviewed on how what they had written in the sections in the documentary database compared with what actually happened. Ideally, all 26 who agreed to send their knowledge transfer section would have agreed to be interviewed. Nevertheless, the sample was large enough to probe the relationships between the candidate mechanisms and actual practice that are the foundation for realist claims.

The aim of a realist interview is not to elicit participants' narratives but the story of the policy or programme being evaluated (Manzano, 2016). The majority of interviews were held over the phone (three were face-to-face) using a semi-structured interview guide and lasting up to 60 minutes. They were undertaken in the later part of 2014 and early 2015. The interviews started by examining the direct experience researchers had in implementing a knowledge transfer pathway that had been identified in an earlier funding application, before probing more general experiences with knowledge transfer requirements. For the latter section of the interview, researchers were asked if they thought there was value in having knowledge transfer pathway instructions in research applications and how they thought the pathways provided were assessed (Appendix Three). Interviews were transcribed and loaded into an Nvivo database and coded according to the candidate mechanisms identified at the end of Phase One.

Universities were dominant, but by no means the only organisation represented as the employer of the researchers interviewed (see Figure 3.2).

FIGURE 3.2: PHASE TWO INTERVIEWEE EMPLOYERS



### 3.5.4 Second refined theory

At the end of Phase Two, a refined theory was developed based on insights around how and why researchers change what they do in response to knowledge transfer expectations. While the discernment of rich context and outcome patterns is a cornerstone of realist evaluation, “it is *explanation* that builds and sustains the pattern” (Pawson & Manzano-Santaella, 2012, p. 189). The focus in Phase Two was on explaining how different sub-groups of researchers had different sets of reasoning as a result of different influential contexts. The updated theory was based on a detailed review of instructions to researchers from three funds with high expectations of knowledge transfer, followed by an analysis of what was written in response to these instructions and follow-up interviews with researchers.

A limitation that emerged as the data was analysed at the end of Phase Two was that the final sample of interviewees had a bias towards understanding that knowledge transfer would be a “serious” part of what was required. These were researchers that had successfully applied for research grants from the three HRC funds that already



had high knowledge transfer expectations. This became problematic when interviewees referred to “other researchers” who did not take knowledge transfer seriously, but none of the sample of interviewees fitted this “other” category. The next phase (Phase Three) offered an opportunity to tap into the circumstances where researchers may not be taking knowledge transfer “seriously”, by asking research assessors to reflect more broadly on experiences with knowledge transfer across all the HRC investment funds.

### 3.6 PHASE THREE: THE VIEWS OF THE RESEARCH ASSESSORS AS IMPLEMENTERS

In Phase Three, all those who assess research project proposals on behalf of the HRC were invited to complete a survey designed to reveal more about the judgements being applied when assessing knowledge transfer pathways. A significant feature of the way research policy systems operate globally is the extent to which professional self-governance is given to researchers through the system of peer review. What this means in practice is that those who sit on assessing committees are given considerable authority to make judgements on what research should be funded. Phase Three captures the views of those on assessing committees in their role as *implementers* of the HRC’s knowledge transfer policy. Research assessors have considerable scope to modify or ignore knowledge transfer policies put in place by research funders by re-asserting (if necessary) core disciplinary values and managing the pace of any change. While the HRC has a moderating influence, given that they select assessors, manage committee dynamics and provide scoring guidance, the views of research assessors are significant in shaping how the HRC’s knowledge transfer policy is implemented.

#### 3.6.1 The on-line survey

In April 2016, a survey was emailed to a list compiled by the HRC of assessing committee members who assessed projects for the HRC’s four main investment streams in the 2014/2015 funding round. The survey was conducted on-line using

Qualtrics<sup>7</sup>. Respondents accessed the survey through a URL link sent by the HRC. A pilot with two former assessing committee members resulted in adjustments to ensure it was clear what committee members were being asked to recall. When consulted, the HRC asked that the messages at the front of the survey assured respondents that the survey was not being undertaken by the HRC, nor was commissioned by the HRC. No incentive was offered to participate. From 92 emails sent, 52 replies were received (a response rate of 56.5 percent).

The design of the survey was influenced by an approach developed by Best et al. (2010) to test realist theories. Respondents were provided with propositions of the various ways knowledge transfer policies could work to influence the reasoning of researchers and were asked to indicate whether:

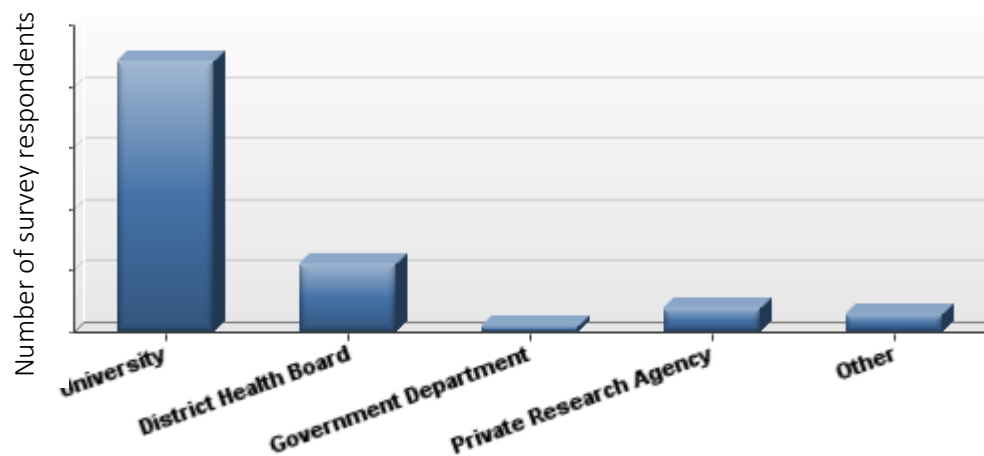
- Yes, they agreed strongly with the proposition and had little to add or change
- Yes to a large extent but they could provide comments
- Yes, to some extent but they could think of one example where this doesn't apply and provide comments
- Not really; they could think of more than one example where this does not explain what happens and they could provide comments.

Appendix Four contains a copy of the questions asked. Virtually all questions were completed by all respondents. Figure 3.3 presents the organisation affiliations of survey respondents. The vast majority of respondents were affiliated with a university (85 percent) followed by District Health Board affiliations (21 percent).

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<sup>7</sup> <https://www.qualtrics.com/>

FIGURE 3.3: ORGANISATIONAL AFFILIATIONS OF SURVEY RESPONDENTS



### 3.6.2 Final Updated theory

The survey answers shaped the final conclusions. These conclusions provide explanations for how the policy of requiring a knowledge transfer pathway actually works (or not) to increase the use of research results. As explained earlier, the aim at the end of the investigation was to firstly, provide specific advice on how the HRC can improve the implementation of its knowledge transfer policy, and secondly, provide insights into the broader thinking and theorising about how research funders can effectively play a more active role in encouraging the use of the research they fund.

## 3.7 CHAPTER SUMMARY

Realist approaches are useful for evaluating complex social mechanisms that are unlikely to work for all the participants all the time. The literature in the previous chapter had indicated knowledge transfer policies are likely to provoke a mixed response from researchers, so a research design capable of dealing with these contingencies was needed. A realist evaluation calls for a structured process of theory building and theory testing (Pawson & Tilley, 1997). Three phases of data collection were designed to build a deeper understanding of which contexts trigger what mechanisms to achieve the outcomes of the HRC's knowledge transfer policy.

The phases involved:

**Phase One:** extracting existing ideas about knowledge transfer policy from the literature, interviews with key informants on the design of knowledge transfer policies and an analysis of planning documents. An initial explanation of how the HRC's knowledge transfer policy was expected to work was developed in the form of three candidate mechanisms.

**Phase Two:** investigating the extent to which researchers reason in the ways theorised in phase one. Knowledge transfer instructions from three selected HRC funds were reviewed alongside what was actually recorded by researchers in the resulting applications. Interviews were then held with the principal researchers on how what was written compared with what actually happened, and views on knowledge transfer generally were gathered. This information was used to refine the Context-Mechanism-Outcomes proposition developed in Phase One.

**Phase Three:** surveying those who have been on HRC assessing committees. The survey examined the extent to which the refined theory developed in the second phase resonated (or not) with the experience of research assessors, based on updated propositions of the ways researchers may vary their efforts in response to requests for knowledge transfer pathways.

## 4 HOW ARE KNOWLEDGE TRANSFER POLICIES EXPECTED TO CREATE CHANGE?

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*Realist research does not start with questions, it starts with theories.*

(Emmel, 2015, p. 12)

Following the realist design outlined in the previous chapter, this chapter presents an initial theory on how the Health Research Council's (HRC) knowledge transfer policy is expected to work based on: (1) a review of the HRC's planning and accountability documents, (2) insights from the literature, and (3) eight key informant interviews. Those with an interest and expertise in the design of knowledge transfer policies were interviewed in order to understand more about the underlying intention behind the HRC's policy. Interviewees were asked to indicate how they thought researchers were expected to act differently as a result of these policies. Furthermore, as interviewees came from the wider health and research sector as well as the HRC, the interviews provided an opportunity to understand more about the fit of the HRC's policy with other knowledge transfer initiatives. This chapter presents the results of this first phase of investigative work in the form of an initial theory of how the HRC's knowledge transfer policy works to create change.

After the analysis of the grey literature followed by the interviews, it was clear that the HRC's knowledge transfer policy was a broad and malleable concept. Statements by the HRC in 2010 of the changes expected from the introduction of new instructions in the research process had shifted and evolved. The reality is that the HRC's knowledge transfer policy is, in common with many other interventions, a "mêlée" of contexts, times, and histories (Pawson, 2013b). The literature presented in Chapter Two on the actions and interventions health research funders undertake to promote knowledge transfer suggest these have a known pedigree as "knowledge transfer policies" and can

be easily spotted, but the interviews revealed various claims and understandings of how much change is expected. In order to make sense of this evolving context, the key components of the HRC's knowledge transfer policy are presented using Pawson's list of seven complexity dimensions as a frame in the first half of this chapter (Pawson, 2013b).

If a more rigid evaluative design was adopted to evaluate the HRC's knowledge transfer policy, then the evolving nature of the policy would have been a problem. However, the realist evaluative approach offered signposts of how to do more than just describe the messiness of different routes to achieve change. Attention was directed towards identifying the most important mechanisms which, when interacting with different contexts, are likely to lead to the expected outcomes being achieved or not. This chapter, therefore concludes, with three candidate mechanisms which provide the basis for further analysis in subsequent chapters.

#### 4.1 THE CONTOURS OF THE HRC'S KNOWLEDGE TRANSFER POLICY

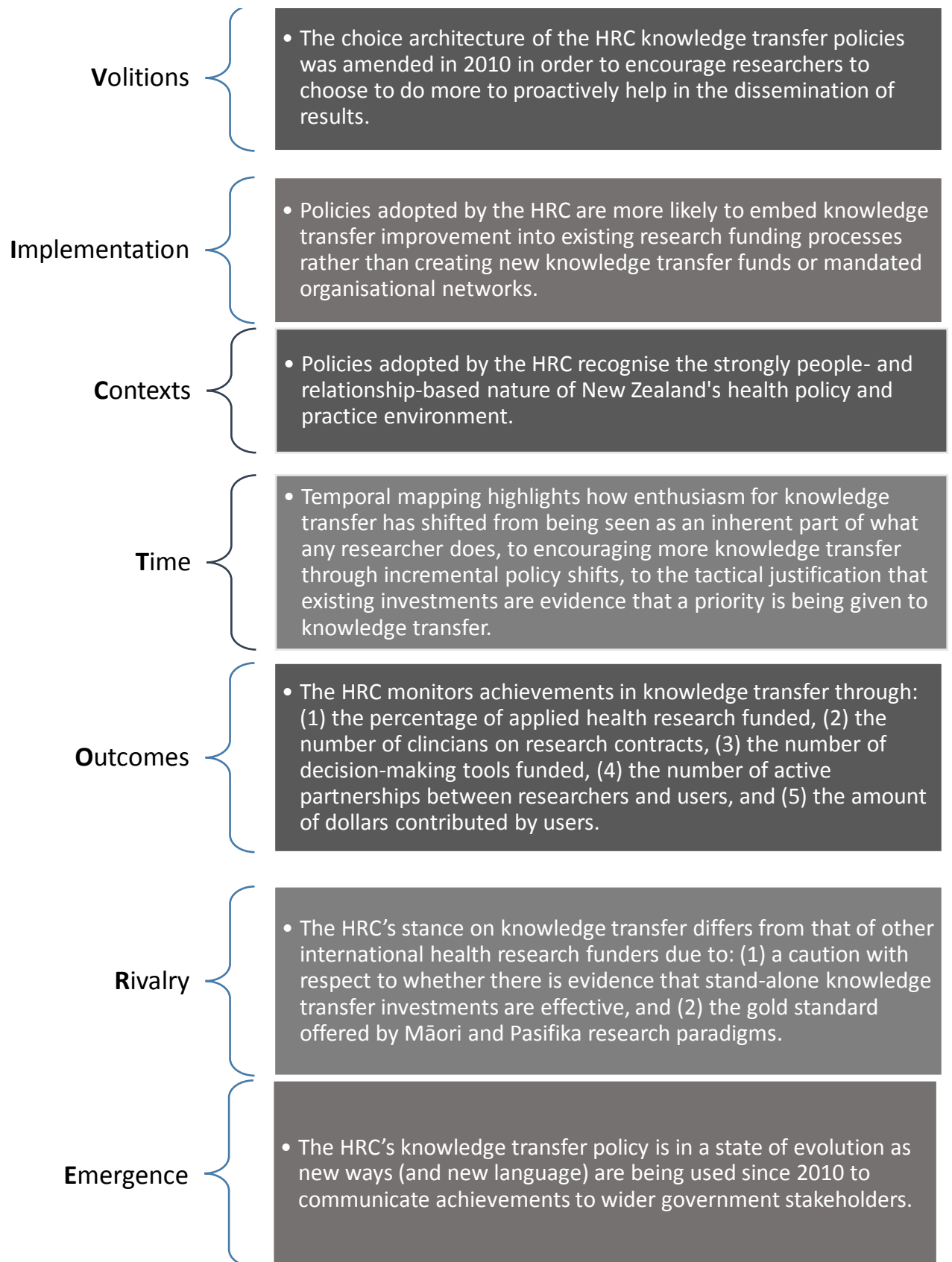
Investigations applying a realist approach regularly focus on a small slice of a complex pie. Before focusing down in detail on the small slice, Pawson advises the realist evaluator to step back and "attempt an initial map of the contours of complexity" that embody and surround any intervention being studied (Pawson, 2013b, p. 43). In order to produce a map for this investigation, the HRC's planning and other corporate documents from 2010 were reviewed and interviews were held with two HRC key informants. In the document review, particular attention was paid to references to the term "knowledge transfer" and the context in which it was used. The interviews uncovered areas where directions in HRC planning documents were not necessarily the same as directions as understood by those on the ground. To start this section, however, details are given about the HRC, before the dimensions of the HRC's knowledge transfer policy are presented using the seven complexity dimensions developed by Pawson (Pawson, 2013b).

#### 4.1.1 The Health Research Council of New Zealand

The HRC was established under the Health Research Council Act of 1990 with a mission and vision “of benefitting New Zealand through health research and improved health and quality of life for all” (Health Research Council, 2015). As a crown agent, the HRC is governed by a ten-member board appointed by the Minister of Health, with annual funding of approximately \$NZ87 million provided by the Minister of Research Science and Technology. The HRC replaced the longstanding Medical Research Council (established 1920) in order to give a greater profile to public health research and Māori health research. The strengths that had been built up in biomedical research, however, were still expected to be maintained. Strategic reviews of the HRC have highlighted the long-running challenge of finding a balance between research oriented toward New Zealand-specific health problems and participating in international biomedical research and development (MoRST, 2009). As a consequence of the need to find this balance, the HRC needs to run processes that respect the disciplinary traditions of biomedical science, social science and new indigenous ways of knowing.

The HRC distributes the vast majority of its investment through four funding investment streams based around research ideas proposed by researchers: (1) Health and Well-being in New Zealand [approximately 30-35 percent of investment], (2) Improving Outcomes for Acute and Chronic Conditions in New Zealand [approximately 35-40 percent], (3) New Zealand Health Delivery [approximately 20 percent], and (4) Rangahau Hauora Māori [approximately 10 percent]. In any year, up to 10 percent of the overall investment can also be directed towards direct requests for proposals on specific topics through the Partnership Programme, and, in past years, one-off funds have arisen to support research of direct interest to the health sector (such as the District Health Board Fund). The rest of this section explores the complexities of the HRC’s knowledge transfer policies using seven VICTORE dimensions recommended by Pawson (2013b); Volitions, Implementation, Contexts, Time, Outcomes, Rivalry, and Emergence.. Figure 4.1 lists these dimensions alongside a summary of what they reveal about the HRC’s knowledge transfer policy.

FIGURE 4.1: KEY INFLUENCES ON THE HRC'S KNOWLEDGE TRANSFER POLICY





#### 4.1.2 Volitions: how the HRC makes decisions on what research to fund

Under the Volitions dimension, the “choice architecture of a programme” (Pawson, 2013b, p. 43) is considered in order to understand how the ambitions of the policy are expected to be achieved. Policies normally involve the subjects of the policy making different choices in order to achieve particular outcomes. In order to make sense of the choice architecture for the HRC’s knowledge transfer policy, an account of how the HRC makes choices on what research to fund follows.

The HRC describes the process it uses to make funding decisions as international best practice (Health Research Council, 2011). In a nutshell, the process involves calling for and receiving applications from researchers according to an annual programme of grant rounds, and in response to very broad signals of the type of research required in each of their four main investment schemes. The HRC can also issue requests for proposals which seek to fill specific knowledge gaps, often identified as part of joint initiatives with other agencies as part of their Partnership Programme.

The process of assessing applications for the four main investment streams (the bulk of the HRC’s \$NZ87 million investment) takes nine months in total and involves expert committee members as well as specialist reviewers scoring applications on a 7-point scale. As outlined in the Introduction, the HRC criteria for assessing and scoring research proposals were extensively changed in 2010. The new criteria for the assessment of applications incorporated previous criteria, but gave a greater emphasis to research impact and knowledge transfer. The ways these changes were expected to incentivise researchers to think and act differently are laid out as part of the sequence below.

From 2010, a two-stage application process was introduced. Stage One involved an Expression of Interest (EOI), asking researchers to give an overview of the proposed study, methodology and a description of the research team in three pages. EOI applications were assessed and ranked with the intention that the highest ranked

proposals were then invited to submit a full application. Full applications were more comprehensive with more space to record plans for the uptake and use of the proposed research. When this thesis refers to the HRC's research applications, it is generally the full application that is being referred to. Applications that make it through the first stage are reviewed initially by external reviewers linked to the four investment streams.

At an assessing committee meeting, each application (with reviewer reports and applicant rebuttal) is considered and members discuss and score the proposals using a 7-point scale (1 being poor and 7 being exceptional) against the criteria listed in Box 4.1. Different assessing committee meetings are held for Biomedical Research, Public Health Research, Clinical Trials, New Zealand Health Delivery and Māori Research.

BOX 4.1: HRC ASSESSMENT COMMITTEE SCORING CRITERIA		
Criteria	Points	% score
Rationale for Research	7	25
Design and Methods	7	25
Research Impact	7	25
Expertise and Track Record of the Research Team	7	25
Total	28	100

In 2011, the new Research Impact criteria included the concept of knowledge transfer as a component of impact assessment. Figure 4.2 displays the guidance given to research assessors on what to score when judging “research impact” for each of the four investment streams with the key phrases that refer to knowledge transfer shaded.

The following quote from the HRC's Statement of Intent illustrates the way this change was expected to result in new behaviours involving a new far- sightedness and new understanding from researchers:

By making knowledge transfer a component of impact assessment, we are encouraging and incentivising researchers to look beyond the outputs of their work and understand specific areas where they can proactively help in the dissemination and where appropriate, the implementation of their results (Health Research Council, 2013, p. 23).

The other key change from 2010 was the introduction of a New Zealand Health Delivery Investment Stream which required researchers to develop workable solutions to “real life” challenges in the health sector, aiming to fund research that will make a difference within a three- to five-year timeframe. By ensuring that successful research applications now met three key attributes – change orientation, end-user engagement and knowledge transfer – the expectation was that the amount of applied research invested by the HRC would increase. While not said explicitly, the assumption was that other types of research would decrease. The knowledge transfer attribute was defined as “demonstrating the potential for appropriate processes to support the uptake of research findings, including strong collaborative research alliances and an appropriate tailored dissemination plan explaining how findings will be fed back to interested parties to ensure maximum utility and uptake” (Health Research Council, 2010c, p. 15).

To create this new investment in 2010, current HRC projects were reviewed according to how well they demonstrated the three attributes. As far as the HRC was concerned this process found only 20 percent of researchers relied solely on traditional knowledge transfer routes such as peer-reviewed publications and conference presentations. Their report reported the majority planned knowledge transfer activities “appropriate to reach end-users” (Health Research Council, 2010c, p. 2). An analysis which suggests that, while the policy was ostensibly put in place to prompt a change in behaviours, the initial overview found only a small sub-set of researchers who needed to change.

The New Zealand Health Delivery investment stream is scored differently from the other three investment streams. The key difference is that more weight is given to outcomes and uptake, reflecting the interest in seeing change within three- to five-years of research completion (see Box 4.2).

BOX 4.2: HRC NEW HEALTH DELIVERY ASSESSMENT COMMITTEE SCORING CRITERIA		
Criteria	Points	% score
Rationale for research	7	25
Design and methods	7	25
Impact on NZ health delivery	7	20
Team capability - outcomes	7	20
Team capability - uptake	7	10
Total	28	

At the final assessing committee meeting when individual scores by reviewers differ significantly or there are clearly identifiable outliers, the research application is revisited and further discussion takes place amongst committee members. At the time of this investigation, successful applications were then reviewed by the Grant Approval Committee which includes the Chairs (or designees) of the Biomedical Research Committee, Public Health Research Committee, Māori Health Research Committee, HRC Chief Executive and independent chair before final funding recommendations are sent to the HRC Board for approval.

FIGURE 4.2: GUIDANCE GIVEN IN HRC'S PEER REVIEW MANUAL ON HOW TO SCORE RESEARCH IMPACT

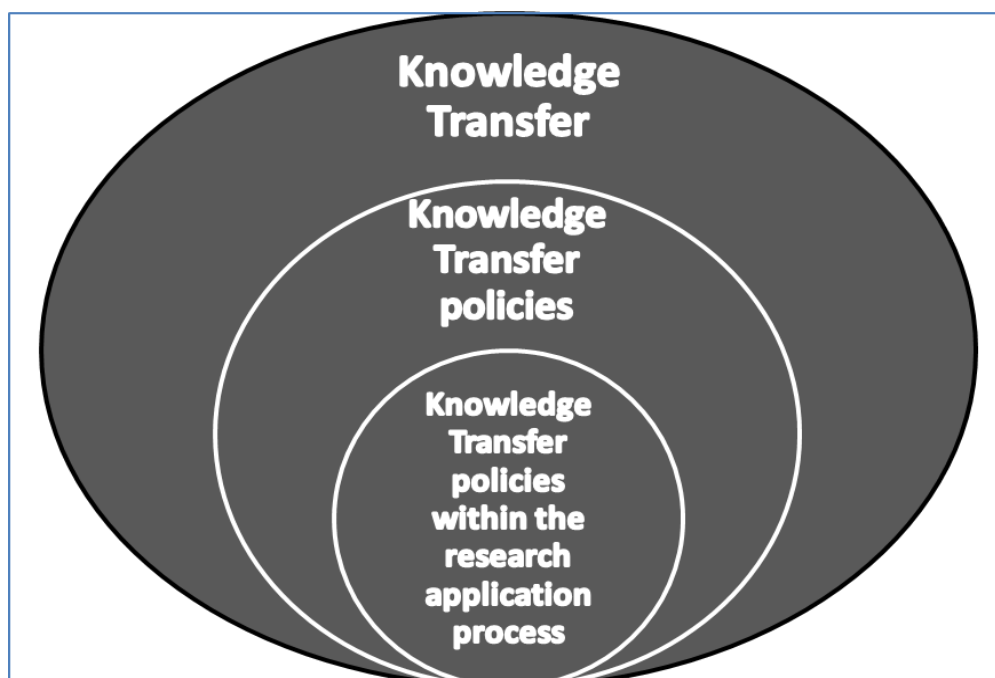
Health and Well-being in New Zealand	Improving Outcomes for Acute and Chronic Conditions in New Zealand	Rangahau Hauora Māori	New Zealand Health Delivery
<p>The proposed outcomes will add value and make a difference because some or all of:</p> <ul style="list-style-type: none"> <li>• They advance one or more of the investment signal goals</li> <li>• They will have an impact and result in knowledge, health, social and/or economic gain</li> <li>• Plans have been made for the uptake and utilisation of research findings.</li> <li>• Outcomes relating to an important health issue will be achieved</li> <li>• There is an appropriate responsiveness to Māori (if applicable).</li> </ul>	<p>The proposed outcomes will add value and make a difference because some or all of:</p> <ul style="list-style-type: none"> <li>• They advance one or more of the investment signal goals</li> <li>• They will have an impact and result in knowledge, health, social and/or economic gain</li> <li>• Plans have been made for the uptake and utilisation of research findings</li> <li>• Outcomes relating to an important health issue will be achieved</li> <li>• There is an appropriate responsiveness to Māori (if applicable).</li> </ul>	<p>The proposed outcomes will add value and make a difference because some or all of:</p> <ul style="list-style-type: none"> <li>• They will have an impact and result in knowledge, health, social and/or economic gains for Māori</li> <li>• Plans have been made for the dissemination, uptake and utilisation of research findings</li> <li>• The research will contribute to building Māori health research capacity</li> <li>• Outcomes relating to an important health issue will be achieved</li> <li>• The research has met all six goals for the Research Investment Stream.</li> </ul>	<p>The proposed outcomes will add value and make a difference because some or all of:</p> <ul style="list-style-type: none"> <li>• They will have a positive impact on New Zealand health and disability service delivery within 5 years of the project commencing</li> <li>• Plans have been made for the uptake and utilisation of research findings</li> <li>• Outcomes relating to an important health issue will be achieved</li> <li>• There is an appropriate responsiveness to Māori (if applicable).</li> </ul>
			<p>Team Capability Research Uptake. The proposed outcomes are likely to be used, because the proposal demonstrates:</p> <ul style="list-style-type: none"> <li>• Meaningful engagement of end-users throughout the research process</li> <li>• Dissemination plan that has been tailored towards specific end-users</li> <li>• Networks to maximise knowledge transfer and research uptake</li> <li>• Appropriate responsiveness to Māori (if applicable).</li> </ul>

#### 4.1.3 Implementation and contexts: the wider landscape of knowledge transfer policies

Policies are always introduced into pre-existing social conditions, and often have long implementation chains involving different decisions at different levels (Pawson and Tilley, 1997). Figure 4.3 displays the chain that forms the heart of this investigation as a series of circles. At the centre is the changes the HRC is making to its research application process, but these sit within a range of other potential knowledge transfer policies (the middle circle) informed by the scholarship on knowledge transfer (outer circle).

For this investigation, a concept map was developed to present the range of possible policies in the middle circle influenced strongly by the distinctions other scholars have made between: (i) policies that operate at an individual researcher level to build the skills to provide and use research at an individual level, (ii) those that embed research use in services and systems, and (iii) those that create research partnerships and organisational collaborations (Nutley et al., 2007).

FIGURE 4.3: POLICY IMPLEMENTATION CHAIN



The concept map was presented as a way to gather key informant experiences. Internationally, there are debates over when to choose micro-level policies that rely on researchers acting and thinking differently within mainstream funding processes over macro-level policies that set up new knowledge transfer institutions. For example, since 1997, US researchers seeking grants from the National Science Fund (NSF) have had to justify their work in terms of broader impacts, and not just the intellectual merit of their proposal. These guidelines (known as criterion 2) were recently strengthened further by requiring all proposals to provide a compelling description of how the project will advance one or more goals. Sarewitz (2011), among others, points out that this type of request leads to hype and cynicism in researchers. He argues that setting up new organisational experiments in areas where knowledge transfer needs are greatest, such as new Science and Technology Centres, are better alternatives.

My interviews with eight key informants in New Zealand did not uncover debates about whether or not to use one type of knowledge transfer policy over another, but highlighted how different histories and assumptions in different sectors have influenced how much attention is given to different types of knowledge transfer policies.

When key informants were asked what was likely to influence the type of knowledge transfer policies the HRC put in place, it was suggested that the policies adopted by the HRC are more likely to pay attention to embedding knowledge transfer into existing research funding processes. By contrast, other sectors were experimenting with new knowledge transfer institutions and networks (for example, Callaghan Innovation). Key informants described a health sector in New Zealand that was very relationally based as the following two quotes highlight:

*In New Zealand, things happen relationally rather than bureaucratically – what distinguishes knowledge transfer in New Zealand is it is about communities of interest (Key informant).*

*Two characteristics stand out: (1) the reality is that researchers are practitioners – they are often clinical researchers, or if you are not a clinical researcher, you are likely to have close links with clinical colleagues – and (2) the idea of thought leaders. From my experience of being a medical practitioner, they are the people who dictate by their behaviour what goes on (Key informant).*

One informant suggested that new agencies like Callaghan Innovation (which works to link commercially oriented researchers and users) arose because the high technology manufacturing sector lacked effective individuals linking research and action to create change. Whereas in the health sector:

*Generally, the whole system is much more swayed by the leading medical opinion which includes researchers in New Zealand; the very well-known top researchers. The opinion leaders are very powerful in directing the whole system and are more powerful than government in directing what services will be available (Key informant).*

An investigation by Lomas, a Canadian scholar on knowledge transfer, partly confirmed the perception that New Zealand had a strongly people- and relationship-based health policy and practice environment. In 2008, he concluded that the systems in New Zealand place a strong reliance on chance mechanisms to communicate ideas from one to another with the downside that targeted funds that would convert local innovation to proven best practice were under-resourced (Lomas, 2008).



Figure 4.4 presents the refined concept map including what key informant interviewees thought was important to understand about these policies. Key informants recommended providing examples of both supply-side interventions (that is, those actions undertaken by researchers to improve the likelihood that research results are taken up), and demand-side interventions (that is, those actions undertaken by end-users to improve the way they engage with research and researchers). For example, potential knowledge transfer policies influencing the supply of research by increasing the amount of time researchers spend on knowledge transfer actions (a micro-level intervention) could be matched by demand-side interventions to create a more receptive environment for these actions.

FIGURE 4.4: POTENTIAL KNOWLEDGE TRANSFER POLICIES (REFINED CONCEPT MAP)

Micro level: new directions		Meso level: new funds		Macro level: new institutions	
<p>Knowledge transfer policies which intervene at the micro level by influencing what individual researchers do in their regular grant applications.</p> <p>In the health sector, the expectation is that clinicians and other health professionals have the autonomy to modify their own practices often shapes the type of knowledge transfer actions health care researchers undertake to target results.</p>		<p>Knowledge transfer policies which intervene at the meso level by providing targeted funds which can (1) cover the extra “development” costs after research is completed, or (2) place very specific requirements on what research is undertaken to meet specific needs.</p>		<p>Knowledge transfer policies which intervene at the macro level by creating new institutions and/or networks with a mandate to bring researchers and users together to increase the speed at which innovation, best practice and policy change occurs.</p>	
<p><b>Health sector examples:</b></p> <p>Supply-side: Health Research Council introduced research impact scoring across all investment streams.</p>	<p><b>Health sector examples:</b></p> <p>Demand-side: Ministry of Health interventions aimed at modifying the clinical behaviour of health professionals requiring adherence to national clinical guidelines.</p>	<p><b>Health sector examples:</b></p> <p>Supply-side: Health Research Council Māori Health Research Knowledge Translation Grants provide small amounts of funding (\$5,000) to disseminate research to key stakeholders.</p>	<p><b>Health sector examples:</b></p> <p>Demand-side: Co-funding expectations in HRC partnership funds for financial or in-kind support for particular research projects.</p>	<p><b>Health sector examples:</b></p> <p>New Zealand <b>Health Innovation Hub</b> was created as an independent crown entity to provide advice on product and service realisation pathways.</p>	<p><b>Health sector examples:</b></p> <p><b>Ko Awatea</b> at Counties Manukau District Health Board promotes real time quality improvement approaches to health sector change.</p>
<p><b>Examples in other sectors:</b></p> <p><b>Supply-side:</b> In partnership with European Funding, Sandpits involve intensive, interactive, five-day residential workshops where researchers and users come together to develop novel and potentially transformative approaches to an issue in advance of a funding round.</p>	<p><b>Examples in other sectors:</b></p> <p><b>Demand-side:</b> Creation of new departmental science advisers within departments as a point of engagement in order the share relevant results with policy-makers.</p>	<p><b>Examples in other sectors:</b></p> <p><b>Supply-side:</b> Technology Transfer funds such as the Pre-Seed Accelerator Fund which provides development funding to move publicly funded research projects to the stage where they stimulate and attract investor interest.</p>	<p><b>Examples in other sectors:</b></p> <p><b>Demand-side:</b> Establishment of joint ventures between government and industry such as the Primary Growth Partnership which uses joint funds to increase market success of the primary industry.</p>	<p><b>Examples in other sectors:</b></p> <p><b>Callaghan Innovation</b> created to increase the speed with which New Zealand firms commercialise their ideas and inventions by assisting them to develop research skills and grow their expertise in taking products to market.</p>	<p><b>Examples in other sectors:</b></p> <p><b>Social Policy Evaluation and Research Unit (Superu)</b> created to promote and encourage social science research and evaluation across multiple ministries.</p>

#### 4.1.4 Time and outcomes: the evolution of the HRC's policy

The history of an intervention can reveal much about how the initial enthusiasm for change can taper off and be replaced by new ideas, language and emphases (Pawson, 2013b). Figure 4.5 maps the trajectory for the HRC's knowledge transfer policy starting with the two changes introduced in 2010 – the introduction of impact scoring across all the investment streams and the creation of the New Zealand Health Delivery portfolio. Both these changes were expected to shift the concept of knowledge transfer from an activity that was always part of the research process to one given more prominence in shaping the way researchers thought about what they could do to ensure their research results were taken up and used. However, elements of the former style of thinking still remained when key informants were interviewed in 2014. One key informant explained that knowledge transfer was an inherent part of any piece of research:

*Thinking about knowledge transfer policies as such, we do not have many policy directions around knowledge transfer and exchange. We do have expectations that knowledge transfer could be an inherent part of any piece of research regardless of where on the spectrum it falls; from very basic to very applied research (Key informant).*

Another interviewee reinforced the importance of seeing knowledge transfer as something embedded in research and not as a separate process. Consequently, apart from Māori Health Research Knowledge Translation Grants (\$5,000), specific knowledge transfer funds were generally seen as not appropriate:

*We do not have end-of-grant funding for knowledge transfer. I know that others do but we do not; particularly, because of our flexible thinking about knowledge transfer and that it is an inherent part of a research activity. If there is a tag on activity, we may not get the full impact of that piece of research. I tend to think*

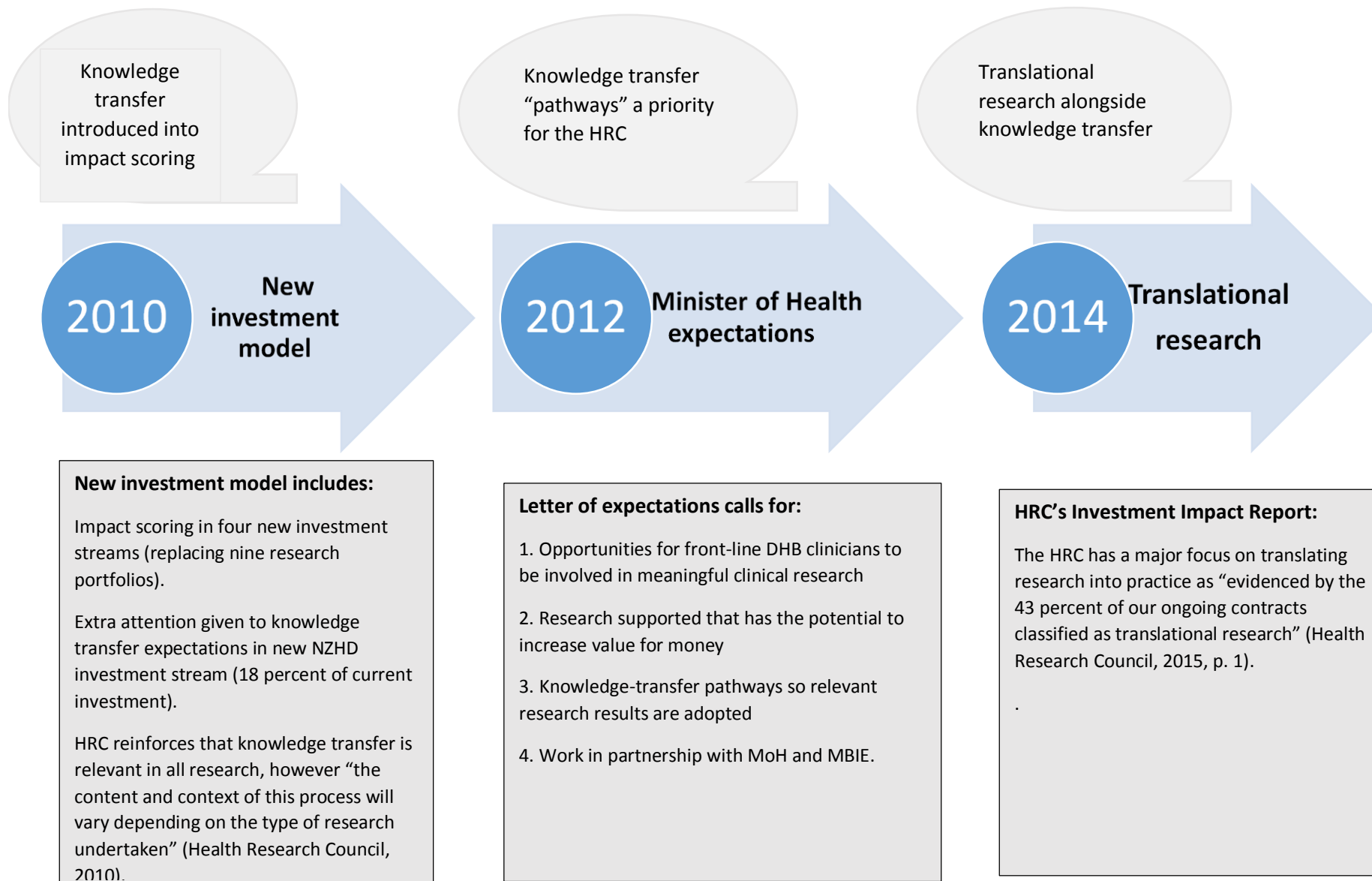
*researchers are thinking about it from the very beginning, in an appropriate way for that piece of research (Key informant).*

As the last line in the quote above demonstrates, the HRC's expectations around knowledge transfer varied markedly depending on the type of research undertaken. The HRC's written materials made clear that it was up to the researcher to decide what was appropriate:

Dissemination and communication activities undertaken by most researchers, such as conference presentations and publications in peer reviewed journals, are an integral part of the transfer of knowledge from a research project. In addition, researchers should consider whether there are additional appropriate audiences for this knowledge, and by what mechanisms and activities potential research users could best access it. Researchers should be mindful of how the results of their studies might be applied, who might be able to apply these results and consider tailoring the message and medium to specific audiences (Health Research Council, 2010a, pp. 28-29).

The timeline in Figure 4.5 is loosely structured around three areas of emphasis starting with the new investment model in 2010. From 2012, the Minister of Health, in a letter of expectations to the HRC Board, directly requested the HRC to “investigate knowledge transfer pathways so relevant research results are adopted by the health and disability sector”, as part of four specific priorities. The other three priorities were to (1) support opportunities for front-line DHB clinicians to be involved in meaningful clinical research to enrich their careers and encourage their retention in the workforce, (2) support research that has the potential to increase value for money through improved health outcomes, health delivery, economic gain, and (3) work in partnership with both the Ministry of Health (MoH) and the Ministry of Business, Innovation and Employment (MBIE) in terms of the funding, priority setting and development of health research.

Figure 4.5: TIMELINE OF HRC'S KNOWLEDGE TRANSFER POLICY DEVELOPMENT



In setting out their response to the direction to investigate knowledge transfer pathways, the HRC explained that “increasing the utility and uptake of health research is a priority for HRC” (Health Research Council, 2013, p. 1), and that the HRC directly targets the involvement of end-users and decision-makers in research in the following ways:

All applicants are encouraged to engage stakeholders and end-users from the outset of the research, while some research funding opportunities require our researchers to work in collaboration with health-service providers and decision-makers such as our New Zealand Health Delivery (NZHD) Research Investment Stream and our Research Partnerships for New Zealand Health Delivery (RPNZHD). For RPNZHD, the applicant organization is further required to make a minimum contribution towards the research costs (financial and/or in-kind support). We also award two science medals on an annual basis, which recognise, encourage and promote research translation. Over the next two years, we plan to add to our dissemination activities and increase the value of the public investment in health research by promoting data sharing and by developing an on-line, searchable database of research findings. Our stakeholders will be able to directly access the key findings of the research we support. (Health Research Council, 2013, p. 6).

The Ministerial expectation that the HRC is to give a priority to “knowledge transfer pathways” continues in further years with a subsequent response by the HRC pointing to the amount of applied research being funded as outlined in the 2013 response. For example, in 2014/15 the HRC lists the existence of the Research for New Zealand Health Delivery Research Investment Stream, the Partnership Programme and Research Partnerships for New Zealand Health Delivery, along with a claim that 69 percent of current contracts involve end-users and clinicians. No further mention is made of science medals or a searchable database of research findings.

It is not an uncommon strategy for health research funders to refer to the existence of specific funds as a way of demonstrating that a priority is being given to increasing the utilisation of health research. Chapter Two referred to the use of “safety valve” funds as a technique research funders can use to target research at particular diseases and priorities, while still maintaining a large base of untargeted biomedical investment and demonstrating relevance to the health sector. In a similar fashion, the reference to the amount of research undertaken by the HRC for the short-term benefit of the health sector is used as a demonstration that the HRC is giving a priority to knowledge transfer<sup>8</sup>. The 2010 changes to include knowledge transfer expectations in the research application process were not mentioned. One key informant tentatively suggested that the 2010 changes in the research application process were not as influential as expected and sent subtle messages to researchers rather than direct messages concerning new behaviours:

*I do not know how much influence our impact scoring actually has. Our impact is relatively broad but I guess there is something in the language, and by talking about impact, we shifted from health significance to impact, so there is a subtle difference in the language which is an important signal to researchers that they need to think about the real world and how the research contributes (Key informant).*

From 2011 onwards, the HRC’s planning documents provide an outcome framework to measure HRC’s performance against the following four outcomes:

1. New knowledge, solutions and innovations for health are created
2. The health-care system is improved through research evidence and innovation
3. The best clinicians and health researchers are attracted, supported and retained in New Zealand

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<sup>8</sup> Despite a performance expectation that the New Zealand Health Delivery research portfolio will grow to comprise 20 percent of the total of the HRC’s research investment (performance measure on Box 4.3) recent progress reports indicate that only 13 percent has been funded.

4. The relevance, responsiveness and robustness of health research is increased.

This performance framework remained relatively unchanged from 2011 to 2015. Two instances stand out where reference is made to “knowledge transfer” in the documents where this framework is described and reported on. The first occurs when describing what is needed to achieve the fourth outcome (an increase in the relevance, responsiveness and robustness of health research), with commentary explaining that to achieve this outcomes the HRC “facilitates and promotes knowledge transfer” (Health Research Council, 2014a, p. 21). The second instance is more indirect. When explaining what is needed to achieve the second outcome (the health-care system is improved through research evidence and innovation), the theory is laid out that “when stakeholders are involved in the research process, the findings are more likely to be understood and taken up and applied” (Health Research Council, 2014a, p. 15). Box 4.3 lists the measures being used to track progress against these two outcomes. Despite making direct reference to knowledge transfer in outcome four, the measures listed include what a research funder does as core business (that is, the number of applications reviewed and appeals received), as well as the number of active partnerships between researchers and users.

In 2014, a key milestone report sums up the impact of the HRC’s investment over the last 25 years (Health Research Council, 2015). References to knowledge transfer in the *Investment Impact Report* include an explanation of how the HRC operates to “encourage researchers to have an improvement and change-orientation focus, with a defined pathway to achieving knowledge transfer, and a skilled fit for purpose team” (Health Research Council, 2015, p. 7), as well as an expectation on “researchers to justify their knowledge translation approach in proposals”. A reminder is given that the HRC is proactive in ensuring research users are fully engaged in the research process only in “areas where integrated knowledge translation is required” (Health Research Council, 2015, p. 10).



**BOX 4.3: MEASURES USED BY THE HRC TO TRACK PROGRESS (Health Research Council, 2014b)**

OUTCOME STATEMENT TWO: The health-care system is being improved through research evidence and innovation.

MEASURED BY:

- The percentage of the HRC's annual investment under NZHD or RPNZHD<sup>9</sup>. The target is that 20 percent of HRC's total investment does to New Zealand Health Delivery research
- The percentage of current contracts with a named investigator based in a District Health Board or Primary Healthcare Organisation which is assessed by an annual analysis of the CV for each researcher employed on a new contract.
- The percentage of new contracts focused on innovative clinical decision-making tools or models or care with a target of 12 percent comprising one new health technology and three new clinical innovations/decision-making tools arising from HRC funded research.

OUTCOME STATEMENT FOUR: The impact, responsiveness and uptake of health research is increased.

MEASURED BY:

- The number of preliminary applications peer reviewed.
- The number of appeals for reconsideration of an HRC funding decision received by the Board.
- The number of active research partnerships with end-users and providers. The target is 40 contracts that involve a strategic partnership funded through HRC's partnership programme.
- The dollar value of co-funding leveraged through the Partnership Programme.

The *Investment Impact Report* does not summarise the results from the performance framework in place between 2011 and 2015 but provides a series of up-beat case studies of past research projects with their resulting "impacts" described in the form of numbers of peer-reviewed publications, keynote lectures, consultations/provisions of professional advice, products and patents and collaborations.

What is striking about this report is the subtle shift away from the term "knowledge transfer" towards "translational research". The HRC states in the front of the report that the Council has "a major focus on translating research into practice, evidenced by

<sup>9</sup> The most recent summary of progress identified that rather than the hoped for 20 percent of their investment in New Zealand Health Delivery research, only 13 percent has been funded.

the fact that 43 percent of our on-going contracts are classified as translational research” (Health Research Council, 2015, p. 1). In contrast to the performance measures tracking the amount of applied health research in order to track whether the health-care system is being improved through research evidence (see Box 4.3), translational research is “not limited to the most applied end of the spectrum” and can cover research that represents “a significant progression along the value chain” (Health Research Council, 2015, p. 40). In order to be counted among the 43 percent of the HRC’s contracts that are classified as translational research, the research funded needed to meet one of the following sets of criteria:

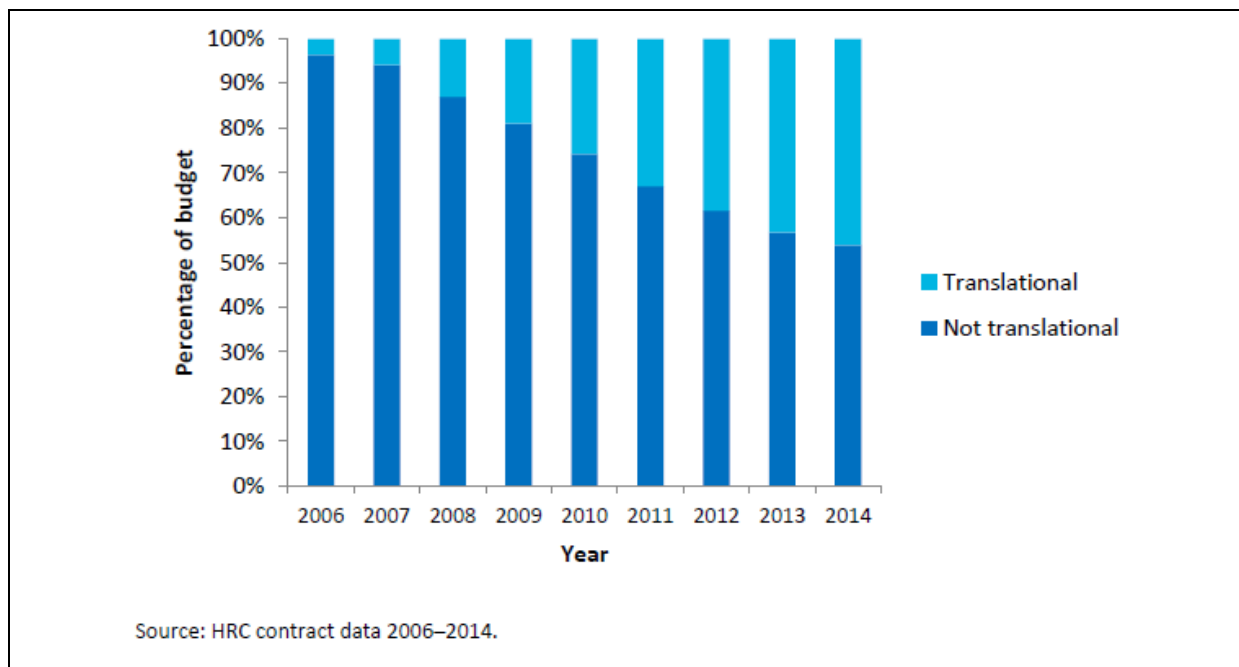
- a. the research is a clinical trial or an intervention or observational research aiming at informing policy
- b. the research application demonstrates sustained engagement with end-users
- c. the research proposal has the intent of application or uptake, and
- d. the research is likely to be translated in the short-to-medium term.

**Or** the research must represent a progression from one of the following pipeline categories to another:

- a. discovery of potential prevention/treatment strategy
- b. non-clinical testing, for example, testing in animal models, or
- c. clinical trial or study to determine efficacy.

Figure 4.6 presents the graph used by the HRC to demonstrate that the amount of translational research being funded is increasing over time.

FIGURE 4.6: HRC CONTESTABLE FUNDING AIMED AT TRANSLATION (OUTGOING FUNDING) 2006-2014



The timeline presented in this section reveals the ways in which the HRC’s knowledge transfer policy has become a complex sequencing of embedded practice (that is, knowledge transfer is an inherent part of any piece of research), incremental policy shifts (that is, changes can be made to the research application process to increase the amount of knowledge transfer that occurs) and tactical positioning (that is, the amount of applied health research being undertaken is evidence of giving a priority to knowledge transfer). Recent activity includes reclassifying past research as “translational research” and demonstrating how the amount of translational research is increasing as a percentage of the HRC’s total investment.

#### 4.1.5 Rivalry: how does the HRC compare with what is happening internationally?

The rivalry category advises realist evaluators to map how an intervention sits alongside its policy neighbours (Pawson, 2013b). An earlier discussion placed the HRC policy operation alongside its policy neighbours in New Zealand (see section 4.1.3). Using five areas of activities developed by a Canadian expert working group as a guide to international best practice (Holmes, Scarrow, & Schellenberg, 2012), the rest of this

section explores how the components of the HRC's knowledge transfer policy match international best practice. The Canadian expert working group recommends that health research funders should consider:

1. Adding to the knowledge transfer literature
2. Building capacity for knowledge transfer
3. Organising forums where researchers and research users discuss a specific issue with a view to implementing a solution
4. Providing funds for knowledge transfer, and
5. Advocating for knowledge transfer by mandating knowledge transfer as part of programmes and projects as appropriate.

The HRC expectation that researchers provide a knowledge transfer pathway in their application is in line with the fifth activity recommended above, that is, that research funders should mandate knowledge transfer as part of their programmes and activities. With respect to other knowledge transfer activities listed above, the HRC has not directly contributed to the knowledge transfer literature with ring-fenced topic-based investments (the first activity) though the HRC funds research projects overall with an applied orientation. Nor has the HRC provided for knowledge transfer training (the second activity). There have been no workshops on knowledge transfer with researchers (the third activity) though occasional forums have been held to bring researchers and research users together to discuss a specific issue with a view to implementing a solution. For example in 2012, researchers and users were brought together to come up with new ideas in diabetes and obesity research using European Union funding for Ideas Factory Sandpits<sup>10</sup>. Finally, apart from small Māori Health Research Knowledge Translation Grants, there is little in the way of separate funds (the fourth activity) as funds for knowledge transfer are included as costs within applications.

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<sup>10</sup> <http://www.hrc.govt.nz/news-and-media/news/researchers-play-sandpit>

The timeline presented in Figure 4.5 section revealed that small incremental changes to the research application process were favoured as a way of promoting knowledge transfer. There was less interest in creating new funds and specific knowledge transfer activities. As one key informant explained, the arguments of what to do from the literature were not obvious:

*There are a lot of things that you can do under the name of knowledge transfer and at times I think there could well be a bunch of other stuff we should be introducing or doing. I look at the Canadians and the models they use, which are very well developed. They fund knowledge transfer fellowships and other types of things. I wonder if there is a lot more we could do. The evidence of effectiveness for any of these things is not apparent to me. I have not seen any that argue for one particular approach over another (Key informant).*

Key informants indicated two ways the HRC's stance on knowledge transfer differed from that of other international health research funders: (1) a caution with respect to whether there is evidence that stand-alone knowledge transfer investments are effective, and (2) the gold standard offered by Māori and Pasifika research paradigms. The way Māori and Pasifika communities were intimately involved in shaping and receiving the results of research was seen as setting a standard for other health research fields to follow. Informants stressed that while western science has had to "create new jargon and new discourse" about knowledge transfer, for Māori and Pasifika research, reciprocity between researchers and end-users is already of central significance.

#### 4.1.6 Emergence: a state of evolution

Finally, the concept of emergence refers to the idea that components in a system will often combine to produce novel components, thus continually changing the

composition of the policy under investigation (Pawson, 2013b). The earlier historical overview in section 4.1.4 of different directions presented through planning and accountability documents since 2010 confirms that the HRC's knowledge transfer policy is in a state of evolution. Two examples of this evolution are seen. The first is in the move from an initial focus on the term "knowledge transfer" to "translational research". It is possible that this language has been deliberately introduced to respond to the interests of biomedical researchers in profiling assumptions of how knowledge transfer works as a "pipeline". In this scenario research knowledge is translated down the value chain. As Harvey (2013) has pointed out, social science assumptions that researchers and end-users should collaborate more in the entire joint enterprise of the knowledge production and use is markedly different from the biomedical emphasis on finding ways to make research evidence more accessible, useful and usable by practitioners.

Secondly, an evolution was seen in the difference between the HRC's written statements and in how changes were viewed by key informants. This involved a shift from describing knowledge transfer as something that involves a change in what researchers do to a more subtle validation of what happens anyway. As one key informant explained:

*Researchers go into a career in health research because they want to have an impact on health – so by having knowledge exchange expectations and giving it a language and talking about it, all we are doing is giving permission to a researcher to do what they always do. Validating it for them (Key informant).*

#### 4.1.7 Confirming the focus

From the start of the HRC's new investment model in 2010, one-off statements of what was hoped to be achieved by paying greater attention to knowledge transfer were evident. However, the review of the HRC's policy and planning documents after 2010 reveals a more complex relationship to the type of change envisaged. As Pawson

explains, it would make life easier for the realist evaluator if policies were introduced into a vacuum, but they are much more likely to involve an amalgam of contexts, times, and histories that condition the action of the intervention, and, in this case, the type of change envisaged.

Given the large number of potential influences on the outcomes of any particular policy and the array of theories to account for them, a realist evaluation proceeds by taking some features on trust and by focusing inquiry on certain others – “a difficult estimate known as the trust-doubt ratio” (Pawson, 2013b, p. 86). The complexity outlined according to Pawson’s VICTORE scheme has underscored the ways in which a specific evaluation of the HRC’s knowledge transfer policy can only take a limited cut at the issues. For the purpose of this thesis, a specific cut focuses attention on the HRC’s expectations that researchers will provide a defined pathway to achieving knowledge transfer in their applications for funding. The next section uses the Context-Mechanism-Outcome (CMO) propositions that are the hallmark of the realist approach to present an initial hypothesis of how this instruction to provide a defined knowledge transfer pathway is expected to work.

## 4.2 THE INITIAL THEORY OF HOW THE POLICY IS EXPECTED TO WORK

Having confirmed the make-up of the policy being investigated, the following sections use the findings from key informant interviews and the relevant literature to surface the collective outcome (O) expected from the HRC’s knowledge transfer policy before working backwards to hypothesise the potential mechanism that may cause researchers to behave differently (M), and the enabling or constraining contexts for achieving the expected outcome (C). The aim in the following account is to develop an initial realist CMO theory capable of further testing, concentrating most on the HRC’s policy expectations that researchers will provide a defined pathway to achieving knowledge transfer in their applications for funding. For the purposes of the rest of this thesis, this expectation is shortened to “the HRC’s knowledge transfer policy”.

Realist principle six outlined earlier (section 3.2.6) emphasised the importance of building firmer footings in the ongoing quest for knowledge, and that one way to achieve these firmer footings is to build from the theorising of others who have sought to tease out contexts, mechanisms and outcomes in similar situations. While I found no realist literature that looked directly at the same policy being investigated, a handful of realist studies explored adjoining policies: policies calling for public involvement in research projects (Evans et al., 2014), for more research designed between the public, researchers and users (Jagosh et al., 2015; Jagosh et al., 2012) and for knowledge transfer networks in order to sustain links between academics and health-care practitioners (Heaton et al., 2015, 2016; McCormack et al., 2013; Rycroft-Malone et al., 2016; Rycroft-Malone et al., 2011). These studies formed a resource, along with the other literature presented earlier, to help build the following explanation of how the HRC's knowledge transfer policy is expected to work.

#### 4.2.1 Surfacing the outcome (O) expected

The most obvious outcome of any knowledge transfer policy is that research is applied to inform health policy or practice. The knowledge transfer theories, models and frameworks introduced in Chapter Two highlight how issues of timing, attribution, and the influence of different contexts make it difficult to confidently attribute change to particular pieces of research.

For the purposes of the initial theory in Phase One of this investigation, the overall intended outcome of the HRC's knowledge transfer policy is defined as *more effort is made by researchers to proactively prepare and make connections so research findings are more likely to be used*. The observable outputs towards this outcome follow the path of (1) a written knowledge transfer pathway in a research grant, (2) an assessment process that gives greater scores to those who write this section well, and (3) a resulting set of knowledge transfer activity that occurs during, or at the end of, the research.



An extra emphasis in the HRC's Partnership Programme fund is placed on the written knowledge transfer pathway being co-designed with users. The literature in Chapter Two underscores the point that proactively preparing to make connections requires different skills from those required to undertake research: skills involving the ability to network with different stakeholders, to manage collaborative work and build credibility with the target audience, and communications expertise.

#### 4.2.2 Distilling what mechanisms (M) are at work

Explanations from research funders of what is expected to happen as a result of knowledge transfer policies (Box 1.2 in section 1.4) place a great deal of emphasis on changing the mind-sets of researchers by encouraging them to be more aware or conscious of pathways for translation of their work, and to demonstrate they understand the complex nature of decision-making in the health sector. The demonstrable change expected from the HRC's knowledge transfer policy is that researchers are "encouraged and incentivised to look beyond the outputs of their work and understand specific areas where they can proactively help" (Health Research Council, 2013, p. 23). The formal literature asserts similar explanations of how change is expected to occur. Mitton and colleagues, for example, claim that to do knowledge transfer well:

Researchers must learn about the challenges and environment in which decision-makers operate and determine how to present information in a manner appropriate to the real-world environment (Mitton et al., 2007, p. 757).

Interviews with key informants echo a similar theme on the importance of learning and thinking from the start, while noting that different types of researchers may have different starting points:

*We are making researchers think at the beginning of the piece of research about knowledge transfer which can shape the type of research that is done. A lot of*

*researchers do it anyway. It is important for those that do not do it – it makes them think right at the start. The evidence is that effective knowledge transfer, the stuff that leads to good outcomes, is not an afterthought (Key informant).*

To decide to make more effort to proactively connect with the users of their findings (O), researchers need to be aware of the importance of spending time on this activity. The HRC instruction that the researcher should anticipate and record how their proposed research will be used when they fill in a grant application allows researchers to demonstrate their sensitivity to the perspectives and needs of others. I hypothesise that the concept of *sensitising* describes what is happening when researchers draft these knowledge transfer pathways. I propose three initially plausible “candidate” theories for how the actions and reasoning of researchers are influenced:

- Candidate One is that researchers feel compelled to read the growing knowledge transfer literature and may be sensitised as a result of the growing evidence of what to do,
- Candidate Two is that researchers may be sensitised as a result of conversations with users,
- Candidate Three suggests that contractual monitoring and sanctions influence how researchers reason that this is something they have to do.

**Candidate One** suggests researchers are sensitised as a result of reading and applying the growing range of knowledge transfer theories, models and frameworks. Box 2.1 in section 2.5 revealed the breadth of theories, models and frameworks available. These can range from high-level conceptualisations describing the complexity of the knowledge transfer process through to more deliberate advice on what researchers should be doing to ensure their findings are used. Some constructs assist clinicians and researchers to understand and evaluate the factors that inhibit and promote change in health care (for instance Brehaut & Eva, 2012). How much these theories, models and frameworks are applied by researchers has been queried by both scholars (Davies et al., 2015; Nilsen, 2015) and key informants in this investigation. While the

implementation science community provides guidance on different ways to encourage the use of clinical research, it is not clear which knowledge transfer intervention works in which circumstance (Grimshaw et al., 2012). An uncertainty over how the literature is being used in practice is matched by key informant experiences. As one key informant explained:

*There is a huge amount of literature that one would expect [researchers] to read and use. I do not know if they all do, there are some that always read the literature, there are some that have always been thinking and do not need the literature to tell them to it, and there are some that do not (Key informant).*

**Candidate Two** suggests researchers are sensitised to how their research will be used as a result of conversations with the potential end-users. When a researcher responds to a policy direction to include a nominated end-user in the research application, the expectation is that both cooperate to co-design the research project. As a result of these collaborative conversations, the research is shaped in way that ensures the subsequent findings are more relevant and grounded. In the HRC's Partnership Fund, the HRC uses contractual obligations to be very clear around meeting end-users' expectations. For the researcher, the only option is to meet these obligations as:

*... in order to be eligible, you have to be working in an area where you can show you can effect change in how a health service is delivered, and, in addition, you have to show who your decision-maker is, who would act as a champion and make decisions about money resources or service configuration (Key informant).*

The HRC has used the number of active partnerships with end-users and providers as a measure to track progress towards increasing the impact, responsiveness and uptake of health research (Box 4.3 section 4.1.4). All HRC applicants are encouraged "to engage stakeholders and end-users from the outset of the research" (Health Research

Council, 2014a, p. 21) based on the rationale that, when stakeholders are involved in the research process, the findings are more likely to be understood, taken up and applied. Key informants signaled out the Partnership Programme as the place where knowledge transfer is “taken seriously” when research applications are assessed:

*The idea in this stream [Partnership Programme] of including decision-makers is that the research question, and how the results are produced, will be informed by the implementer [end-user]. In the proposal, we take this seriously and we judge how much the person who has been nominated as the decision maker is “real”. It has to be someone our assessing committee can judge has got “clout” within the organisation (Key informant).*

Scholarship on what helps makes these partnerships work emphasises the importance of active rather than forced or tokenistic partnerships. When scholars interviewed a purposive sample of 24 researchers and 25 end-users, successful partnership outcomes were found (not surprisingly) to come from: (1) partnerships built on an existing relationship, (2) involving an alignment between research and end-users’ agendas, (3) having a skilled researcher involved in the grant, and (4) the use of different modes of communication within the research and end-user team (Sibbald et al., 2014).

A realist evaluation of newly created research and health sector partnerships recommended partnerships should play particular attention to the “real life” concerns and needs of clinicians who are agents on the ground (Heaton et al., 2015). In this instance, the realist evaluation used the principles of co-production as a working theory in order to present five simple rules as the mechanisms by which the partnerships achieved their outcomes. The rules included: (1) encouraging closer co-production through closer collaboration, (2) establishing small strategic teams led by strong facilitative leaders, (3) harnessing and developing respective assets, (4) promoting relational capacity (where local learning is actively shared), and (5) remembering the end-user is king. Strictly speaking these mechanisms/rules are not realist in the sense that they do not provide the theory of change beneath the

partnerships. Instead they provide a theory of action more akin to the policy definition of a mechanism.

Jagosh et al's realist review of participatory research partnerships (which included partnerships between people affected by the research as well as researchers and users) distilled 23 particular research partnerships described in 276 publications and concluded that the concept of partnership synergy was the mechanism that explained how these partnerships worked. In this case, the mechanism was clearly internal (that is, inside people's heads) as partnership synergy was described as creating;

... momentum over time, producing resilience in the face of obstacles as well as sustaining health-related goals, extending programmes and infrastructure, and creating new and unexpected ideas and activities (Jagosh et al., 2012, p. p334)

Jagosh and colleagues found a broader set of outcomes from participatory research than the increased potential for knowledge transfer. Their review revealed a pattern of potential outcomes including: ensuring culturally and logistically appropriate research, enhanced recruitment capacity, increased professional capacity and competence in stakeholder groups, an increase in the quality of outputs and outcomes over time and increased sustainability. As a follow-up to their realist synthesis of secondary material, interviews were conducted with partners from 11 partnerships to understand the ways in which trust building and trust maintenance were key factors in increasing outputs and sustainability. The authors described the resulting "ripple effect" where "equitable co-governance based on trust may (in the right contextual conditions) lead to sustained partnerships, resulting in the generation of effective solutions to the complex problems of public health" (Jagosh et al., 2015, p. 9). They contrasted these findings with the current pressure on researchers to demonstrate and measure how their research has an impact – a pressure they claim often results in simplistic and linear impact stories which regard communities as the passive recipients of research findings.

Another realist review that looked at how mandated research and practitioner networks operate supported the importance of opinion leaders and facilitator roles in sustaining researchers and end-user partnerships (McCormack et al., 2013). The review concluded that it was difficult to know in which contexts these networks work best and suggested their findings supported the idea that a change agent working to bring networks together is more likely to succeed if they are a good “fit” in terms of cultural compatibility.

The relational approach to knowledge transfer outlined in Chapter Two continually reinforces the importance of having personal contacts and building trust through quality relationships over time if change is going to result from research.

Interestingly, the key informants I interviewed judged the quality of researchers and end-user partnerships through the amount of *co-funding* that was secured. A number referred to the importance of requiring “skin in the game” from users through the contribution of cash or in-kind support, expressing the view that “if [users] really want the research, then they should partially fund it and be involved”. One informant explained how, in an earlier Foundation for Research Science and Technology application process, people would attach a long letter of support as proof of a partnership, but having money on the table was a sign that more than a token partnership was being formed. For example:

*The co-funding policy has been very powerful in giving end-users certainty they will be taken notice of. The letters of support ensured that there was some kind of conversation going on with end-users. But previously the end-users would say if the researchers turned up “oh, it must be bidding time and this is the last we will see of you” (Key informant).*

In summary, candidate mechanism two proposes that, as a result of conversations with the end-user, the researcher is sensitised to how best to make connections so

research findings are used. The HRC stresses the importance of these conversations happening from the out-set of the research, whereas the literature indicates a variety of contexts are likely to increase the chances that ongoing conversations build sustainable trusting long-term relationships.

**Candidate Three** suggests researchers are sensitised as a result of possible sanctions (and lack of future funding) if they do not take on board instructions to provide knowledge transfer pathways. Key informants pointed to the power of knowing that the knowledge transfer pathway would be assessed both at the out-set and once funding was secured through performance reports. They stressed that “researchers know they are going to be asked for this so they make sure they do it”. Furthermore, many projects require an implementation report six months after research has finished:

*They act differently in that they write about it in their research proposals and then have reporting requirements. For example, the partnerships in health delivery require an implementation report (six months after research has finished). We follow-up with them to see what sort of knowledge exchange activity has gone on, and how it has led to implementation or not – of course, a lot of time it will not have led to implementation (Key informant).*

Applying sanctions (that is, withholding funding when the expected activities have not eventuated) was pointed out as an important way to ensure the right amount of attention was paid to this aspect of the research project. In addition, it was stressed that as the research application process is a competitive system, those that score better get more funds and attract attention as an example of a successful way to operate within the system.

Candidate mechanism three is drawn from a wider interest in accountability and reflects how health research funders operate as boundary agency that mediate between the interests of the research community and the broader public interest. Being a boundary agency requires building confidence in the legitimacy of the HRC's investment decisions from both sides. Key informant interviews highlighted different views on the potential legitimacy of the process the HRC uses to assess the potential for effective knowledge transfer. One key informant explained that when researchers provide a plan in their research application on what knowledge transfer will be undertaken, a sound judgment is made on how much "the person who has been nominated as decision-maker is real – it has to be someone [the HRC] assessing committee can judge has got clout within the organisation". Another informant explained that they sat for 10 years on a Research Council and saw many claims that certain actions and research would have a high impact and drive decision-making, but they questioned how this view was derived:

*This judgment was a "value" judgment rather than an objective economic judgment. It is a question about who gives that score. If the project is scored by people who know whether that particular piece of science will have that impact then that can increase the effectiveness of the policy, though I have not seen it done that way. It is more of a political process (Key informant).*

Candidate three suggests contractual monitoring and sanctions influence how researchers reason that the knowledge transfer pathway is something they have to provide. However, part of this reasoning could well pivot on the researcher's confidence on the credibility of the ongoing monitoring and whether sanctions are ever in fact applied.



#### 4.2.3 Distinguishing the contexts (C)

A number of on-the-ground realities, events and processes will influence which of the previous candidate mechanisms are activated as a result of the HRC's knowledge transfer policies. In some contexts, researchers may be sensitised as a result of the growing evidence of what to do, particularly from implementation science (candidate one). In other contexts, they may be sensitised as a result of conversations with users (candidate two). Finally, they may be sensitised as a result of contractual monitoring and sanctions (candidate three). Further fieldwork in Phase Two investigates in depth which contexts are likely to fire which mechanisms, but at this stage two significant contexts are put forward as influential: (1) the type of research being undertaken and (2) the type of researcher undertaking the research.

The first context emerges from the differential scoring the HRC gives to the New Zealand Health Delivery research stream compared to the other research streams, requiring health systems researchers to have greater weight placed on their knowledge transfer pathways if they want to receive funding. Further differences between biomedical researchers and social science researchers are not explicitly spelt out in the HRC documents, as the researchers themselves are expected to understand different trajectories and apply their own disciplinary norms, as one key informant explained:

*Knowledge transfer could be an inherent part of any piece of research regardless of where on the spectrum it falls; from very basic to very applied research. But it might be a different set of activities or processes that are applied depending on how applied the research might be. It is for a researcher to determine what is the most appropriate thing to do; what is it they need to transfer; to whom and the right way of doing that. So, for some researchers that might just be dissemination (Key informant).*

The knowledge transfer literature regularly teases out how different types of research have different impacts. Such pathways are well described by Kuruvilla and colleagues

when they group the type of impacts that can occur as a result of health research into four broad areas: (a) research-related impacts, (b) policy-related impacts, (c) service impacts, and (d) societal impacts (Kuruvilla et al., 2006).

Constandriopoulos and colleagues point out that changes in individual clinical practice are easier to achieve than changes in health management or policy as clinicians are “usually sovereign in their capacity to mobilise knowledge, and consequently modify their practices” (Constandriopoulos et al., 2010, p. 447). By contrast, research aimed at collective interventions in health management or policy encounters situations where none of the participants has enough autonomy to translate the information into practices on his or her own. To overcome this barrier to the take-up of research results Constandriopoulos and colleagues refer to the need for processes involving “sense-making, coalition building, and rhetoric and persuasion” (Constandriopoulos et al., 2010, p. 447), though it is not clear what the researcher’s specific role is in these processes.

One suggestion that might have explanatory power is that the different disciplinary backgrounds are likely to be influential. As outlined earlier, Harvey (2013) argues that biomedical research views knowledge transfer as a process whereby research evidence simply needs to be made more accessible, useful and usable by practitioners, while those from a social science perspective advocate for greater collaboration in the entire joint enterprise of knowledge production. In this later scenario, these social science-based researchers are more likely to take responsibility for such activities as sense-making, coalition building, rhetoric and persuasion.

My second context relates to the type of researcher undertaking the research. The hypothesis is that a principal researcher’s leadership, beliefs and commitment to knowledge transfer are also likely to be an influential context for this study. A realist evaluation (Evans et al., 2014) seeking to understand how public involvement in research projects worked in practice theorised that the different research traditions

within which the researcher operated (that is, clinical versus health service research) would be an important context shaping how much public involvement the researcher was prepared to consider. They were surprised to find this context was overshadowed by the principal researchers' personal leadership, belief, commitment and values around public involvement. In a study of how health researchers undertook dissemination actions, Newson and colleagues also found researcher perceptions determined the extent to which the researchers engaged in active dissemination strategies (Newson et al., 2015).

Key informants indicated that there were differences between those researchers who have always been well-versed in thinking about knowledge transfer and “never had an epiphany moment around what it is they do” and those who need more guidance so their application “hits the right notes” when communicating their knowledge transfer pathways. These differences were linked variously to skills in communication, prior learning and engagement with knowledge transfer ideas, as well as overall philosophy. Those for whom knowledge transfer expectations were rarely a hurdle included Māori researchers whose research paradigm was already based on reciprocity with the community as explained in the quote below:

*Kaupapa Māori research has always been based in that style of thinking – as is Pacific research – which is based on the principle of reciprocity which is possibly an older word for knowledge transfer and exchange. Research here is always based on a bi-directional flow of knowledge and information. There is a sub set of researchers who do not have much to learn and have always been doing it (Key informant).*

Researchers who were health practitioners were also identified as a group for whom knowledge transfer expectations were a norm. Informants pointed out that clinician researchers play a significant role in getting research ideas taken up and used by their clinical colleagues. By contrast, those researchers that struggled had a tendency to:

*forget that the purpose of the research funding is not to give them two years to do a piece of research. The purpose is the “glossy booklet” at the end. That is why we make it a contractual requirement, because we do have occasional problems with research groups who forget they have to produce the knowledge exchange stuff (Key informant).*

Chapter Two presented the insights from the sociology of science literature into the broader cultural factors that may mean researchers are less likely to take responsibility to do more than produce research. While knowledge transfer scholarship often oversimplifies researchers and users into homogenous groups which have intrinsic group-based preferences, the reality is that these are complex social actors with a diversity of motivations. How researchers view debates and discussions over the relative status between basic biomedical research and applied social science research is likely to be a relevant context to how researchers respond to knowledge transfer policies. For example, researchers may be sensitised to the extent that they acknowledge they need to fill in the section if they want funding (candidate mechanism three), but the perceived lowly status of knowledge transfer may mean they do this under sufferance, as the rewards and resources still regularly reflect the enduring value accorded to more academic activities (Jacobson, et al., 2004).

The writing on realist approaches warns against deciding to delineate every distinguishing feature around a particular intervention and labelling it as context. Context is defined as the conditions in which policies are introduced that are *relevant* to the operation of the mechanism (Pawson & Tilley, 1997). For the initial theory in the first phase, the following contexts are proposed as most likely to shape the propensity for researchers to proactively prepare and make connections so research findings are more likely to be used:

- Contexts where research is expected to be applied and directed towards health policy or towards health-care practice,
- Contexts where researchers hold beliefs that knowledge transfer is a relevant part of research, and

- Contexts where researchers have had prior experiences and/or learning on knowledge transfer.

### 4.3 CHAPTER SUMMARY

A distinguishing feature of a realist approach is to start with an initial theory of how change is expected to occur and then to use this theory to shape the ongoing investigation. This chapter uses the initial findings from a first round of interviews with key informants (8) combined with the scholarly literature and HRC policy and planning documents, to reach interim conclusions on how new instructions in the research application process are expected to influence the reasoning of researchers. The conclusions in this section are presented as a set of CMO propositions on how knowledge transfer policy is likely to be received, interpreted and acted upon by participants to produce an outcome.

The overall intended outcome (O) is that *an increased effort is made by researchers to proactively prepare and make connections so research findings are more likely to be used*. This outcome is reached through requiring a defined knowledge transfer pathway in an application for funding. The logic of how this pathway works involves:

1. Requiring a plan of what the researcher will do to encourage others to use the findings in a discrete section of the research application.
2. Assessing the quality of that plan using guidance given to peer reviewers on how to score for research impact.
3. Successful projects are therefore more likely to demonstrate increased knowledge transfer activity during, and at the end of a research project, built from early preparatory thinking about the real world connections needed so research results are used.

The mechanism concept, sensitising, is used to describe what is happening when knowledge transfer pathways influence the minds of researchers – and three potential candidates are distilled to explain the ways this sensitising may occur:

- Candidate One suggests researchers are sensitised as a result of reading and applying the growing range of knowledge transfer theoretical constructs and advice.
- Candidate Two suggests researchers are sensitised about how their research will be used as a result of conversations with the user.
- Candidate Three suggests researchers are sensitised as a result of possible sanctions and lack of future funding if they do not take on board knowledge transfer activity.

Which of these candidate mechanisms “fire” is likely to be influenced by contexts (C) shaped by the type of research being done and the skills, backgrounds and beliefs of individual researchers. The shaded box overleaf presents the initial realist theory for this evaluation. The aim of further phases is to strengthen the explanatory power of these initial statements.

### **Initial Realist Theory**

Increased efforts by researchers to proactively prepare and make connections with those who will implement their findings (O) are *more* likely:

- In contexts where applied research is being undertaken and researchers have had prior experiences and/or learning about knowledge transfer (C), then researchers are sensitised as a result of reading and applying knowledge transfer theories (M<sub>1</sub>) to provide a high quality knowledge transfer pathway.
- In contexts where research is directed towards health-care policy or health-care practice through mandated partnerships (C), then researchers are sensitised as a result of conversations with users (M<sub>2</sub>) to provide a high quality knowledge transfer pathway.
- In contexts where researchers do not hold beliefs that knowledge transfer is a relevant part of research (C), then researchers are sensitised as a result of possible sanctions if they do not provide a knowledge transfer pathway (M<sub>3</sub>).

## 5 HOW DO RESEARCHERS REACT AND REASON?

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*Knowledge transfer is essential; there are projects I do not take on because if there is no audience at the end who is taking notice, then this is not a project for me. This is why I do this type of research and not basic science.*

Researcher interviewee

In the previous chapter, an initial theory of how the Health Research Council's (HRC) knowledge transfer policy works to prompt researchers to do more to make sure their findings are implemented was proposed. The theory was built from a combination of what knowledge transfer scholars suggest should happen, what the HRC's planning and accountability documents claim will happen, and what key informants have observed happening. Following the realist evaluative approach, this initial theory forms the basis of ongoing testing and refinement in the next phase of the investigation.

The previous chapter also highlighted the shifting nature of the claims being made for the HRC's knowledge transfer policy. It is not uncommon for the initial ideas that shaped the introduction of a new policy to taper off and be replaced by new emphases as implementation rolls out (Pawson, 2013b). The HRC's instructions to researchers from 2010 to provide knowledge transfer pathways have endured during the period of this investigation. However, the HRC's planning and accountability documents, as well as insights from key informants interviewed in 2012, indicate a more nuanced understanding of how much change is expected. In this chapter, I analyse what actually gets written in the called-for knowledge transfer pathways and explore how researchers react and reason when they draft these pathways.

This chapter is structured in two parts. The first part presents the key findings from three sets of data: (1) a review of the instructions on what researchers need to cover in their knowledge transfer pathways, (2) what was recorded by researchers in these pathways, and (3) interviews with the principal researchers on how what was written compared with what actually happened, and on knowledge transfer generally. The second part refines the theory on how the HRC policy works by updating the realist Context-Mechanism-Outcome (CMOs) propositions based on the findings from the three sets of data. These refinements highlight the importance of the credibility of the process used to judge the knowledge transfer pathways. The refinements also underscore how researchers learn from their own real-world experience of how research is used as opposed to knowledge transfer models and frameworks.

## 5.1 KEY FINDINGS

Findings in this section are structured according to the three sets of data collected. Namely: (1) the guidelines given to researchers on what to record in the section generally thought of as the “knowledge transfer” pathway, (2) what was recorded in those sections, and (3) interviews with the principal researchers.

### 5.1.1 Instructions on what to record

The requirement for a “defined knowledge transfer pathway” is most evident in three Health Research Council funds that form the heart of my research sample. These investments were set up to provide research that would address issues of key interest to partners (the Partnership Programme), or of importance to District Health Boards (the District Health Board Fund), or research which would “have a tangible positive impact on health delivery within five years of the contract commencing” (the New Zealand Health Delivery investment stream).



A close reading of the instructions across each of these funds (see Figure 5.1) reveals a shared interest in seeing evidence of a plan or pathway from researchers but different guidance over what should be in the pathway. For example, the guidance in the District Health Board Fund in the section titled either Dissemination or Translatability/Dissemination emphasised *who* needs to know about the research. Instructions requested researchers to:

Describe how the research results will be disseminated to professional colleagues, the general public, health service funders and providers, study participants, iwi and other important groups. As well as peer reviewed publications, examples include patient leaflets, participant newsletters, clinical guidelines, hui and public meetings and mass media items as appropriate (Written instructions to researchers).

The Partnership Fund application included a section from 2006 titled “Dissemination Strategy” and contained a similar emphasis on who might need to know about the research:

Provide full details of your proposed dissemination strategy. As all partnership programme initiatives are designed to contribute to an evidence base for policy and practice, this should include how the research results will be appropriately disseminated to the following end-users: policy-makers, professional colleagues, health service funders and providers, the general public, study participants, iwi and other important groups (Written instructions to researchers).

In contrast, a specific ring-fenced Partnership Fund called “Research Partnerships New Zealand Health Delivery” (introduced in 2011) in a section titled “Knowledge

Translation Plan” gave greater prominence to asking for information on *what* the researcher would be doing to actively engage relevant users of research:

Use this section to outline the potential for knowledge transfer and the processes or steps in place that will support uptake of the research findings. This should include the following: how the decision-maker is integrated throughout the research process, how dissemination strategies will be tailored to meet the needs of diverse key informants so the results are of maximum utility; and the planned timeframe and forum for implementation (should results be positive). Applicants are expected to identify and demonstrate how the research findings are likely to enable the health and disability sector to make informed decisions or valuable changes to its practice, expenditure and/or systems in the short term (Written instructions to researchers).

Finally, from 2011, the newly created New Zealand Health Delivery investment stream assumed the term “knowledge transfer” had a meaning for researchers without further explanation and in sections entitled either “Dissemination” or “Dissemination and Engagement of End-Users to Support Knowledge Transfer and Uptake” asked researchers to:

Include plans for key informant engagement and how research results will be communicated to ensure knowledge transfer and achieve change (Written instructions to researchers)..

FIGURE 5.1: INSTRUCTIONS ON WHAT TO RECORD IN “KNOWLEDGE TRANSFER” SECTIONS

<div> District Health Board Fund (DHBRF) 2006-2010 New Zealand Health Delivery (NZHD) from 2011 Partnership Funds from 2008 </div>				
			Partnership Funds (general)	Research Partnerships NZ Health Delivery from 2011
Title	Dissemination (main round) Or Translatability/Dissemination (Translational research in Cardiovascular disease, diabetes and obesity round)	Dissemination Or Dissemination Plan and Engagement of End-Users to Support Knowledge Transfer and Uptake.	Dissemination Strategy	Knowledge Translation Plan
Guidance	<p><b>Translational rounds</b> (CVD, diabetes and obesity research):</p> <p>The proposal should clearly describe goals and objectives, research plan (including outline of methods), significance and/or relevance of the research and a dissemination plan.</p> <p><b>Other rounds:</b> Within the Research Design and Methods section</p> <p>Dissemination of results - Describe how the research results will be disseminated to professional colleagues, the general public, health service funders and providers, study participants, iwi and other important groups. As well as peer reviewed publication, examples include patient leaflets, participant newsletters, clinical guidelines, hui and public meetings and mass media items as appropriate.</p>	<p>Include plans for key informant engagement and how research results will be communicated to ensure knowledge transfer and achieve change.</p>	<p><b>Partnership Programme:</b></p> <p><b>From 2011</b> - Provide full details of your proposed dissemination strategy. As all partnership programme initiatives are designed to contribute to an evidence base for policy and practice, this should include how the research results will be appropriately disseminated to the following end-users: Policy-makers, professional colleagues, health service funders and providers, the general public, study participants, iwi and other important groups.</p> <p><b>From 2008 – 2011</b> <i>same text as above but also including the following additional text:</i></p> <p>As well as peer reviewed publications, dissemination examples include leaflets, reports, workshops, participant newsletters, guidelines, hui and public meetings, conference presentations and mass media items as appropriate. Processes for ensuring that all information is tailored to the needs of the intended audience, so that research findings can be of maximum utility, should be fully detailed.</p>	<p>Use this section to outline the potential for knowledge transfer and the processes or steps in place that will support uptake of the research findings. This should include the following: how the decision-maker is integrated throughout the research process; how dissemination strategies will be tailored to meet the needs of diverse key informants so the results are of maximum utility; and the planned timeframe and forum for implementation (should results be positive). Applicants are expected to identify and demonstrate how the research findings are likely to enable the health and disability sector to make informed decisions or valuable changes to its practice, expenditure and/or systems in the short term.</p>

A variety of terms and concepts are used in each of the instructions – for example, dissemination, translatability, knowledge transfer and uptake, knowledge transfer and knowledge translation. Does it matter that different terms are used? Research funders seeking to implement more knowledge transfer are advised not to conflate communications and knowledge transfer (Holmes et al., 2012). However, looking across the guidance provided in each successive fund set out in Figure 5.1, such conflation is occurring. Requests to explain “how the decision-maker is integrated throughout the research process” are regularly layered on top of an interest in the communication of research findings. Two reasons might explain this continued interest in how results will be disseminated.

The first is that if research funders want to profile the value of what they are producing, then expecting researchers to improve the tailoring of research results for different audiences is a helpful step to raise the profile of research overall. Whether it increases the likelihood research results are taken up and used is less certain. As Chapter Two explains, improved dissemination of research results is likely to be effective in situations where the results have a high relative advantage to the status quo, have low complexity, and involve low risks and costs to implement.

The ongoing emphasis on communicating research results in the HRC’s instructions reflects the linear view of knowledge transfer. Chapter Two outlines how conceptualising research as a product that needs more enticing packaging to tempt research users to take it off the shelf, continues to be attractive to agencies such as the HRC whose mission is the production of research results. In situations where the relational approach to knowledge transfer is adopted, the literature is more likely to question the mere communication of findings as an effective activity. The thinking here is that mere dissemination does not build a relationship between those who generate research knowledge and those who might put the knowledge to use (Lomas, 2000).

A second reason why a continued interest exists in asking for information from researchers on how research results will be disseminated is that communicating back to research participants is a mark of ethical research practice (Association of Social Science Researchers, 1996). Some types of health research aim to directly influence health literacy and/or health status by changing patients' behaviours, hence the attention in the District Health Board Fund instructions to patient leaflets, participants' newsletters, public meetings and mass media.

One interviewee drew parallels between the knowledge transfer section and the rationale section of the research application. Box 4.1 in the previous chapter presented the HRC's scoring criteria for research applications and showed "rationale for research" as a separate criterion from "research impact". As the interviewee commented, both have required increased specificity from researchers:

*If you look at the instructions around the rationale component that researchers are expected to write, and in terms of advice to reviewers, advice has moved on from people being able to say, "Well I'm doing research in diabetes and therefore it should score very highly". The rationale is required to say why should this particular research be done now? Why is it timely now? I think that inherently makes people think about outcomes more (Researcher interviewee).*

The idea that recording a set of information makes people more attuned to what that information covers – in the account above, this is reflected in the statement that it makes people *think* about outcomes more – is similar to the expectation that recording the expected use of the research sensitises the minds of researchers to do more knowledge transfer actions. The instructions in Figure 5.1 illuminate what researchers are directly being asked to consider as knowledge transfer actions. The next section looks at the patterns of reasoning by researchers in response to these instructions.

### 5.1.2 What gets written in response?

Twenty-six researchers who were successful in getting grants from the three HRC funds provided the specific sections they had written in response to instructions to provide knowledge transfer pathways. In order to understand more about the extent to which researchers might be sensitised to knowledge transfer as a result of reading and applying knowledge transfer research, these written responses were loaded into a documentary database. Once loaded, these responses were coded against references to explicit knowledge transfer theories or implicit theories. Implicit theories were drawn from scholarship and advice on activities commonly recommended as being an effective means of knowledge transfer (Grimshaw et al., 2012; Grimshaw et al., 2001; Reardon et al., 2006). Section 3.4.2 in Chapter Three provided detailed information of what coding was used and how it was applied. Sections were coded, for example, against the amount of references made to such features as the use of existing networks, the provision of interactive education sessions, and the creation of stakeholder groups who would make an early commitment to use the research.

The knowledge transfer pathways were also coded according to whether their intended audience was those seeking to change health care policy or those seeking to change healthcare practice. However, a large percentage of projects assembled in the dataset aimed to influence *both* health policy and practice (19). These projects wanted to incorporate clinical findings into routine decision-making in healthcare, and then be more widely adopted across New Zealand through connections with national agencies. It was less common to find research projects focused solely on influencing health practice (5) or research solely on an issue of health policy (2). One explanation for this blending of both health practice change and health policy change could be that, as researchers are seeking national research funding, it is seen as more advantageous to suggest the proposed research has the potential to extend the findings from one clinical or regional setting to a national application.

Only five of these 26 sections explicitly referenced a knowledge transfer model or framework. Two sections contained references to scholars well known in implementation science: (1) Tetroe, et al (2008), with respect to the importance of collaborative working and (2) Reardon, et al (2006), with respect to tailored communication. One section cited Bate and Hurwitz to justify the importance of storytelling as a way to communicate findings to both a professional and non-professional audience (Bate, 2004; Hurwitz, 2000). Finally, two sections referred to Kaupapa Māori<sup>11</sup> when explaining how their methods of feedback would be guided by discussions between the research partners, users and participants.

Apart from references to producing materials for relevant journals and conferences (24/26), the most common activities researchers listed as evidence of a knowledge transfer pathway were: (1) electronic communication materials tailored to particular audiences (10/26) and (2) the creation of stakeholder groups who would make an early commitment to use the research (13/26). An example of the former includes the following description:

*A key part of this research will involve dissemination of results through publications, presentations, website and the development of guidelines for policy-makers, purchasers and providers in the sector. Material on the project will be put onto a website. We will run series of presentations that key stakeholders will be invited to attend. These presentations will also be made available to the sector as voice over power-point files on the website. Links to the site will be emailed to all DHBs, PHOs, key stakeholders and other interested parties. Short summaries of the evaluation results will also be disseminated using this mechanism. Initial and final results will also be presented at conferences, informal networks and to key journals (written knowledge transfer pathway).*

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<sup>11</sup> “Kaupapa Māori is part of the growing field of writing by indigenous academic writers that “analyses indigenous ways of knowing and doing research which is a celebration and affirmation of indigenous ways and worldviews” (Health Research Council, 2010b, p. 7).

Examples of the latter include;

*Development of the research project and this application has engaged and received advice, input and support from multiple end-users, including the MOH, [topic] clinicians, Māori health networks and health professional organisations (see also letters of support).... The two primary investigators are front line health clinicians who, along with all members of the research team, have multiple end-user networks (professional, health provider and academic) through which dissemination and uptake of findings is planned (Written knowledge transfer pathway).*

Only two sections of the 19 that listed influencing health policy as an aim assumed informing agencies would be enough for the findings to then become national policy. What was more common was to see a reference to the personal connections with opinion leaders that would serve as an advantage to picking up research results (9) and/or the specific attributes of a project that meant the findings were more likely to be used (N=5). For an example of the former, the knowledge transfer pathway below highlights the importance of knowing who shapes opinions in a particular area:

*Dr [name] has endorsed the research. Another DHB decision-maker and named co-investigator Dr [name] has contributed significantly to the [the topic]. Both DHB decision-maker co-investigators have high influence in their organisations (Written knowledge transfer pathway).*

Other research project attributes recorded in the database as evidence that findings were more likely to be taken up included: (i) environmental factors such as expectations in health services service agreements, (ii) relevance to recent strategies, and (iii) the timeliness with upcoming health technology investment decisions.



The documentary dataset included five research projects designed directly to develop clinical tools to be used in healthcare practice. These clinical tools came in the form of tool-kits and guidelines to manage particular conditions or particular services, as well as tests to identify particular health conditions, or training programmes for health educators around a health condition. When researchers recorded how they expected their findings to be used, again, few expected mere communication of the tool or any guidelines was enough. One section included some very specific attributes of a particular tool that it was argued would increase its potential to be used:

*[Tool] can be easily implemented by clinicians without significant cost or clinical resources and may consequently reduce the impact of diabetes, cardiovascular disease and obesity on health status and quality of life (Written knowledge transfer pathway).*

In addition to agreeing to provide their knowledge transfer section for analysis, 15 researchers were prepared to be interviewed. The interviews explored what shaped their thinking when drafting their knowledge transfer pathways. Furthermore, as the interviews were timed around the completion of the research project, researchers were asked what actually happened when the time came to implement what was originally recorded in their research application. In a number of cases, this included exploring how conversations with named users played out. These results are presented in the next section.

### 5.1.3 What influenced what got written?

When researchers were asked what they drew on when they drafted knowledge transfer pathways, a few acknowledged various frameworks and knowledge exchange models (for example, Kaupapa Māori, medical narratives). The majority, however, highlighted the personal experiences that helped them understand the context of how their findings will be used.

I had anticipated a difference between those researchers aiming to influence health policy compared to those influencing health practice. What became more striking as my analysis continued was the difference between early career researchers who were also current health practitioners (5/15) and experienced researchers based in universities (8/15). My sample also included two researchers in private research agencies who presented some unique experiences and perspectives.

For example, the “researcher practitioners” in my sample – full-time specialists often with honorary university roles who undertake research in their clinical time – regularly reported drawing on their own clinical experience. The common theme was that they drew on “the people I knew who would be interested in data and the various clinical societies I belong to”. One researcher practitioner found developing the knowledge transfer pathway for a project prompted her to think more about extending her research team to include others who would have a particular role in connecting people with the findings.

The more experienced university-based researchers presented a richer diversity of commentary on what they drew on. The following quote sums up the richness involved as this researcher explains how he drew on past experience, a strong belief in the importance of being relevant, combined with the importance of honouring a commitment made in writing:

*What we drew on was our experience with other research projects and a strong commitment to trying to produce policy- and practice- relevant information at the other end. To honour that commitment. There were various frameworks out there, knowledge transfer and exchange models and so forth. Fundamentally, they come down to, in my view anyway, to the reasonably simple approach, which is you said you're going to do something and that's what you do (Researcher interviewee).*

Researchers from private research agencies with a specific research population focus drew heavily on what was important to those populations when they drafted their knowledge transfer pathway section. For example:

*We know there are things we have to do as academics – the publications and papers – but if we want anything to change for Māori, we have to hit the community, the providers and policy. We would be thinking about how we would effect change for Māori (Researcher interviewee).*

#### **5.1.3.1 The importance of “real world” research**

For the specific research projects I was following, I asked whether what had been predicted would happen in the knowledge transfer pathway section had actually happened. The researcher practitioners I interviewed reinforced the people- and relationship-based health policy and practice environment emphasised by key informants. For the research projects being followed, the researcher practitioners were confident their findings had become talked about and implemented in the networks and workplaces they listed. Within the New Zealand health system, clinicians are given responsibility via work programmes and clinical networks overseen by the Ministry of Health to agree on best practices that should be used nationally. Three researchers interviewed had their findings directly incorporated into such national clinical guidelines or obligations before the findings were published. One expressed surprise at the speed with which this happened. When she applied for the research grant she was not yet a specialist adviser to the Ministry on the research topic, so, when appointed, she made efforts not to abuse that position and automatically expect a national roll-out of her findings. Nevertheless, the tight New Zealand networks triumphed. As she explained:

*I had a process in mind that I was going to get it published and I was going to bring it to the national [clinical network] network and look for endorsement. They all know about the tool and they're happy with it. But I was going to be very particular in the process I was going to use to make it transparent and not make it seem like I had conflict of interest. Then I wrote an article in New Zealand Doctor. I mentioned the tool very briefly: just saying that the tool exists to help management. Then somebody from the Ministry read it and contacted me and asked how I felt about them using the tool in a business case they were doing because they'd like to progress to a national roll-out: based on that one sentence. I'm sure that was helped by the fact the person knows me. I didn't approach them about it. I think the fact that I've built up a credibility with the Ministry and within the New Zealand space. I don't think it's serendipitous. I think that it highlights the importance of having a research team who have this kind of influence (Researcher interviewee).*

Another interviewee who found herself in a similar position of having findings implemented before they were published also attributed this to being well networked:

*It was not a surprise [my research] turned up in the guidelines as I have collegial relationships with people involved in the guidelines and they knew of my work. I had support and everyone knew it was going on and everyone wanted to know the results, so they had been eagerly anticipating the results for a long time and they had links on this committee. I am pleased they took note of the results even before they were published. It was not a big surprise (Researcher interviewee).*

A third researcher, whose project had a similar speedy trajectory from findings to national endorsement, reinforced how much easier it is to implement shifts in New Zealand because of its small population, “which is able to pick up new ideas quickly and access champions like the Minister as well as local champions”. The downside of

this people- and relationship-based health sector was picked up by another researcher when he commented that local champions and opinion leaders may be ill-informed:

*Those opinion leaders in medicine drive a lot of practice which isn't necessarily the right practice or the best practice but it is dressed up as such. That is driven by pharmaceutical companies. I think it's really good in competitive research grants for people to think about how they're going to get knowledge into practice because the pharmaceutical companies are the best at it (Researcher interviewee).*

Overall, the researcher practitioners I interviewed attributed their confidence that knowledge transfer pathway had worked as they expected to the “real world” nature of their research. As one researcher interviewee explained, her research “wasn’t research in an ivory tower that would never look like that in a real world”.

For the researcher practitioners, being prompted to fill in the knowledge transfer section affirmed the importance of research outputs beyond conference papers and articles. One researcher practitioner interviewee, who had also been a peer reviewer of research proposals, explained that while at least one knowledge transfer citation was a strength, he expected researchers to show “they understood the system they want to engage with”. Across all the researcher practitioners, being able to demonstrate the ways in which they were grounded in the real world was more important than demonstrating they were reading and applying knowledge transfer theories.

When university-based researchers explained how much what they anticipated would happen to their project had happened, there was a more diverse set of experiences. In this group of researchers, the voice of experience comes through as they reflect on what occurred. The ways in which experience – “knowing the games” – can trump

abstract theories was a common theme, particularly from those that gained insights from prior roles. For example:

*I know the games; the games around funding, the relationships between provider arms and funding and planning in organisations, the relationships with MoH, the priorities of DHB executive managers (what pushes their buttons and what do they need to achieve), around implementing models and who to make sure gets the credit for it (Researcher interviewee).*

Knowing the games can also mean you might also know enough not to be too sure how the proposed research is going to effect change. One researcher explained how she put more faith in the process, rather than trying to predict the outcome:

*I didn't try to anticipate too much that things are going to go in a particular direction. It's more about making sure that you set off on the right path using the right processes (Researcher interviewee).*

In a similar fashion to the ways that researcher practitioners stressed how the real-world nature of their research meant it was more likely to be used, university-based researchers also wanted to appeal to the importance of the “real” over the theoretical. One university-based researcher underscored the importance of doing more than quoting a few knowledge exchange references:

*... it shouldn't be tick the box (yeah, we've got to say that), it's a bit of a pain so we could just try and quote a few references about knowledge transfer and exchange but it's actually about trying to be real and say, actually we'll be better researchers and do better research and have more influence beyond publications if we do it in this way. It's actually good for everything and everybody (Researcher interviewee).*

Another university-based researcher whose project ended up not able to capture the expected energy and attention of the health providers named in the knowledge transfer pathway, vividly described what went wrong, highlighting how important knowing the user environment well was:

*We thought they wanted it – that was our fundamental mistake. They wanted magic. They wanted someone to come in and fix it. This tool was supposed to help them fix it themselves but they felt they couldn't. Everything was too big and too hard. There was too much going on in the sector. I think we had a good project but the environment was not ready and we might not have been the right people – maybe if we had been inside the organisation (Researcher interviewee).*

Some university-based researchers (3) gave examples of projects that were completed as a first stage, but then informed a new research application that looked less like a traditional research project. These projects became directly concerned with quality improvement or delivering a new service or product. For example, a project that investigated a pharmaceutical intervention started to investigate how best to supply the New Zealand market at low cost. Another project investigating a disability issue ended up piloting the proposed service solution. While another disability research project morphed into a quality improvement project by “working with all the key stakeholders to introduce change in a way that would work for them”.

#### **5.1.3.2 What is happening in conversations with users?**

Approximately half (8/15) of researchers interviewed had projects funded from the HRC's Partnership Programme which requires closely working with users. In the Partnership Programme, the HRC works closely with the Ministry of Health and other agencies to identify, commission and jointly fund research that addresses a critical evidence need for both the Ministry and the wider health sector. A subset of activity

[Research Partnerships for New Zealand Health Delivery] includes proposals where researchers work in collaboration with health delivery decision-makers, and these decision-makers contribute at least 25 percent of the budget (financial or in-kind) towards the research costs. As described in the earlier key informant interviews:

*Organisations come to us [the HRC] with emergent priorities; research is contracted which is specifically intended to support research that has knowledge transfer built through it, and the expectations around the utility of research findings are very explicit. The Research Partnerships for New Zealand Health Delivery investment is explicit on our knowledge transfer expectations. Contract requirements can also be placed in situations where knowledge transfer expectations are communicated (Key informant).*

Those researchers who apply for funding from the Partnership Programme described how the concept of knowledge transfer was intrinsic to what is done, with the partnership between researchers and decision-makers in a team one of “the strongest and most effective ways of introducing knowledge transfer”.

The intrinsic nature of knowledge transfer can challenge the thinking around what constitutes “research”. For Māori researchers, partnership funding was about drawing on their own kaupapa and relationships over and beyond a single research project:

*We don't decide “oh we're going to do this, let's go and consult and find somebody who we can put down”, to say these people want it. It comes about through multiple relationships. They're there at the beginning so the research projects are much more about mutual knowledge generation, so that knowledge gets used as it's generated. That's much more the sort of process that we use. It can be tricky because sometimes it can blur the lines of who's the researcher, who's the scientist, who's the person doing the actions, who's the person generating the*



*knowledge. Which I think is a western, linear way of looking at research, whereas it's much more relational (Researcher interviewee).*

The emphasis on mutual knowledge generation above echoes the system thinking view of knowledge transfer with its emphasis on the co-production of research to link academia and other communities around common interests and collective action (see Chapter Two). Calls for facilitative tools and methods to undertake this research have included challenging the reliance on text as the primary medium of research, with “beyond-text” tools including story-telling, performance, art and photography (Durose, 2014). In my sample, there were some vivid examples of researchers disseminating their findings in relevant and interesting ways. These included using social media, an art exhibition, and specialist websites, rooted in the belief that “whatever you write should be given back to whoever you took it from in the first place”.

The researchers I interviewed who had partnership funding went in expecting that “the partner agency knew the issue and who was important to connect with”. They expected that conversations with the user would include drawing up a “dissemination plan” informed by an advisory group or other important key informants. These early conversations, either conducted in person or via a detailed request for proposals, matched the researchers’ prior expectations that they would get connections that would eventually help them implement their findings. While the requests for proposals from users could be fairly detailed, after set-up conversations, researchers reported instances where they significantly changed the scope of what was done.

As time elapsed over the life of a project, examples surfaced of the well-known difficulties of aligning research timeframes with decision-making timeframes. These included difficulties in getting the ongoing attention of users – “trying to get incredibly busy people in one room” – or conversely, being buffeted by too much of the wrong type of attention:

*There was too much capture, too much of doing things my way from the [users], which is not something I would normally say because it is not the way I think or work, but we actually had one meeting where it was 50/50 whether we would abandon the project. They could not agree themselves what they wanted consistently. I almost sent the money back to the HRC: the very things that made knowledge transfer central and important in this were also the things that shot us in the foot (Researcher interviewee).*

Examples were given of successful conversations with users. One researcher, who had recorded how she planned to have a senior steering group as a proposed knowledge transfer action, reflected on the value she obtained from the group in challenging conceptions about what was wanted throughout the project:

*In shaping, for example, the “what was information” people were interested in. I remember a really good engagement on the issues – for example, around the importance of the role of the receptionist. Many of the players in the room were really interested in that. In saying the receptionist was the front person and could have a significant role in influencing the relationship with the patient. Often we assume primary care is about the clinical relationships going on and what sort of information do we have about that? (Researcher interviewee).*

Researchers reported surprises and negotiations over final reports. For example:

*They didn’t really stipulate how they wanted the report. We wrote it in the way we would write up a scientific publication. There was a lot of to-ing and fro-ing because it wasn’t what they wanted. But they didn’t really stipulate what they wanted. That took a lot of negotiation until we got a report that we were happy with and that they were happy with (Researcher interviewee).*

*The thing they wanted us to change, I couldn't get over it, was removing the word recommendation. Because recommendation implied that they had to do something – as opposed to recommendation being something that researchers interpreted from the findings as being a really important thing for key informants to think about (Researcher interviewee).*

Some researchers reflected on what was happening when they found themselves in these final negotiations. When users were sensitive to what the results say, and how they were represented, as one explained, users are “highly invested which is great in terms of knowledge transfer”. However, the challenge for the researcher was being “academically honest” in negotiations over what was said. Another researcher, when musing over why researchers might be anxious about the concept of knowledge transfer, suggested that it could stem from the potential to lose control of the knowledge component of the research, especially when the limitations and significant points of the research were given over to others. One interviewee expanded on the skills she had developed from connecting with users at the end of projects.

*I have learnt a huge amount from being a consultant to [department] and [department] and years of experience of seeing three possible responses when one is giving information or talking about research [with users]. One is they are interested and they may take it away and do something about it. The other is a response of “yeah yeah” we have heard all this before and it doesn't make a difference. The third is we don't have time to even think about that. I guess, being a speaker or a trainer, I have become more aware that I have to work on getting those people from the second two approaches into the first approach (Researcher interviewee).*

#### 5.1.4 Experiences with knowledge transfer requirements generally

I asked researchers if they thought there was value in having knowledge transfer expectations in research applications. No one said there was no value, but different perspectives emerged depending on whether researchers saw knowledge transfer as an integral part of research or a distinct practice capable of being learnt and improved.

##### 5.1.4.1 Knowledge transfer: a belief or a practice?

In a context where researchers already held the belief that knowledge transfer is an integral part of research, the requirement to provide a detailed knowledge transfer pathway triggered a concern that, rather than driving new behaviours, the sections promoted window dressing and tick-box compliance. These researchers drew on their own strong beliefs about the embedded nature of knowledge transfer, but were suspicious that other researchers might not hold the same philosophy or beliefs. They were therefore cynical about the usefulness of using the research application process to increase in the number of researchers doing more to make connections with those who will implement their findings. As one explained:

*I think [knowledge transfer sections] are important only in so far as you believe in it. The cynical part of me would say if researchers know the language and know what the HRC wants you can write a lovely dissemination strategy which ticks all the boxes with assessors, and then do nothing with it at the end of the day (Researcher interviewee).*

In this context, researchers were likely to question the ability of the assessment system to spot simple “cut and paste” sections, and the seriousness with which the section was treated;

*I think there is value in people thinking about knowledge transfer though how much having this section in the application makes a difference – it is a little step in the right direction but I do not think it is something researchers take seriously as a section. They know they have to find the right words to cut and paste. Even those who take knowledge transfer seriously, I do know, do not take the section seriously. They know they can complete this section as a paper exercise which is not strongly connected to what they believe or what they will do in practice (Researcher interviewee).*

When I asked the researchers in my sample how they thought the knowledge transfer section was assessed. More than half (8/15) said they didn't know. Scoring highly in this section was clearly not a guarantee of funding:

*I don't really know to be entirely honest. I've always scored high on it in my applications but then didn't get funded. I seem to be providing what people want to hear yet it doesn't seem to be enough (Researcher interviewee).*

Other interviewees, who had also been HRC assessors, drew on this experience when answering. They countered the criticism of pro-forma or cut-and-paste knowledge transfer sections by stressing they can “always spot if someone has actually given the section some thought”. For example:

*As a research assessor, I look at how achievable it is in the time frame and with the funding that they have. Knowing what I know about their community I can tell if someone is shooting for the stars (Researcher interviewee).*

Where researchers have had previous roles as health practitioners, or other users of research in some way, they were more positive about the usefulness of committing knowledge transfer intentions to paper. In line with the expectation of the policy that

it would make researchers think more about knowledge transfer, these researchers believed more “thinking” was prompted:

*I think basically it's a good idea to have it in the applications. A lot of people writing those applications wouldn't really have thought too much formally about knowledge transfer. I might be a bit outdated in that opinion (Researcher interviewee).*

The effect of knowledge transfer policies could be particularly valuable if you were a novice researcher as it put this type of thinking “on your radar”. As one interviewee explained:

*I think the first time you do it, it's really valuable. I think as a novice researcher you never even consider that aspect of it. I hadn't. I should actually be telling people about this otherwise no change happens. I think, subsequently, once it's on your radar, it's less important because now I wouldn't ever conceive of a project without doing that (Researcher interviewee).*

In contrast to the first set of interviewees who were suspicious of how other researchers would play the game, this second set of interviewees saw other researchers seizing an opportunity to learn. Some explained how they themselves learnt what was important from undergoing this process, while others linked their interest to prior experiences in practice roles:

*I do think they are helpful as they make you plan ahead and really doing the research project is not the important thing; it is what you do with the data afterwards. So I think it is one of the most important parts of the application actually. You know, having to think about that before you start made me engage*

*with certain groups that might be involved with that process from the start (Researcher interviewee).*

*So partly it's informing your participants what will happen in a way that they can understand it – also you see it's because I'm a [clinician], I'm with the practical end of things. I think I might think differently if I was someone who is more at the theory level where it's a long time before what I'm doing actually translates into real practice (Researcher interviewee).*

One interviewee, whose project failed to engage with the users initially listed in the knowledge transfer section, started to question the basis of expecting researchers to take responsibility for knowledge transfer when they operate from a starting position that they had a research product to push, that is:

*I am not convinced [there is always value in the knowledge transfer section]. It is like developing a product. The products that are successful in the market are successful because someone wants them – not because someone thought they would be cute to make. The world is littered with things that were a good idea at the time. I wonder if this is a bit like this. Someone should ask is there a market for this? Do DHBs – or whomever – actually want research that will make a difference. There are so many drivers in health services that are to do with saving money, not doing things better (Researcher interviewee).*

#### 5.1.4.2 Knowledge Transfer: common sense or requiring thought?

In tandem with the difference between those researchers who are likely to regard knowledge transfer as a practice capable of being learnt and those who saw it as belief, there was also a distinction between a subset who saw knowledge transfer as a very *straightforward* practice and those more likely to stress that it required *deliberate thought*.

Researcher practitioners were more likely to stress the straightforward nature of knowledge transfer; a process akin to a marketing strategy or a change management process as two interviewees pointed out:

*Knowledge transfer is common sense 101. If you want to get people to change, you have to get people to buy into the change and believe in it. You've got to talk to the right key informants and opinion leaders and all of this. That's just common sense and I've been involved in how peer reviewed evidence gets into practice 10, 15 years ago. Where I used all the techniques that I've subsequently learnt you're supposed to use for knowledge transfer, I didn't know I was using them. It just seemed like common sense, what you should do (Researcher interviewee).*

*This sounds pretty banal, but I think probably the most important thing is very hard labour, enthusiasm and your own personal attributes. I think if you can present well with a bit of marketing involved. If you can present things in a very clear concise well-thought-through, well-supported fashion, that goes a long way. It requires practice and a lot of effort. I think that's really important (Researcher interviewee).*

University-based researchers were more likely to see the knowledge transfer section as an opportunity to display deeper thought. When reflecting on their experiences of knowledge transfer generally, three university-based researchers did engage with the knowledge transfer literature more formally. These involved; (1) developing a post graduate paper for students, (2) developing their own hierarchy of evidence, or (3) coming up to speed with implementation science and trialling a knowledge broker as a specific strategy within a further project. Knowledge transfer presented as an activity that required deliberate thought and deliberate effort:



*It seems to me researchers, we're very good at thinking our research is terribly clever and everybody should take notice. It just doesn't happen by miracle. It just does not happen. Everybody else is in the same position of thinking their approach is important, or their issue is important but they're not going to really take on board ours unless we really help them. For me it's a fact that [knowledge transfer] takes intellectual consideration and it takes action (Researcher interviewee).*

*It's not just sending you results to the [user]. You've actually got to go and have meetings with them and say this is what we've done and put yourselves in their faces really. ...You say that you'll do these things when they finish but you've moved onto the next project and you don't do them. If you want to actually have any meaning you should do it. I think it's really important (Researcher interviewee).*

#### **5.1.4.3 Parallels with the Māori Responsiveness Section**

My sample included a number of projects (5) solely or partly directed towards issues of concern for Māori. This prompted some of the researchers I interviewed to reflect on the parallels with the “responsiveness to Māori section” in research grant proposals. This section requires researchers to outline how their intended research responds to an issue of relevance to Māori. Since 1998, the Health Research Council has been putting in place requirements (and then clarifying the intent of these requirements) to ensure research that has involved Māori as participants, or on a topic relevant to Māori health, follow appropriate consultation processes (Sporle & Koea, 2004a, 2004b). The rationale for these requirements was summarised in recent (2010) guidelines for researchers on health research involving Māori:

The HRC's desire to increase Māori participation in health research arises from an intention for HRC-funded research to contribute as much as possible to the improvement of Māori health and well-being. This

intention is reinforced by a combination of government policy, a desire to reduce Māori health disparities, and recognition of Māori as tangata whenua. Implementing these guidelines will often require additional work and effort – however, they should be seen as a way to enhance the quality of the research and the outcomes which are achieved (Health Research Council, 2010b).

In pointing out the similarities with using the research application process as a way of bringing about change, one researcher stressed that, unlike the body of assessment and judgement that has been developed for the Māori responsiveness section, there is not an equivalent for the knowledge transfer section.

*It [the knowledge transfer pathway] is rather like the Māori consultation section which is unfortunately directly analogous – it is an obstacle we have to find the right words to put into the section – a “tick the box”. For Māori consultation at least in the granting stage, there is often a Māori assessment which can be quite powerful but there is not a knowledge transfer assessment which has the same power of veto (Researcher interviewee).*

Whilst there may not be an equivalent “power of veto”, another researcher referred to the power of making a commitment on paper though, having made a commitment when funding gets tight, that commitment is challenged:

*All too often, sadly, people say “yeah, yeah we’ll do this” at the beginning of a grant application so they look good. They get the grant across the line and then enthusiasm starts to wane. Nothing much happens. I think we’ve really tried to honour that. We made a strong commitment come hell or high water we would recruit Māori. I have to say I think we were looking in the barrel of the gun with running out of money but I took a stake in the ground and said we’re going to*

*recruit Māori and I'm going to find the money some way to do it (Researcher interviewee).*

The ways in which commitments are easy to make, but become tested when funding is tight, was expanded on by another researcher when describing what happened to a project with three aims: (i) world-class science, (ii) capability development, and (iii) engaging with Māori and Pacifica communities. The reality was that when funding came to be apportioned, resources were allocated in ways that did not match what was written:

*When we got to the budget bit of it, it was here's nine-tenths of the money for the science and we might have \$10,000 to engage with Pacific and Māori communities. It's like "guys, if we said these are our three mains aims how does this not flow through". Just writing it in a form that has ticked the boxes – you can see the total disconnect between our three main aims and how we allocate our resources and how we're going to measure it and then outcomes. Then, at the end, we have this magical outcome of communities are informed, but it hasn't run through any of our activities. It hasn't run through any of our finance (Researcher interviewee).*

#### **5.1.4.4 The changing dynamics of research practice**

The experience of Māori research in New Zealand underscores how knowledge transfer is not a politically neutral exercise in the transmission of facts, but taps into how cultures and disciplines conceptualise knowledge differently; knowledge can be “created”, “constructed”, “embodied” and “collectively negotiated” as well as being value-laden and serving dominant interests (T. Greenhalgh & Wieringa, 2011). In my interviews with Māori researchers, they described balancing the need to meet the requirements of the academy with the need to be accountable to their communities,

and also the artificiality of what is recorded in the knowledge transfer section when the whole process is more organic:

*It doesn't happen in such the structured way you write it down – that can be a little bit artificial I think. It's really about “well, what can we offer to people that will be of interest to them” and having a meeting to discuss it as opposed to holding a hui where people are invited and people are not that interested. It's much more tailored and natural (Researcher interviewee).*

The private-sector researchers in my sample co-constructed research projects with those that would be affected by the research ( that is, Māori and Pacific communities) as well as those responsible for action with respect to the issues being studied. These researchers were clear where their priorities lay:

*This wasn't research for its own sake. If we weren't driving this through to make change, then it wasn't worth doing (Researcher interviewee).*

Researcher practitioners also stressed a desire to move away from the dominant science model, which privileges the production of knowledge, towards the ways in which knowledge is used:

*Science delays knowledge transfer. It all stays in the ivory tower. We know that it takes something like 10 or 15 years to take hold. It's just because we [researchers] don't do the job of talking to the 95 percent of clinicians who aren't working as academics (Researcher interviewee).*

My sample also included a number of researchers working on disability issues. Disability research is at the forefront of “user controlled research” which argues for an improvement in the relationship between researchers and those being researched on the basis that this will improve the relevance, quality and applicability of medical research. Calls to work in this way have been attributed to: (1) the concern to democratise publicly funded medical research and (2) the increasing importance attached to the notion of patient experience starting with the body of theory emanating from disability studies (McKevitt, 2013).

The changing dynamics of research practice overall could be informed by ideas emerging from particular fields of health (for example, disability or indigenous health), but could also come from important beliefs about their role as researchers. What this meant in practice was that knowledge transfer actions were not seen as ones that could be passed on to others to pick up, and, in fact, played to their strengths. For one university based researcher, engaging in this area had changed the way she thought about what she did:

*I think grappling with this has changed how I teach. It has probably changed how I... I was going to say how I live my life but that sounds too dramatic. It certainly changed how I do research and the sort of research I want to do (Researcher interviewee).*

The personal nature of the commitment required and the ways the knowledge transfer section can affirm those commitments is demonstrated in the quotes below (underlining my emphasis):

*Knowledge transfer is essential – there are projects I do not take on because if there is no audience at the end who is taking notice, then this is not a project for*

*me. This is why I do this type of research and not basic science (Researcher interviewee).*

*It is useful to put it down [in the knowledge transfer section] because we know but the reviewers do not necessarily know – so it is important. If it was not a section on its own, we would have to put that level of detail into the grant application which would mean there is less space available to write about the methods which means you are open to criticism so you cannot put your point across. So it is an important section for us and it plays to our strengths quite nicely (Researcher interviewee).*

As the literature review pointed out, one of the notable differences between the knowledge transfer literature and the sociology of science literature is the extent to which the sociology of science literature draws attention to divisions within research communities. The researchers I interviewed often clearly located themselves in a community of practice that was less interested in the pure pursuit of knowledge and more focused on ways their knowledge would be applied for health benefit. In the literature, health researchers have been identified as a group of researchers that can easily find themselves straddling traditional knowledge translation activity (the journal articles) and the more interactive Mode 2 style view of research involving engaged interactions with research end-users (Estabrooks et al., 2008). Some interviewees reflected on how far the dominant approaches and cultures in science were changing, and whether entrenched cultures were really being challenged. Illustrative examples of this questioning being listed below:

*Science has some dominant approaches and I think within funding of science in New Zealand we probably have got a pretty traditional approach. I think that is changing and I think that brings risks with it. If you want to see improved health, if that is an aim, then I think you have to look at what you are doing about translation (Researcher interviewee).*

*It's very anecdotal because I don't work in the whole big academic sector, and I'm quite glad that I don't, to some extent, because sometimes things that you hear are that the competitive nature is not conducive to actually improving the health of our population. Maybe some of the research units have lost sight that the resources provided to them for use is to be able to improve the health of the population, not to improve that person's standing or that person's power within the research community (Researcher interviewee).*

No one interviewed directly referred to the shifts in the practice of research from the mid-1990s, away from discovery-orientated research designed to contribute to a generalisable body of knowledge (that is, Mode 1 research), to a model of scientific inquiry that blends the pure pursuit of knowledge with considerations of societal benefit ( that is, Mode 2 research) (Gibbons et al., 1994). Nevertheless, it is tempting to assume they had this shift in mind when referring above to “dominant approaches” or “the whole big academic sector”. One place where the dominant culture was singled out as stifling change was the make-up of the reviewers who assess the proposals. Researcher practitioners raised questions about how reviewers are chosen and how well they did their job:

*If the reviewers are clinicians with a broader perspective around health services as opposed to individualistic, they review it quite positively as opposed to others who should have never been selected by the HRC. These reviewers do not understand translational research. Do not understand the real world and should never have been selected as reviewers to be honest. Often real-world evaluations are not perfect and at the end of the day you cannot expect the definitive RCT (a) for the environment we are working in and (b) for [funding available]. Often reviewers do not understand that (Researcher interviewee).*

*I don't work in an academic establishment. A lot of the stuff that comes out of an academic establishment is not feasible to be able to do at a local level on the*

*ground. I think with the HRC, that is something that is quite interesting, to look at some of the comments that come back from the reviewers. Have they actually read the proposal? (Researcher interviewee).*

While knowledge transfer may be endorsed in rhetoric, it is not uncommon to find the rewards and resources still regularly reflect the enduring value accorded to more academic activities (Jacobson, Butterill, & Goering, 2004). It has been argued that it is senior researchers who are the ones most likely to have the skill, knowledge and capacity for the arduous and time-consuming work of building relationships with end-users (Estabrooks et al., 2008). When asked what supports or detracts from knowledge transfer, the time-consuming nature of the work was also stressed by the interviewees. They explained that planning for activities other than publications and scientific journals takes time in order to “understand the audience” and, as the story below illustrates, a style of thinking and planning different to research skills:

*We had thought of doing things like policy briefings and coming down to Wellington and briefing Ministers, but we never did that.*

**(Interviewer) What was the barrier?**

*Two things. Not being physically here on a day-to-day basis so you can take advantage of the opportunistic things that occur. I compare this study with what happens in the field of tobacco and they are very clever about grabbing sound bites of stuff that is backed up by evidence that they can give to Ministers to use. In the social sciences area we say “it could be this, it could be that” and we know a policy analyst will say “tell me what it is”: that does not turn into a great sound bite to give to an official or Minister. We have to get cleverer about how we do that. The other thing is we need a better process internally – within our organisation about feeding into the policy cycle – making this a priority I guess, as much as publishing is a priority (Researcher interviewee).*



As outlined earlier, critics of the call to predict knowledge transfer in research applications complain that researchers get driven by these demands into concocting dubiously plausible claims about the outcomes likely to flow from their work and do not necessarily take the requirement seriously. There was no evidence of any resistance from my interviews to providing knowledge transfer pathways, though one researcher, who had had negative findings from her research, pointed out there may not be value in spreading the findings too widely:

*I think that it's very easy to write something in the grant that makes sense and seems logical. But I think if you have a negative result from a study, it's much more difficult to do any knowledge translation. We just have to accept that because if your hypothesis that something is going to be effective doesn't work, there's actually nothing to translate (Researcher interviewee).*

#### 5.1.5 Insights from these findings

The “on the ground operations” of the HRC’s knowledge transfer policy is revealed from reviewing the instructions given in knowledge transfer sections, analysing the successful written responses, and gathering insights from researchers on what shaped their knowledge transfer pathways and what ultimately happened. The literature review has already touched on the larger debate of how much the impact from particular pieces of research can be attributed back to the actions of researchers. Spaapen and van Drooge (2011) argue that what a researcher can influence are “productive interactions” and that these avoid the time lag and attribution issues commonly associated with trying to assess whether society as a whole has benefited from a particular piece of research. The instructions provided by the HRC in each of the three funds have the overall aim of prompting these productive interactions, though a close reading of these instructions reveals a slight shift over time in *what* researchers are expected to do. In the earlier funds (the District Health Board Fund and early Partnership Programme funds), the instructions guided researchers towards increasing their efforts to tailor their communications to those who will use the

research. While the simple tailoring of key results may be enough to increase the likelihood of research use in some situations, latter HRC funds (the New Zealand Health Delivery and Research for New Zealand Health Delivery) acknowledge how the use of research is an intensely social and relational processes, when further guidance is asking for “plans for stakeholder engagement”.

Some interviewees were interested in teasing out the difference between terms such as dissemination, transfer and utilisation. One interviewee pointed out that, for him, concepts such as “dissemination” and “transfer” suggest a process, while a concept like “translation” prompts questions around “is this going to be useful?” Another interviewee interpreted calls for knowledge transfer as calls to communicate to the public, and she questioned the feasibility of such an undertaking:

*The more difficult knowledge translation, which I suspect is what you're most interested in, is the knowledge translation to the wider community. I think that is a much more difficult area to consider. Yes, I think, where appropriate, the knowledge needs to be translated but not all research – if we took that to the nth degree, there would be nothing in the news except medical research. It's about identifying what is actually going to be of interest to the general public (Researcher interviewee).*

Overall, a bedrock interest in better communication continues, despite the growing emphasis that effective knowledge transfer actions are ones which provide the means and opportunities for relationships between researchers and users. Instructions on what to write in knowledge transfer sections often merge requests to communicate research results with requests to build new relationships. One interviewee, who knew well the HRC funds I was investigating, suggested that the concept of dissemination was well understood by researchers but the nuances of how to build relationships to achieve change was less understood.

It is difficult to quantify the likely size of increased effort being made by researchers to proactively prepare and make connections as a result of instructions to do so. This further investigation in Phase Two builds a deeper qualitative understanding of the pattern of intermediate outcomes being achieved. Not only may more effort to proactively prepare and connect occur on the part of researchers, but a commitment is made to the relational and financial resources needed to make that effort. Moreover, the type of effort made may be influenced by the views of the researcher on whether making connections is merely common sense or requires a high level of skills and understanding.

To sum up, the interviews with researchers revealed that the people- and relationship-based health policy and practice environment in New Zealand means New Zealand health researchers are expected to take responsibility to do two separate processes: (1) to develop scientifically robust research and (2) to deliberately design activities to influence the opinions or actions of others. The majority of researchers interviewed saw knowledge transfer as playing to their strengths and did not believe knowledge transfer actions should be passed on to others to implement. Making a commitment on paper to the knowledge transfer actions they would undertake can create a force to hold firm when research funding gets tight, and the resulting commitment of time and resources is challenged.

When filling in the knowledge transfer pathway section – that is, explaining what activities would be deliberately designed – a strong emphasis is given to being grounded in the “real world” that will apply their findings. The importance of personal experiences that helped researchers understand the context of how their findings will be used outweighed an interest in applying the formal literature and advice on how knowledge transfer should be undertaken.

Those researchers who had partnership funding found their early conversations with users matched their prior expectations that they would get connections that would help them implement their findings. As time elapsed over the life of a research project, surprises and negotiations over final reports could arise, particularly if connections between researchers and users were not maintained.

Researcher practitioners were more likely to consider knowledge transfer as a straightforward process akin to a marketing strategy or a change-management process, while others (particularly university-based researchers) were more likely to see knowledge transfer as a process requiring deep and deliberate thought and understanding.

Finally, a key conclusion is that unlike the body of assessment and judgement that has been developed for the Māori responsiveness section, there is not an equivalent for the knowledge transfer section. The view that the knowledge transfer pathways requirement is not taken very seriously could well be being fed by this absence.

## 5.2 REFINING THE INITIAL THEORY

The data collected in Phase Two uncovers a more nuanced set of outcomes, triggered by different combinations of mechanisms and contexts, covering both intended and unintended consequences. My next iteration of realist theory was therefore oriented by three questions:

1. Under what circumstances does engaging with the knowledge transfer section significantly change what researchers do?
2. Under what circumstances does engaging with the knowledge transfer section affirm and deepen, rather than change, what a researcher does?

3. What is likely to matter most about the way the HRC's knowledge transfer policy is implemented?

My original hypothesis was that the concept of *sensitising* was a starting point to understand what was happening when researchers drafted knowledge transfer pathways in a research funding application. In realist terms, sensitising was the mechanism (M) by which the outcome was expected to be achieved. I distilled three potential candidates for how the proposed sensitising mechanism may occur:

- Candidate One suggests researchers are sensitised as a result of reading and applying the growing range of knowledge transfer theoretical constructs and advice.
- Candidate Two suggests researchers are sensitised about how their research will be used as a result of conversations with the user.
- Candidate Three suggests researchers are sensitised by possible sanctions and lack of future funding if they do not take on board knowledge transfer activity.

The following sections illustrate how each of these candidate mechanisms plays out in different contexts to produce either a significant change in the behaviours and activities of researchers, increased mindfulness by researchers, or no change at all. At the end of this chapter I present a refined theory.

#### 5.2.1 Circumstances which prompt significant change

Where researchers were in their research careers was likely to influence how much their reasoning was influenced by knowledge transfer requirements. Early career researchers, who in my sample were also often current health practitioners, noted that filling in the knowledge transfer section for the first time put the issue on the radar. These researchers gave personal examples of how they were prompted to think differently about who needed to be involved in the research and how they needed to plan for this early.

I initially theorised that researchers would be sensitised by knowledge transfer policies to use and apply the growing range of constructs of how knowledge transfer works best. I found more implicit use of the theories and models than explicit use. Five of the 26 written sections referenced explicit ideas about knowledge transfer, while the rest implicitly paid attention to recording how they would tailor the results for different audiences or connect with the right people throughout the research.

Across all the researcher practitioners interviewed, being able to demonstrate they were grounded in the real world was more important than demonstrating they were reading and applying knowledge transfer theories. Researchers who also work as health practitioners were likely to regard knowledge transfer as a straightforward practice, capable of being learnt, but also built from developing real-world experience of the clinical and other health communities that are going to use research findings.

These positions match two arguments being made in the literature. The first claims that implementation theory is not necessarily better than common sense for guiding implementation (Bhattacharyya, Reeves, Garfinkel, & Zwarenstein, 2006). This clearly matches with the views of many of the research practitioners I interviewed that knowledge transfer was straightforward change management. The second argument is that knowledge transfer merely involves a pragmatic understanding of context. The argument being that the most pragmatic choice for the researcher when deciding what to do is to decode the context in which research is expected to be used, and design an approach that fits that context (Constandriopoulos et al., 2010). This decoding could involve using the available knowledge transfer models and guidelines but not necessarily. Many of the written knowledge transfer pathways I reviewed did acknowledge the importance of stating a personal connection with the clinical or health communities that will use the results.

Researcher practitioners have an advantage in being already embedded in the organisational contexts that are expected to take account of particular research results. The speed with which specific projects undertaken by researcher practitioners in this investigation morphed into national policy and guidelines was striking. As the implementation literature highlights, however, being announced as a national priority is only the beginning of a much more interactive process of uptake (see, for example, Damschroder et al., 2009). The experience reported by interviewees in this investigation gives weight to advice that the smartest knowledge transfer action researchers can undertake is to give prior thought to the existing knowledge exchange processes within organisations with which they expect to engage before developing specific plans (Ward et al., 2012). Furthermore, the findings reinforce the strongly relational basis of the way research ideas get picked up in the New Zealand health sector.

University-based researchers were less likely to see knowledge transfer as a straightforward practice, but equally favoured drawing on experience over abstract theories embedded in models and frameworks when deciding what to write in a knowledge transfer section. This nuanced position reflects the conclusions of those knowledge transfer scholars who, whilst dubious that the application of theory is the solution to effective implementation, still want to argue that there are advantages to recognising the body of theory that emerges from reflective experiences. As Nilsen explains, the advantages of thinking about how something works can constitute a theory, albeit an informal and non-codified one, that does have the following advantages over common-sense:

Theories are explicit and open to question and examination; common sense usually consists of implicit assumptions, beliefs and ways of thinking and is therefore more difficult to challenge. If deductions from a theory are incorrect, the theory can be adapted, extended or abandoned. Theories are more consistent with existing facts than common-sense which typically means that a hypothesis based on an

established theory is a more educated guess than one based on common-sense (Nilsen, 2015 page 9).

Hemlin and Rasmussen (2006) argue that one of the implications of a shift to Mode 2 knowledge production is that there is a concurrent shift to self-reflective thinking of one's work and activity as a researcher. When Davies and colleagues researched what was happening to apply knowledge transfer models and frameworks, they mirrored this emphasis on self-reflective thinking when they concluded that, while patchy progress had been made in producing a menu of "proven" approaches to knowledge transfer, a "rich seam of formative learning from practical experience" was emerging (Davies et al., 2015, p. 129). The formative learning they were referring to encompassed the importance of attending to context, working flexibly in rapidly changing political environments and maintaining persistence and stamina. These types of understanding start to form a body of tacit knowledge about knowledge transfer – that is, the models and representations through which individuals perceive and interpret reality by organising their experiences (Polanyi, 1966).

When researchers described what happened in projects set up in partnership with users, a picture emerged of the ways in which tacit knowledge about knowledge transfer is being assembled. Researchers apply for these funds, expecting there is a hunger for the research being undertaken, and that they will discuss with users who needs to be connected with the findings. The quote below reveals the fundamental starting premise for one interviewee:

*When we start out with anything, we do not necessarily think of it in terms of knowledge translation, knowledge exchange or whatever those terms are. It is more about why is this research question important and who needs to know this – who are our audience and what change are we trying to effect (Researcher interviewee).*



Following the trajectory of the partnership projects in my sample, revealed how researchers experienced fairly straightforward set-up conversations with users, variable ongoing connections, and some surprises and negotiations over final reports. Interviewees experienced difficulties due to different time scales between themselves and users, changing political climates, changes in key contacts, and problems getting access to an initiative stable enough to research. Much of what was described can be seen in the body of literature on the difficulties with the research and policy relationship (see, for example, Kingdon, 1993; Nutley et al., 2007; K. Smith, 2010).

Realist investigations have been undertaken on the mechanisms at work in mandated partnerships between researchers and users. This research emphasises the importance of partnerships that play particular attention to the “real life” concerns and needs of clinicians, and the importance of building relational adaptive capacity through small strategic teams led by strong facilitative leaders (Heaton et al., 2015). Jagosh et al’s realist review of participatory research partnerships included partnerships between people affected by the research, as well as those responsible for action on the issues under study. His conclusions were that the concept of partnership synergy worked as both an outcome and a mechanism:

.. so that when a synergy generated a positive outcomes (e.g. enhanced trust or improved data collection), those outcomes generated new synergy. Explaining this logic, we demonstrated how partnership synergy created momentum over time, producing resilience in the face of obstacles as well as sustaining health-related goals, extending programmes and infrastructure, and creating new and unexpected ideas and activities. (Jagosh et al., 2015, p. 334).

For the experienced researchers interviewed in this investigation, none of the problems that occurred with users was particularly unexpected. The researchers were able to maintain resilience in the face of obstacles. Where they did express surprise was around the negotiations at the end of projects. These were often experiences that would start to prompt new thoughts about knowledge transfer. The conversations negotiating respective views at the end of a project, in contrast to the conversation around what could happen at the start of a project, triggered insights into what needs to happen if others are going to pick up findings. Despite regular best practice advice on maintaining relationships with users throughout the research project, two features conspire to make this particularly difficult. The first is the project-based nature of these researcher-user connections has implications for the sustainability of these activities once project funding comes to an end. The second is the influence of organisational turbulence where it is difficult to develop ongoing relationships because of the high turn-over of staff.

Updated Context-Mechanism-Outcomes propositions are listed in the shaded box on the next page. These suggest circumstances where researchers increase their efforts to proactively prepare and make connections with those who will implement their findings (O). These occur most when researchers are new to research or the topic being researched. This sensitisation may involve reading and applying knowledge transfer theories, but it is more likely to involve developing tacit knowledge of the real-world experiences of the clinical and other health communities that are going to use the researchers' knowledge. A key opportunity to develop this tacit knowledge occurs when researchers are able to maintain a connection with users throughout a project. In these contexts, it is the conversations with users at the end of projects that can be particularly insightful on the type of activities needed to influence the opinions and actions of others. For more experienced researchers, particularly those with prior beliefs on the integral nature of knowledge transfer, filling in a knowledge transfer section does not sensitise them further though, as the next section discusses, it may affirm and deepen the ways they see themselves as a type of researcher that does more than act as a producer of new knowledge.

The following propositions refine the initial theory of how the HRC's knowledge transfer policy works based on the results of the fieldwork presented in this chapter.

### Refined realist theory

Increased efforts by researchers to proactively prepare and make connections with those who will implement their findings (O) are *more* likely:

- If researchers are new to research, or coming fresh to the topic being researched (C), then filling in the knowledge transfer form *sensitises* them by putting knowledge transfer on their radar (M).
- If researchers are able to maintain a connection with users throughout their research project, as promoted by the knowledge transfer section (C), then researchers are *sensitised* as a result of conversations (and negotiations) with users on the type of activities needed to influence the opinions and actions of others (M).

An improved understanding of what to do to move research into action (O) is *more* likely when researchers engage in reflective learning from past knowledge transfer experiences (C) so they increase their tacit knowledge of what works (M) and is *less* likely to occur from reading and applying knowledge transfer theories and models.

### 5.2.2 Circumstances which affirm and deepen

I theorised in the previous chapter that how researchers view debates and discussions over the relative status between applied and fundamental researchers is likely to be relevant to how researchers respond to knowledge transfer policies. For example, researchers may be sensitised to the extent that they acknowledge they need to fill in the section if they want funding, but the perceived lowly status of knowledge transfer may mean they do this under duress. What was notable at the end of the interviews was how many of the researchers who participated were already committed to the importance of conducting research in order to be applied on behalf of society. While they were clearly committed to a different way of thinking about and doing research, interviewees varied in the extent to which they found the concept of knowledge transfer a straightforward practice, something that required more deliberate thought, or a deep-seated belief that underpinned why research was done in the first place.

Realists talk of particular mechanism being fired or triggered in order to produce the intended outcome. A recent argument by Dalkin et al. (2015) offers a dimmer-switch analogy for those programmes which rely on a set of reasoning by professionals which does not switch on and off, but develops over time as they experience the effects of change. As they explain:

Conceptualising volition as happening in a binary “firing”/“not firing” fashion masks a continuum of activation which can have more explanatory value in understanding how interventions work. There are varying degrees to which an individual can feel confident, angry or mistrustful, leading in turn to a gradation of outcomes (Dalkin et al., 2015, p. 6).

Dalkin and colleagues' evaluation of a palliative care integrated pathway observed that decisions by health professionals to register end-of-life individuals on the pathway did not switch on or off, but developed over time. These developments were shaped by anxieties related to the potential progression of the illness and involved those professionals with more experience being less anxious. The authors concluded that the notion of mechanism "firing" may stifle researchers' realist thinking, and recommended conceptualising mechanisms as a continuum.

Drawing from this idea of a continuum rather than an on/off switch, this investigation provides examples where engaging with the knowledge transfer requirements in the research application process made researchers more mindful of what was involved, though it did not necessarily change their behaviour. A set of reasoning was in operation that was less about a particular behaviour or activity being switched on or off, and more about the degree to which the policy *affirmed* a behaviour that was a defining feature of the research community they identified with. The defining features of that community can be seen in statements from interviewees that they were: "not in an ivory tower", "worked in ways that blur the lines of who is doing the research" or "did not do research for its own sake".

Comments by researcher practitioners that the knowledge transfer section was "one of the most important parts of the application" affirm a distinctive feature of how clinician scientists are placing themselves as the leaders of translational research programmes and networks. Vignola-Gagné (2014) recently tracked the success of American and German clinician scientists (a group with broad parallels to the researcher practitioners in this study) in overturning the dominance of "reductionist molecular biologists" in biomedical research. He argues that clinical scientists are able to use the concept of translational research in order to build a coalition of support for their own interest in integrative patient-oriented research.

Funding proposals and policy documents are acknowledged as one of the spaces where new research communities are constructed and articulated (Molyneux-Hodgson & Meyer, 2009). Studies have already shown that the medical and health science academics expect their research to have an impact in healthcare or public health and well-being (Upton et al., 2014). In-depth research on the experiences of health inequality researchers highlight the complex way these researchers need to maintain credit with a diverse audience of peers, policy audiences and research funders (K. Smith, 2014). When Estabrooks and colleagues surveyed Canadian health researchers to understand more about patterns of Mode 1 and Mode 2 research activity, they found applied medical school researchers who continued to practice were able to successfully combine both Mode 1 and Mode 2 style outputs. They were curious that applied medical practitioners (a similar category to my researcher practitioners) had achieved that balance, and called for further research to confirm and understand how they managed, as doing so was “asking researchers to engage in two sets of activities each requiring a unique skill set, substantial commitment of time, and different rewards (payoffs)” (Estabrooks et al., 2008, p. 1076).

Interviews with researchers for this investigation revealed that they did not see themselves as solely producers of research-based knowledge. A consequence of filling in the knowledge transfer section was an affirmation of an identity as a particular type of researcher. My initial theory was that filling in the knowledge transfer section would increase the effort made by researchers to proactively prepare and make connections with those who will implement the findings. What I found was that in some circumstances, rather than an increased effort, a more subtle change was occurring, that affirmed the need to give a priority to the relational and financial resources needed to move research into action.

In recording what they will do, while tightening finances may make some actions difficult, having made a public commitment (often to their research team and partners as well as the HRC), then as one interviewee described, researchers built up a

momentum to “honour that commitment”. In these circumstances, knowledge transfer policy works by authorising attention and resources to knowledge transfer. A key informant touched upon this idea when they suggested that research funders were validating what already happens as researchers want to have an impact and “all we are doing is giving permission to a researcher to do what they always do”.

Further refinements to my initial realist theory are presented below.

### **Refined realist theory**

An increased priority is *more* likely to be given to the relational and financial resources needed to move research into action (O) when:

- Researchers who are also health practitioners (C) have their real-world credentials affirmed as a legitimate part of their research practice (M) when they fill in a knowledge transfer section.
- Academics who have already taken responsibility for knowledge transfer (C) make a public commitment to the resources needed (M) when they fill in a knowledge transfer section.

#### **5.2.3 What are important variables in how this policy is implemented?**

The initial proposition that researchers were sensitised to take on board knowledge transfer expectations as a result of possible sanctions only partially corresponds to the findings from the second phase of data gathering. Interviewees did not express concerns about sanctions. In some circumstances the opposite concern was expressed: that more sanctions were needed if knowledge transfer sections were to be “taken seriously”. Those researchers already holding a strong belief in knowledge transfer were concerned that, without a credible assessment process (similar to that

developed for the responsiveness to Māori section), rather than driving real change, knowledge transfer sections could promote window dressing and tick-box compliance from less-committed researchers.

Criticisms of pro-forma or cut-and-paste knowledge transfer pathways sections were countered by some interviewees, who had also been HRC assessors, with statements that they could always spot “if someone has actually given the section some thought”, or had a good eye “if someone is shooting for the stars”. Interviewees who were researcher practitioners raised questions about how assessors of research applications are chosen, noting that for their clinically-applied research they required someone who understood translational research and understood the “real world”. Key informants also had varying views on the legitimacy of the process used to judge a knowledge transfer pathway. While one key informant was confident that sound judgments are made on the appropriateness and general “clout” of any decision-maker named as a key contact for the purposes of a knowledge transfer pathway, another was more sceptical in general about how research assessors derive their views, particularly if these views require an economic judgement about the potential benefits of a new innovation.

Internationally, work is being undertaken to develop more detailed assessment criteria for knowledge transfer, as it is rare for researchers to receive feedback on this aspect of their proposal (Ruppertsberg et al., 2014). Commentary and analysis is starting to explore in greater detail the “social robustness” of the bibliometric and other indicators being used to judge the quality of research undertaken by universities (Barré, 2010). While the starting point for these university-based assessment processes is retrospective, rather than the prospective approach adopted by research funders, the debate on what comprises a credible assessment of the impact of research is also relevant. I return to these debates in greater detail in the next chapter.

A few interviewees noted the difference between what happens with the responsiveness to Māori section compared to the knowledge transfer pathways



section. These interviewees drew attention to the body of research assessment practice being formed around Māori responsiveness. Guidelines have been produced by the HRC's Māori Health Committee to inform what gets assessed and how (Health Research Council, 2010b). Acknowledging that implementing the guidelines will often require additional work and effort, researchers are expected to end up with a heightened awareness of the range of approaches to Māori health research, for example, kaupapa Māori research, Māori-centred research and research where Māori are involved as participants. In filling in the responsiveness to Māori section in the research application, researchers are advised to:

- Provide evidence of initial consultation and conversations with a variety of Māori and Māori groups before any research on a Māori health issue and/or involving Māori as participants is put forward as a research proposal.
- Present a dissemination plan on how the intended research will be disseminated and utilised. The guidelines stress that “dissemination is particularly important when Māori have been participants in the research project as Māori have often found it difficult to gain access to, and therefore benefit from, health research findings” (Health Research Council, 2010b, p. 11).

Two features stand out that make the resulting assessment of what is written in the responsiveness to Māori section more “powerful” (to use the words of one interviewee) in contrast to the knowledge transfer section: (1) an additional onus is placed on the employing institution to take responsibility for creating an environment that supports what is required, and (2) applications are not successful if they do not clearly provide the appropriate information. The type of issues which may cause the Māori Health Committee to step in and stop a particular proposal going ahead include “any Māori involvement in research that breaches tikanga, unless such involvement is specifically endorsed by the tangata whenua of the area in which the research occurs” (Health Research Council, 2010b, p. 18).

The history behind the first point above is encapsulated by Sporle and Koea when they reported on the experience of building a credible Māori assessment process (Sporle & Koea, 2004a, 2004b). They noted that, in the beginning, some researchers choose to consult directly with Māori researchers and/or organisations which created:

... an additional and un-remunerated workload for Māori researchers and organisations, distracting them from their own activities and (in the case of Māori researchers) contestable funding applications. (Sporle & Koea, 2004a, p. 2).

Arguing that responsibility for consultation lay with host institutions (such as universities and other research providers) as part of their consultation and partnership activities with *mana whenua* (people with authority over the region), Sporle and Koea's analysis called for the formulation of Māori responsive research policies and practices in each research institution. According to the 2010 guidelines for Māori responsiveness, the HRC now audits institutions to ensure appropriate processes are in place and requires a declaration that consultation with Māori has taken place on the Administrative Agreement, to form part of each application (Health Research Council, 2010b).

The researchers I interviewed often referred to "other researchers" who do not take knowledge transfer seriously, but I was not able to identify across those I interviewed any who fitted this "other" category. This may have been the result of self-selection in that those who agreed to be interviewed already had a prior interest in the topic. In the next phase of fieldwork, research assessors are surveyed across all four of the HRC's investment streams in order to tap into more circumstances where researchers may not be taking knowledge transfer "seriously", and to consider in greater detail what could be done to ensure a credible assessment process is being followed. The theory being explored in greater detail in this next phase of fieldwork is listed below.

### Refined realist theory

Researchers are *more* likely to believe a credible assessment process being applied to the knowledge transfer section (O) when:

- Feedback is given on how an application did, or did not, meet the assessment standard for the knowledge transfer section (C) so researchers have more confidence in the robustness of what is being assessed (M).
- Reviewers of research grants understand real-world contexts (C) so researchers have more confidence that a credible assessment process is being applied (M).

### 5.3 CHAPTER SUMMARY

When evaluating a policy using a realist approach, attention is paid to the change the policy is intended to create, who is intended to do something differently, the resource being provided to enable that change or behaviour, and how recipients respond to that resource and the contexts that shape that response (Westhorp, 2014). In this chapter, a combination of explanatory narratives from researchers, supplemented by documentary records, coalesce to refine the theory around how and why researchers change what they do.

In my first phase of fieldwork, as presented in Chapter Four, I theorised that researchers would be sensitised to knowledge transfer as a result of reading and applying knowledge transfer theories, conversations with the research user, and as a response to the growing audit culture. Further, that this sensitisation would be shaped by two key contexts: (1) whether the research was directed towards health policy or practice and (2) the researchers' own prior experiences and beliefs. How these features would interact was only loosely theorised.

In this second phase of fieldwork, distinct chains of reasoning have emerged to reveal a different pattern of Context–Mechanisms–Outcomes (CMOs) propositions for different sub-groups of researchers. Conversations with users do sensitise researchers to change what they do, but my other two candidate mechanisms do not work in the ways expected. A key conclusion is that researchers are strongly shaped by prior beliefs and working experiences, and these influence how they respond to knowledge transfer policies resulting in a pattern of outcomes broader than my initial conception.

This investigation started assuming the value of knowledge transfer policies rested in the improvement seen in the likelihood and speed with which research results get taken up. What I found was a high level of acceptance amongst those I interviewed that knowledge transfer requirements were already inherently a good thing which meant that, in responding to these requirements, researchers could have their beliefs about knowledge transfer symbolically confirmed, rather than being prompted to think differently.

A recent argument by Dalkin and colleagues for a dimmer-switch analogy for those programmes which rely on a set of reasoning by professionals which does not switch on and off, but develops over time, has the potential to have explanatory value in this investigation by introducing the idea of graduation of behavioural outcomes (Dalkin et al., 2015). In this investigation, this graduation includes a set of reasoning that is less about a particular behaviour or activity being switched on or off, and more about the degree to which the policy being investigated *affirms* a behaviour that is a defining feature of the research community researchers identified with. These defining features include a mind-set ready to challenge traditional academic norms of what constitutes research. For novice researchers, filing in the knowledge transfer section can put knowledge transfer on the radar and increase the effort made to prepare and connect with those who will implement findings. For more experienced researchers, the policy is less likely to significantly increase the amount of effort made, but the way

the policy is implemented can make a difference to the type of effort that is made.

Knowledge transfer policies are likely to require an implementation climate where:

- **Increased priority is given to the relational and financial resources needed to move research into action.** For particular groups of researchers (those who are also health practitioners and those academics who have already taken responsibility for knowledge transfer), providing an account of what they intend to do with their research findings affirms and makes public a commitment that the resulting actions will be priorities for their time and their project resources.
- **Understandings of what to do to move research into action are enhanced.** While there are a bewildering amount of theories and models available to understand knowledge transfer, these are not as influential in how researchers decide what to do compared with the researchers' own informal theories. For my interviewees, the following was more influential:
  - knowledge of the clinical and health communities that will use the results,
  - insights built from past experiences when negotiating with users at the end of projects, and
  - deep-seated beliefs about the change they expect to create for the communities they work with.

When deciding what to do, researchers who also work as health practitioners were likely to regard knowledge transfer as a straightforward practice, capable of being learnt, but also built from the real-world experience of the clinical and other health communities. University-based researchers were less likely to see knowledge transfer as a straightforward practice, but equally favoured drawing on experience over abstract theories when deciding what to write in a knowledge transfer section. All those researchers who engage in reflective learning from past knowledge transfer experiences are likely to increase their

tacit knowledge of what works, which can potentially be applied to future applications.

- **A credible assessment process is applied to assessing the knowledge transfer section.** Researchers are likely to be confident that the knowledge transfer section is more than just “window dressing”, and is taken seriously by researchers and funders when feedback is given on how an application did (or did not) meet a viable assessment standard. Moreover, part of this assessment standard involves reviewers demonstrating that they understand the real-world context for particular projects.

## 6 THE VIEWS OF RESEARCH ASSESSORS AS IMPLEMENTERS

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*Research groups are studying questions they are interested in for a variety of reasons - but these are rarely defined by the grant body. If the group are interested in influencing health care directly, they already care about knowledge transfer. If they are interested in more basic science they will not. They will then answer the requirements of the grant accordingly*

Survey respondent

Chapter Four presented an initial theory of how knowledge transfer policies are expected to work; that was further refined in the previous chapter (Chapter Five). Some parts of that initial theory were discounted (for example, that researchers are sensitised to knowledge transfer as a result of a concern over sanctions if they do not fall into line) while others more worthy of consideration remained. In this chapter, the protocols and unwritten norms of a wider group of policy participants are explored, particularly with to respect how the assessment process for knowledge transfer pathways is conducted. An electronic survey was sent to all those who assessed an application for the Health Research Council (HRC) in 2014/15 from the four main investment streams. More than half of the researchers interviewed said they did not know how the knowledge transfer pathways section was assessed. Thus, the survey provides an opportunity to fill a number of evidential gaps – gaps in understanding: how knowledge transfer sections were assessed, what assessors thought the purpose of asking for knowledge transfer pathways was, and what was understood about the Health Research Council’s (HRC) knowledge transfer policy.

As reported in the previous chapter, some interviewees referred to “other researchers” who do not take knowledge transfer seriously, but none of the interviewees themselves fitted this “other” category. In contexts where researchers already held the belief that knowledge transfer is an integral part of research, the requirement to

provide a detailed knowledge transfer pathway triggered a concern that, rather than driving new behaviours, the sections promoted window dressing and tick-box compliance. Key informants also hinted at a difference between those researchers who had no need of “an epiphany moment” around knowledge transfer as they were already thinking that way, and those for whom it is more of a struggle. The on-line survey provided an opportunity to understand more about how knowledge transfer pathways are judged, and why some researchers might not take requests for knowledge transfer pathways seriously. Respondents were given five propositions at the end of the survey and asked to record to what extent each of these resonated with their own experience of what happens with respect to the HRC’s knowledge transfer policy.

The vast majority of research assessors surveyed were based in universities (85 percent), and were both experienced assessors and experienced researchers. Their role as *implementers* of the HRC’s knowledge transfer policy comes from the part they play in judging the quality of research applications. Research assessors have considerable scope to modify or ignore knowledge transfer policies put in place by research funders by re-asserting (if necessary) core disciplinary values. These disciplinary values may speed up the change expected in the behaviour of researchers or slow down new behaviours. For the latter, the new behaviours may not be compatible with how the discipline views the concept of knowledge transfer.

Earlier in Chapter Four, the detailed guidance provided to research assessors on how to score for research impact was displayed (Figure 4.2). Members of each assessing committee score individual applications at a final meeting, with up to 60 minutes discussion time allotted to each application. The discussions amongst committee members helps to decide what research enters the approval process for funding. These discussions also set quality benchmarks.



To start this chapter, an update is provided on the evolution of the HRC's knowledge transfer policy reflecting developments occurring during the investigation. An external review of the HRC recommended that "pathways to impact" statements replace requests for knowledge transfer pathways in the HRC's application process (Ministry of Health & Ministry of Business Innovation and Employment, 2015). This change was quickly communicated as a change more about increased visibility of what already happens rather than a change in what researchers do. When the on-line survey was sent out by the HRC, reference was made to this recent development. The covering email noted that:

*The results could potentially provide insights to support our [the HRC's] future efforts to provide more structured guidance and advice to our committees, particularly as the HRC is considering how to assess the impact of proposed research in light of the recent Strategic Refresh Report undertaken by the Ministry of Business Innovation and Employment and the Ministry of Health (covering email for survey).*

Some brief background on the Strategic Refresh Report follows.

## 6.1 THE HRC'S EVOLVING STRATEGY

In 2015, an external assessment of the HRC's effectiveness (entitled a Strategic Refresh) noted that while "the HRC's peer review manual referred to 'pathways to knowledge transfer', no guidance was given on how to interpret or assess this" (Ministry of Health & Ministry of Business Innovation and Employment, 2015, p. 17). The report concluded with recommendations to optimise the way the HRC operated, including a recommendation to strengthen the assessment process by requiring researchers to provide "pathways to impact" statements in research applications. The authors explained that, unlike providing knowledge transfer pathways, requiring "pathways to impact statements" would mean researchers "demonstrate a potential use or market for the research results and show which partners are needed to bring about the

uptake” (Ministry of Health & Ministry of Business Innovation and Employment, 2015, p. 17). Figure 6.1 locates this development in the timeline presented earlier of the HRC’s knowledge transfer policy.

Pathways to impact statements have developed a considerable pedigree in the United Kingdom funding system. For the researcher, providing “impact” statements involves explaining who the beneficiaries of their research might be and how they are going to work with these beneficiaries to shorten the time between research discovery and research use. The requirement is justified on two counts by United Kingdom research funders<sup>12</sup>. The first explains that researchers will be able to accelerate the route to having their research results used. The second advises researchers that they need to articulate why it is important for their research to be supported by the UK taxpayer so that the UK remains internationally competitive.

Whether calling what is required in research applications “pathways to impact” instead of “pathways to knowledge transfer” results in changes in how researchers behave is hard to judge. In an email to all researchers after the Strategic Refresh recommendations were made public, the Chief Executive of the HRC attempted to allay concerns that a focus on impact meant an over-emphasis on short term and local as opposed to internationally relevant research. She explained that researchers “should be able to articulate how any one project connects to the next link in the chain towards knowledge and health impact and how this will help the HRC tell the story of impact (short, medium and long term) which is essential for health to receive greater investment”<sup>13</sup>.

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<sup>12</sup> <https://www.epsrc.ac.uk/funding/howtoapply/preparing/impactguidance/> accessed 3/12/15).

<sup>13</sup> Email to HRC researchers 16 November 2015 HRC Chief Executive

In May 2016, a follow-up discussion document was produced laying out a draft New Zealand health research strategy (Minister of Science and Innovation and Minister of Health, 2016). Much of the draft strategy describes the landscape for health research in New Zealand. Unlike earlier HRC planning and accountability documents reviewed in Chapter Four, the term knowledge transfer is not used at all. Calls are made throughout the discussion document to enhance the uptake of health research results across the social and health sectors, improve relationships and engagement between those conducting research and end-users, and increase access to, and dissemination of, research results. In 2010, the same language was used to describe the attributes of knowledge transfer. However, now in the draft strategy the image of a “pipeline” is introduced as a way of conceiving how research moves into practice as in:

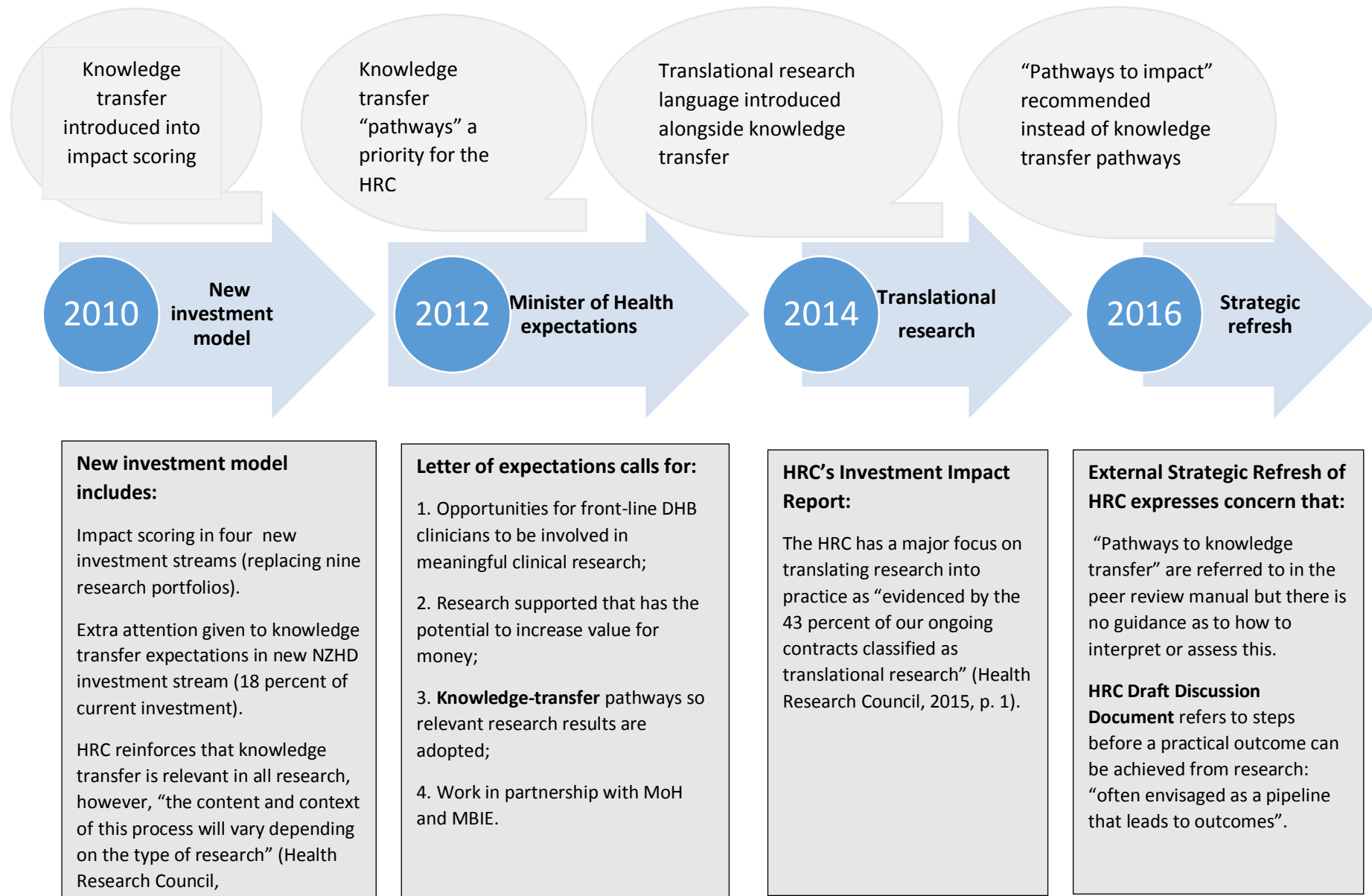
After the findings of a research project are published, a number of steps must often be taken before a practical outcome can be achieved. These steps are often envisaged as a pipeline that leads to outcomes such as a new or improved health intervention or marketing of a new product. These pipelines can be complex and spread over a long period (Minister of Science and Innovation and Minister of Health, 2016, p. 15)

Alongside the release of the discussion document, it was announced that the HRC would receive an extra \$NZ97 million funding over four years. It was not clear from the draft strategy where the new funding would be spent though an accompanying press release suggested a balance of new investment across health-delivery research and basic biomedical research<sup>14</sup>.

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<sup>14</sup> HRC media release 17 May 2016

FIGURE 6.1: UPDATED TIMELINE OF HRC'S KNOWLEDGE TRANSFER POLICY DEVELOPMENT



## 6.2 THE ASSESSOR SURVEY RESULTS

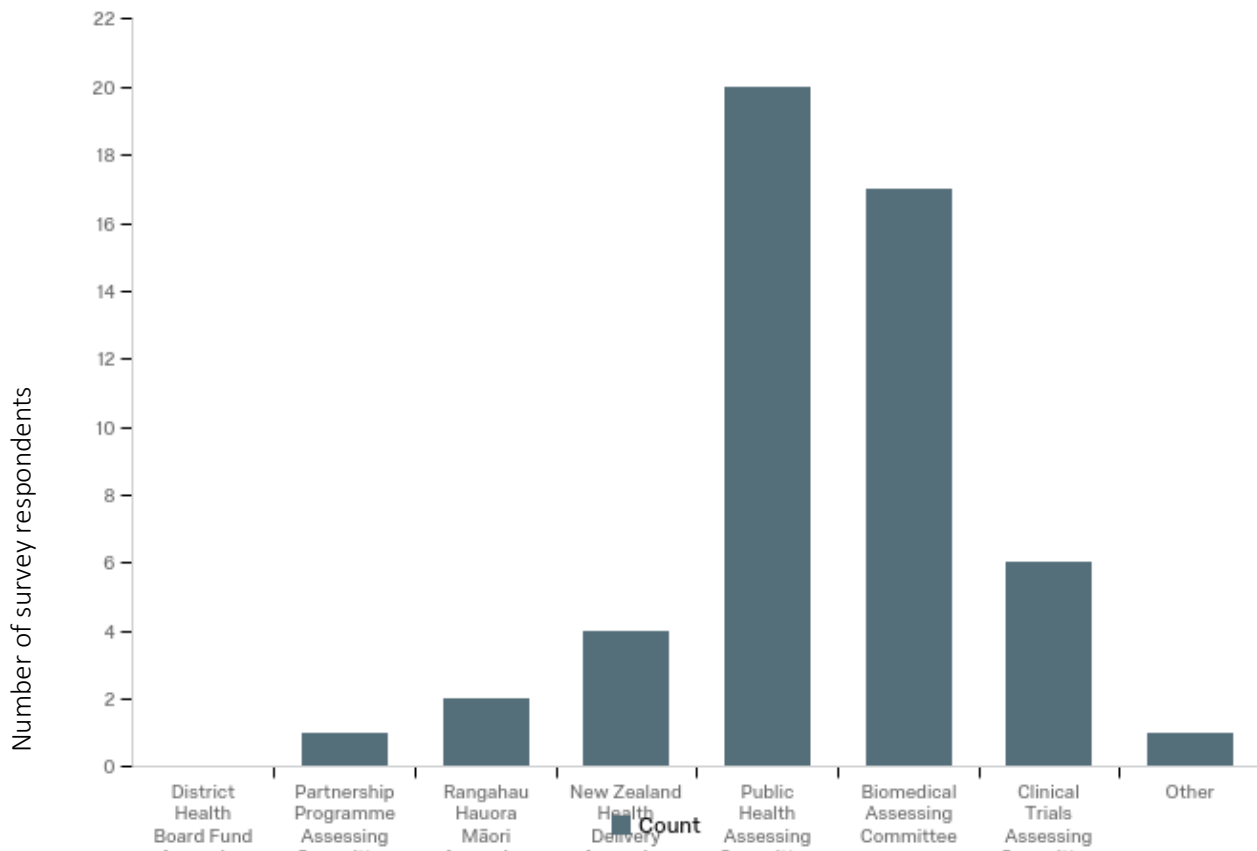
Questions in the survey probed more about the quality benchmarks being used for knowledge transfer pathways. The front of the survey explained that I was interested in how knowledge transfer policies work to increase the efforts made by researchers to ensure the take-up of research findings – in particular how requests in funding applications for researchers to provide pathways actually work in practice.

Respondents were assured that these pathways could well vary depending on the type of research undertaken and the type of grant being applied for.

The HRC Committee members that responded to the survey (52 replies and a response rate of 56.5 percent) represented a relatively experienced group of assessors; 42 percent of those that replied had been on an assessing committee between two to three times in the last 5 years. The majority had sat on either the Biomedical Assessing Committee (42 percent), or a Public Health Assessing Committee (42 percent) followed by the Clinical Trials Assessing Committee (15 percent), and the New Zealand Health Delivery Assessing Committee (15 percent). Smaller numbers had been on the Rangahau Hauora Māori Assessing Committee (10 percent), the Partnership Programme Assessing Committee (6 percent), and the District Health Board Fund Assessing Committee (4 percent). When offered an opportunity to add other committees, respondents noted career development awards committees, and other one-off funding rounds such as the Canterbury Earthquake research round.

Survey respondents were asked to indicate which assessing committee they were the most recent member of, and to use this case to then: (1) note the type of information mostly commonly provided by researchers when outlining a knowledge transfer pathway, and (2) to rank a set of potential quality markers. Figure 6.2 presents the breakdown of the most recent Committee experience of respondents. The majority (72 percent) had either sat on a Public Health Assessing Committee (20 respondents) or a Biomedical Assessing Committee (17 respondents).

FIGURE 6.2: WHICH ASSESSING COMMITTEE WERE YOU LAST A MEMBER OF?



### 6.3 HOW ARE KNOWLEDGE TRANSFER PATHWAYS JUDGED?

Respondents were given a list of features researchers could provide as evidence that they had a defined pathway to achieving knowledge transfer in their research applications. Respondents were asked to tick all those they had seen provided. For all respondents, not surprisingly, conference presentations and journal articles topped the list (88 percent), followed by planned connections with relevant networks (69 percent) and education sessions/workshops/seminars for end-users (57 percent). The least common were the creation of knowledge brokers (10 percent), the use of the media to change patient behaviour (24 percent) and the provision of audit and feedback processes for healthcare professionals (24 percent). When offered an opportunity to add features missing from the list provided, respondents noted: (i) the generation of intellectual property, (ii) the inclusion of policy-makers on applicant

teams, and (iii) evidence of links with professional bodies to disseminate information to members.













Depending on which committee experience was being brought to mind, different perspectives on knowledge transfer were evident. Figure 6.3 compares the collective responses between those that most recently sat on a Biomedical Assessing Committee and those on a Public Health Assessing Committee. While members of both assessing committees regularly mentioned seeing conference presentations and journal articles, the Public Health Assessing Committee members were more likely to see evidence of the following: stakeholder groups assembled purposely to design research projects and make commitments to use the results (75 percent), the use of the internet including websites, email list serves, social media, blogs and interactive web based tools (65 percent), and the distribution of printed recommendations (e.g. clinical practice guidelines) (50 percent).

**FIGURE 6.3: BASED ON THE EXPERIENCE OF THE LAST ASSESSING COMMITTEE YOU WERE ON, WHAT HAVE YOU SEEN RESEARCHERS PROVIDE AS EVIDENCE TO MEET THE REQUEST FOR A DEFINED PATHWAY TO ACHIEVING KNOWLEDGE TRANSFER IN FUNDING APPLICATIONS?**

Biomedical Committee		Public Health Committee	
Conference presentations and journal articles.	100% (17)	Conference presentations and journal articles.	85% (17)
Distribution of printed recommendations (e.g. clinical practice guidelines).	24% (4)	Distribution of printed recommendations (e.g. clinical practice guidelines).	50% (10)
Stakeholder groups assembled purposely to design research projects and make commitments to use the results.	24% (4)	Stakeholder groups assembled purposely to design research projects and make commitments to use the results.	75% (15)
Education sessions/ workshops/seminars for end-users.	47% (8)	Education sessions/ workshops/seminars for end-users.	75% (15)
Planned connections with relevant clinical networks, iwi and other Māori or Pacific groups and other communities of practice.	65% (11)	Planned connections with relevant clinical networks, iwi and other Māori or Pacific groups and other communities of practice.	80% (16)
Use of the internet including websites, email list serves, social media, blogs and interactive web- based tools.	29% (5)	Use of the internet including websites, email list serves, social media, blogs and interactive web-based tools.	65% (13)
Use of television, radio, newspapers, magazines	24% (4)	Use of television, radio, newspapers, magazines, to increase awareness or change patient behaviour.	25% (5)



# Improving knowledge transfer: a realist evaluation

Creation of knowledge brokers.	 6% (1)	6%	Creation of knowledge brokers.	 15% (3)	
Development of training materials for healthcare professionals.	 24% (4)	24%	Development of training materials for healthcare professionals.	 45% (9)	
Involvement of patients/ consumers in the co-production of research.	 24% (4)	24%	Involvement of patients/ consumers in the co-production of research.	 50% (10)	
Provision of audit and feedback processes for healthcare professionals.	 12% (2)	12%	Provision of audit and feedback processes for healthcare professionals.	 35% (7)	
Connections with opinion leaders who have a high profile within a discipline or practice group.	 35% (6)	35%	Connections with opinion leaders who have a high profile within a discipline or practice group.	 45% (9)	
Information on the general magnitude and importance of the issue being researched.	 47% (8)	47%	Information on the general magnitude and importance of the issue being researched.	 40% (8)	

Respondents were given a list of features likely to be important in forming a judgement of the quality of the defined pathway to achieving knowledge transfer – and asked to rank these. The three features judged very important or important by the largest majority of respondents were: the engagement plan is clearly achievable (86 percent); evidence of existing engagement with end-users (80 percent); and the attributes which suggest the results are more likely to be taken up are listed (74 percent). An even spread of views was evident around the importance of jointly publishing with relevant end-users: 39 percent agreed this was important, 38 percent disagreed and 23 percent were equivocal about the importance of this feature. The feature most likely to be ranked “neither important nor unimportant” was the feature stating that research results are tailored to different audiences (26 percent). Having at least one knowledge transfer theory/model or framework was important for 51 percent of respondents but was unimportant for 27 percent of respondents. The feature that had the highest number of respondents noting that the feature was very unimportant was a history of jointly publishing with relevant end-users (Figure 6.4).

**FIGURE 6.4: FORMING A JUDGEMENT ON THE QUALITY OF KNOWLEDGE TRANSFER PATHWAYS**  
 In your role as an Assessing Committee member how important to you have the following features been in forming a judgement on the quality of the defined pathway to achieving knowledge transfer provided by researchers

Features	Very important	Fairly important	Neither important nor unimportant	Not that important	Very unimportant	Total
Evidence of existing engagement with relevant end-users.	19 (39%)	20 (41%)	4 (8%)	5 (10%)	1 (2%)	49
The engagement plan is clearly achievable within the time frame.	19 (40%)	22 (46%)	3 (6%)	3 (6%)	1 (2%)	48
The researcher describes a process to integrate the end-user.	15 (31%)	19 (40%)	9 (19%)	4 (8%)	1 (2%)	48
Familiarity is shown with the principles of the Treaty of Waitangi and its implications for Māori health.	12 (25%)	22 (46%)	8 (17%)	4 (8%)	2 (4%)	48
Research results are tailored to different audiences.	9 (20%)	18 (39%)	12 (26%)	4 (8%)	3 (7%)	46
The attributes which suggest the results are more likely to be taken up are listed (e.g. timing, policy context).	8 (17%)	26 (57%)	7 (15%)	3 (7%)	2 (4%)	46
A history of jointly publishing with relevant end-users.	5 (11%)	13 (28%)	11 (23%)	11 (23%)	7 (15%)	47
Evidence of mutual knowledge generation with research participants.	5 (11%)	17 (39%)	10 (23%)	9 (20%)	3 (3%)	44
At least one knowledge transfer theory/model or framework is referred to.	4 (9%)	19 (42%)	10 (22%)	8 (18%)	4 (9%)	45

Respondents were given the opportunity to add any further comments on how the quality of knowledge transfer pathways were judged. Of those that took this opportunity, more than half (6/11) raised concerns that the concepts provided, particularly those around end-users, were not appropriate for biomedical researchers. A key cultural norm for biomedical researchers is that research undertaken with no particular application in mind (that is, basic research) is the top of a hierarchy of activities worth pursuing (Pielke Jr, 2012). In contrast, much of the language and culture around knowledge transfer has emerged from health systems and public health researchers. I return to discussing the implications of this more fully later, but at this point I want to introduce the caveats that respondents gave when commenting on how the quality of knowledge transfer pathways were judged.

For those on the Biomedical Research Committee, the importance of the strength of the methods was stressed. Flawed methods could mean “everything else in the application is largely irrelevant”. As one respondent explained:

*In the biomedical section in which I served, there is more attention (by me and others, I think) paid to the strength of often quite basic science rather than the translational aspects, although if these are positive for the future, then this helps the application receive a stronger score (Survey respondent).*

Describing the general knowledge transfer areas as a grey area for basic biomedical research, another respondent drew out the importance of knowledge transfer (or translational research) for clinical research:

*This has always been a grey area when it comes to basic biomedical research, whereas it is more critical when providing funds to people to invest heavily in a translational exercise or data gathering involving patients and end-users, as it is*

*more costly and must be rigorously underpinned by detailed preclinical data (Survey respondent).*

An open question asked what characterised a poor quality pathway. Thirty-eight respondents provided comments with the highest number (11/38) underscoring the importance of seeing some form of engagement with end-users. One pointed out how difficult it was to judge quality without knowing if applicants did what they said they would do and if this was ultimately successful. However, the majority did have working rules of thumb. In summary, a poor quality pathway:

- **Provided no evidence of connectivity or engagement with named people or organisations.** Comments mentioned “token responses” and “generic responses” which were expanded further to describe a lack of established linkages between the research groups and stakeholders needed to give effect to the results (11 comments).
- **Lacked clarity in the written description of the pathway with no “hard end points”.** Respondents were attuned to any sign of an overall lack of a plan with, for example, “only weak preliminary data presented” or “no apparent understanding or description of the processes whereby the pathway is to be actioned”. One respondent gave a detailed example of what being planned looks like in that there is “a strong link between the clinical/societal or academic question and the outcomes clearly addressing this” (9 comments).
- **Assumed journals and standard scientific publications were enough and had little additional information.** One respondent combined the over-reliance on journals and conferences with “just a theory of knowledge transfer cited” (8 comments).

- **Contained inaccuracies such as: an incorrect view of the timing, who the end-users were, and the type of results required for translational use.**

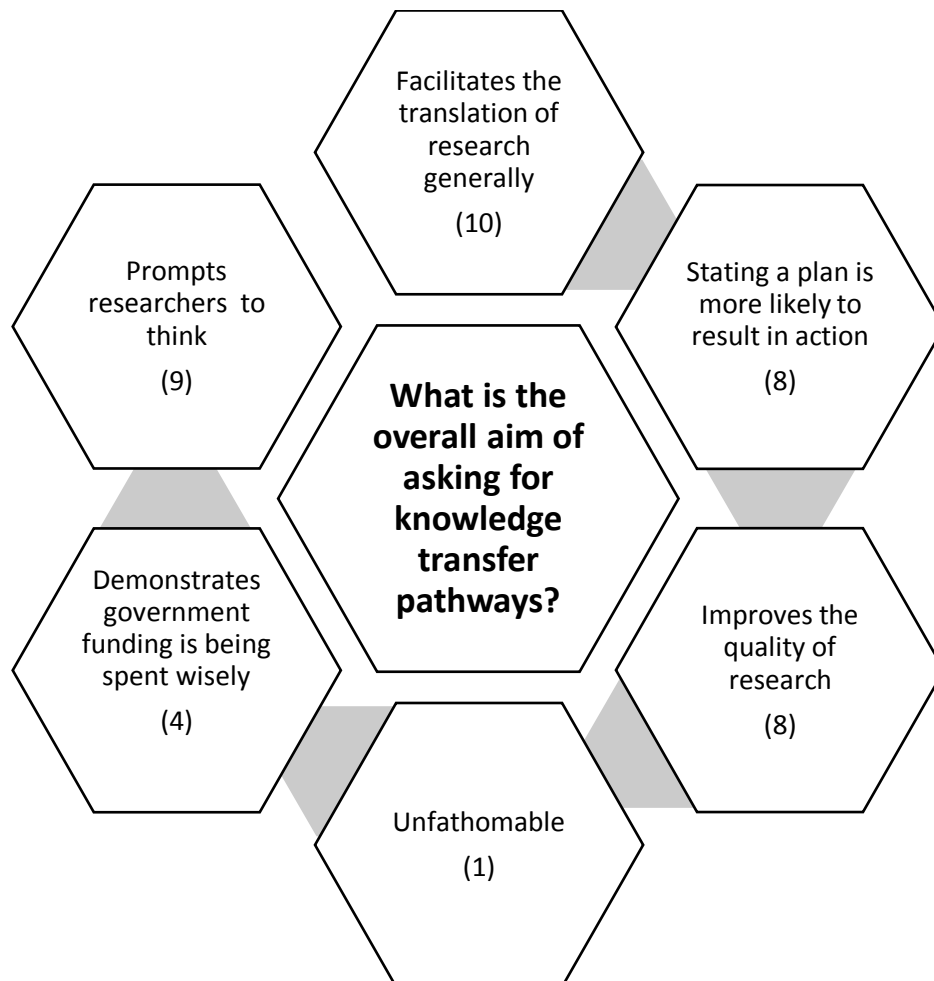
Poor quality pathways, it was claimed, made “extravagant claims for translation that were unlikely to be realised” or were not able to “put the research in the context of people’s health”. Other comments noted a lack of realism or a pathway based solely on the dissemination of findings at the end of the research (5 comments).

Research assessors were asked to describe what they thought was the overall aim of asking for knowledge transfer pathways. Forty respondents provided their own purpose statements which loosely fell into six categories (Figure 6.5). The first was to reiterate the importance of the overall concept of facilitating the use of using research results (25 percent, 10/40), with statements such as: “to promote the translation of research into practice” or “it should improve knowledge translation”. A number (22 percent, 9/40) referred to the importance of changing the behaviour of researchers by “allowing committees to examine whether the researchers have thought about how the research would influence knowledge transfer” or making “the researcher consider the potential applications of their research and direct some of their research along those lines where appropriate”.

The usefulness of being expected to make a deliberate plan was stressed by eight respondents, presumably based on the logic that stating a plan is more likely to result in action rather than not making a plan at all. Other comments (20 percent, 8/40) indicated the ways the quality of the research undertaken could be improved due to the fact that “engagement with end-users early is likely to identify issues which may improve the research conduct” or “to assure that the knowledge generated actually alters the practice of clinicians or consumers or health providers”. A few respondents (10 percent, 4/40) sourced the aim of asking for knowledge transfer pathways back to the need to demonstrate the value of research back to government funders. Finally, one respondent took a strong stance from the vantage point of basic science

suggesting the aim of requiring a defined pathway “is antithetical to quality basic research in basic science”.

FIGURE 6.5: DISPLAY OF COMMENTS OF OVERALL AIM OF ASKING FOR KNOWLEDGE TRANSFER PATHWAYS



At different points in the survey, a few respondents took the opportunity to question what is feasible to expect of researchers when providing a defined knowledge transfer pathway. In these cases, questions were being asked concerning “whether researchers should have skills in both research and research transfer”. As one respondent commented, researchers are not marketers, so “translation should be the responsibility of a completely other, but associated, agency”. One respondent took the opportunity at the end of the survey to ask how much researchers can be held accountable for, given the complex nature of the research enterprise where what a

researcher may regard as a successful knowledge transfer experience may not be what a policy-maker regards as a successful experience.

Respondents were directly asked whether they agreed with those interviewed that many researchers do not take requests for knowledge transfer pathways seriously. Eleven respondents (26 percent) reported that they agreed with this statement and had little to add. The highest number (15 respondents, 35 percent) agreed to some extent but offered comments around why this might be the case; nine (21 percent) said to some extent but could think of one example where this does not apply; while eight (19 percent) disagreed (Figure 6.6). When given an opportunity to clarify what they thought, 27 respondents provided specific comments broadly grouped around four themes. The first “it depends” theme provided examples of the contexts where asking for a knowledge transfer plan may not be appropriate due to the type of research being undertaken, particularly for basic biomedical research (6 comments). The following is a good example of the thinking applied to deciding what is appropriate for different types of research:

*Some research is quite basic in nature, and so "knowledge transfer" as defined at the start of this survey is not the aim – in these cases it would not be appropriate to require a plan for this, and the statements made by researchers are fairly simplistic. But this is normally obvious from the content of the grant (for example if the researchers are trying to understand how high blood-sugar may alter protein expression within an intracellular structure, no plan to communicate this research to diabetes doctors or patients is really called for). On the other hand, when the aim of the research is more applied, the answers to how knowledge transfer will be done become far more important (Survey respondent).*

A second theme covered those respondents (4 comments) who took the opportunity to be more emphatic that the knowledge transfer requirements are “window dressing”.



One was of the view that “for basic research, knowledge transfer in this form is onerous without significant benefit”, while another two respondents were more circumspect that the problems with pro-forma cut-and-paste applications arose because the skills expected were not appropriate for researchers, pointing out that the skills for effective knowledge transfer are “not necessarily the same skill sets as those for excellent researchers”. At the end of the survey in a section open for final comments one respondent summarised their view of the biomedical perspective:

*In the biomedical field, there is little consistent commitment to explaining knowledge transfer and end-user involvement, and most applications take a cut-and-paste approach because of the lack of clear guidelines or real requirement to comply in this area (Survey respondent).*

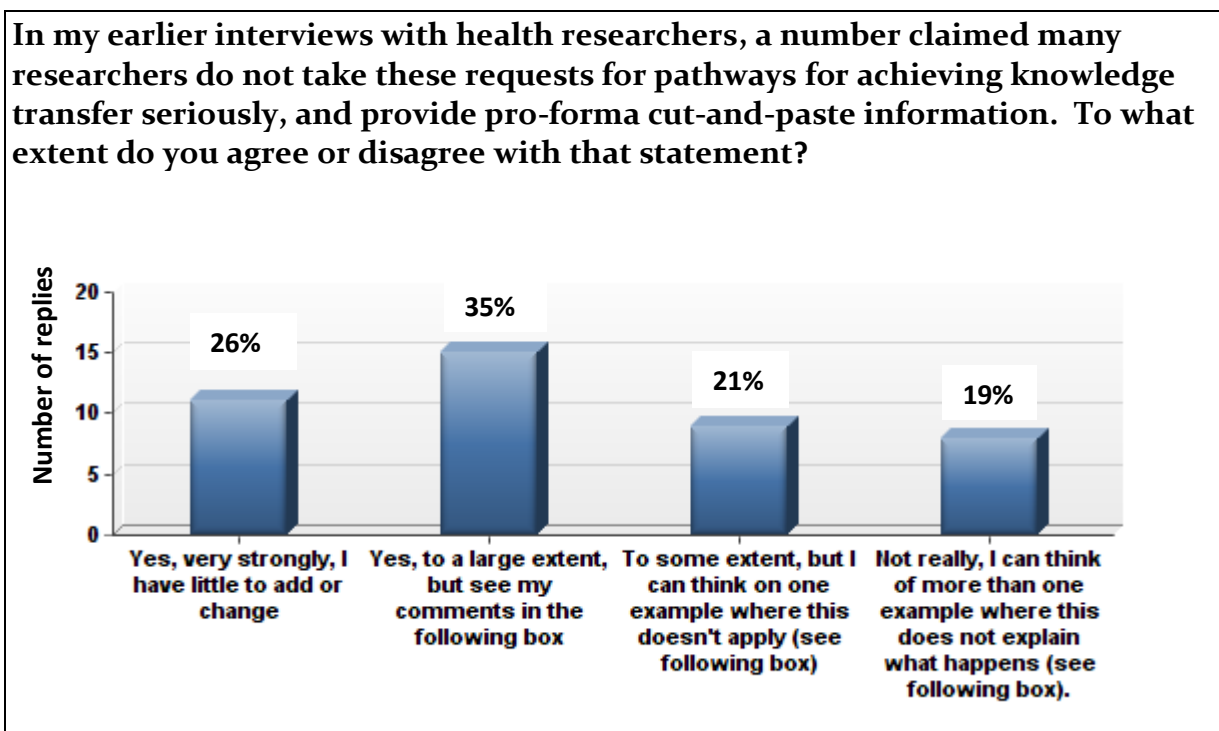
A third theme centred on those respondents (5 comments) who believed researchers were improving in their ability to provide more than pro-forma cut-and-paste information though they did see examples of “vague indications of possible constituencies and half-hearted accounts of how they hypothetically might engage with them”. The percentage of poorly conceived knowledge transfer pathways amongst applications was estimated at about 30-40 percent by one, while others pointed to the potential of the assessment process to weed out poor applications and back those who do this well, in that:

*In many cases, this [that is, the statement knowledge transfer is not taken seriously] is correct it is simple cut-and-paste of the same old information, but in some cases, real thought has been put into this aspect and it is clear they know the what and how to achieve this; this does make these applications stand out (Survey respondent).*

Those who disagreed with the statement (5 comments) comprised the final theme as these respondents were clear that, in their experience, researchers *do* take these requests seriously, with public health researchers being singled out by one respondent:

*I think that many, if not most, researchers in public health consider potential pathways for knowledge transfer to target population and end-users. In some cases, for example, key informants and community representatives are part of the research methodology (Survey respondent).*

FIGURE 6.6: TAKING KNOWLEDGE TRANSFER PATHWAYS SERIOUSLY



#### 6.4 VIEWS ON WHAT RESEARCH FUNDERS SHOULD DO GENERALLY

Views were sought on the actions research funders can take if they want to support knowledge transfer, and what is known about the HRC's effort in this regard.

Respondents were asked to rank in importance a list of actions drawn from Canadian scholarship on what research funders can do to support knowledge transfer (Holmes

et al., 2012). The three actions collectively judged as very important were: (1) actions to support activities to increase the ability of researchers to communicate (38 percent), (2) paying knowledge transfer costs (36 percent), and (3) facilitating easier access to research by end-users (30 percent) (Figure 6.7). These actions align with a linear view of knowledge transfer. The widest diversity of views of importance concerned requirements to involve end-users throughout the research. This was not surprising as, throughout the survey, the sub-set of respondents who most recently sat on a Clinical Trials Assessing Committee (6 respondents) or the Biomedical Research Assessing committee (17 respondents) were more likely to provide comments on how they struggled to see an *appreciation* of the different trajectories of different types of research in the wording used in the survey. The respondent below, for example, questions blanket requirements for end-user engagements in situations where it is not appropriate:

*I am not sure these questions are readily targeting biomedical research. We biomedical scientists are very engaged in getting our knowledge out to our scientific communities, and aim to develop clinical translation and policy advice and changes in practice, or at least ensure our basic science enlightens those processes, and to commercialisation if feasible. ....It is important to appreciate that not all fundamental biomedical science is close to deliverables, and it is a mistake to think that it is. This is our bread and butter and, as a reviewer, I see that people understand this. Requiring end-user input into experimental work, for example on a particular receptor pathway which may be used as a diagnostic biomarker for cardiac disease, does not help the science or the end-user. HRC funds many strands of science (Survey respondent).*

There was some support for offering training in assessing knowledge transfer for peer reviewers (51 percent very important or fairly important), but collectively this was often ranked neither important nor unimportant (33 percent). Requiring a detailed knowledge transfer plan for all funded projects also had a wide diversity of views on

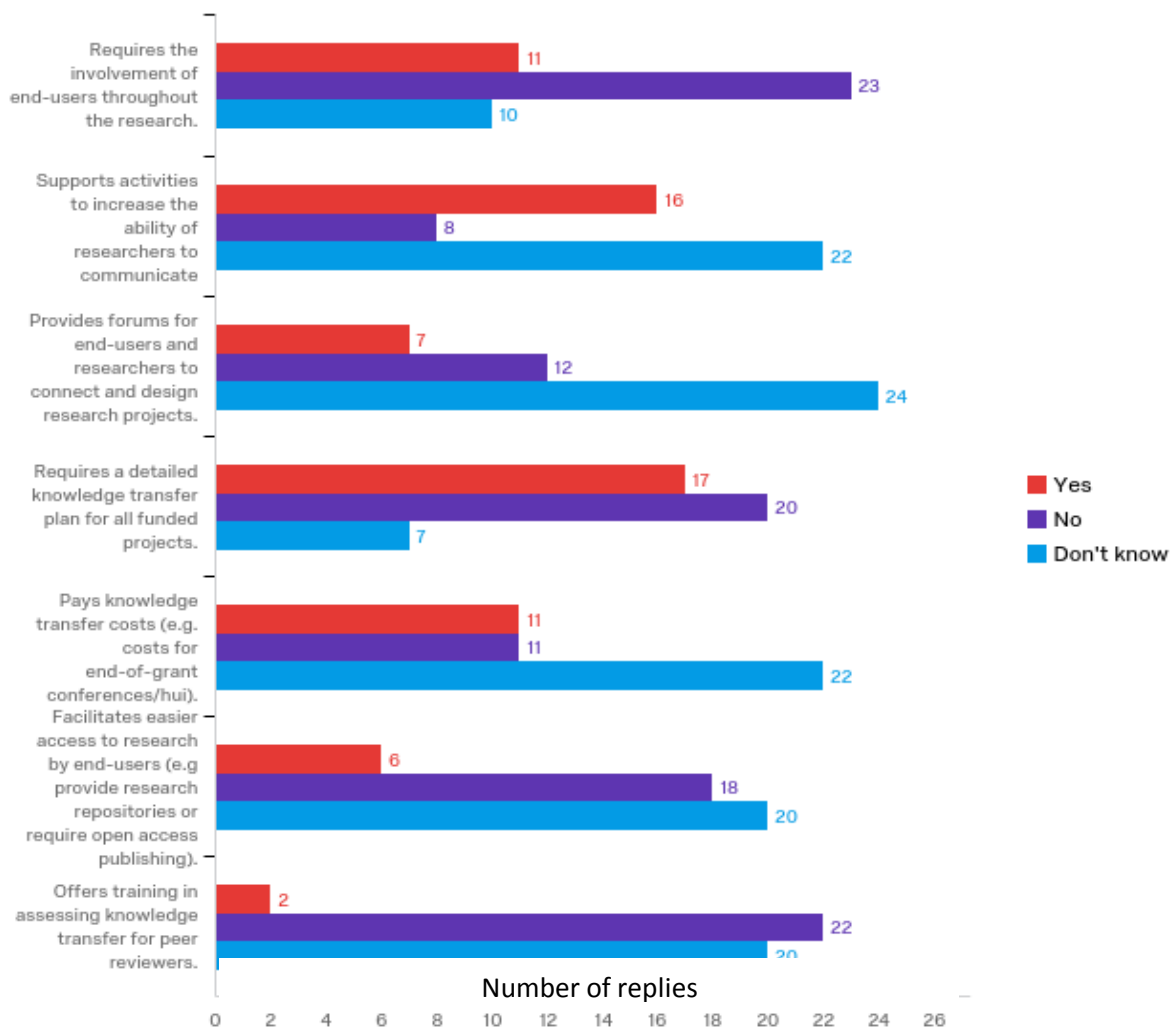
importance, with as many as 23 percent regarding this as either not that important or very unimportant, despite being the action most recognised as being required by the HRC.

Respondents were given the same list of actions and asked what they were aware the HRC undertakes. The results presented in Figure 6.8 reveal a high level of uncertainty over what the HRC's knowledge transfer policy actually comprises, with high numbers not knowing if the HRC undertook any of these actions or not.

FIGURE 6.7: ACTIONS RESEARCH FUNDERS CAN UNDERTAKE						
The following list represents action research funders might undertake if they want to support "knowledge transfer" generally. Please indicate how important you think each one is.						
Actions research funders can undertake	Very important	Fairly important	Neither important or unimportant	Not that important	Very unimportant	Total
Support activities to increase the ability of researchers to communicate.	17 (38%)	18 (40%)	8 (18%)	0 (0%)	2 (4%)	45
Pay knowledge transfer costs (for example costs for end-of-grant conferences/hui).	16 (36%)	15 (33%)	12 (27%)	0 (0%)	2 (4%)	45
Facilitate easier access to research by end-users.	16 (30%)	18 (40%)	7 (16%)	2 (4%)	2 (4%)	45
Provide forums for end-users and researchers to connect and design research projects.	11 (24%)	22 (49%)	5 (11%)	4 (9%)	3 (7%)	45
Require a detailed knowledge transfer plan for all funded projects.	9 (20%)	19 (43%)	6 (14%)	7 (16%)	3 (7%)	44
Require the involvement of end-users throughout the research.	9 (20%)	21 (47%)	7 (16%)	4 (9%)	4 (9%)	45
Offer training in assessing knowledge transfer for peer reviewers.	6 (14%)	16 (37%)	14 (33%)	6 (14%)	1 (2%)	43

FIGURE 6.8: ACTIONS THE HRC UNDERTAKES

As far as you are aware, does the Health Research Council undertake any of the following actions?



## 6.5 WHAT INFLUENCES RESEARCHERS TO VARY THEIR EFFORTS?

Using the insights developed from the earlier fieldwork, survey respondents were asked to confirm or falsify five propositions on the ways researchers may vary their efforts in response to requests for knowledge transfer pathways. Each respondent was asked to consider how these five situations resonated or not with their own experience of what happens.

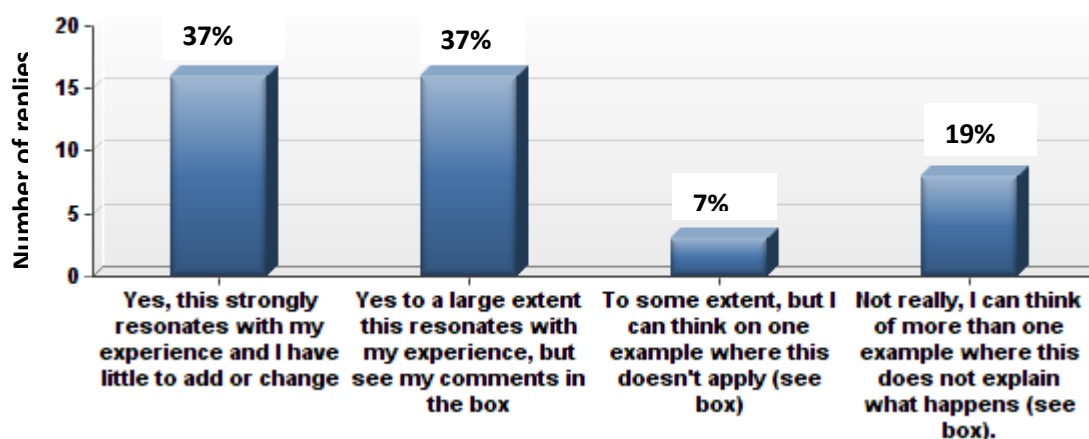
### 6.5.1 Proposition One: Influence of different starting points

The first proposition theorised that being asked to provide a knowledge transfer pathway alerts researchers new to research, or coming fresh to the topic being researched, to consider knowledge transfer activities they might have otherwise overlooked. Over a third of responses (37 percent) agreed and had little to add to this proposition, while another third agreed to a large extent (Figure 6.9). Those respondents that did not agree (19 percent) wanted to stress the nuanced ways researchers learn the craft of writing research applications. Respondents pointed out that learning occurred through advice from other experienced researchers who did not necessarily provide much emphasis on knowledge transfer pathways. One stressed that norms for different types of research were likely to trump an interest in learning about knowledge transfer as researchers already had clear starting positions:

*Research groups are studying questions they are interested in for a variety of reasons – but these are rarely defined by the grant body. If the group are interested in influencing health care directly, they already care about knowledge transfer. If they are interested in more basic science they will not. They will then answer the requirements of the grant accordingly (Survey respondent).*

FIGURE 6.9: PROPOSITION ONE: INFLUENCE OF DIFFERENT STARTING POINTS

**Being asked to provide a knowledge transfer pathway alerts researchers new to research, or coming fresh to the topic being researched, to consider knowledge transfer activities they might have otherwise overlooked.**



Another respondent suggested the learning about knowledge transfer was in fact so specialised that it was unlikely that someone new to a topic could formulate a sensible pathway. Two respondents added a note of realism, acknowledging that, while they hoped new researchers became more attuned, “it is unlikely to be where researchers put their energy when completing a grant application”, as even the structure of a research application creates a sense that this is an afterthought, that is:

*For pre-clinical scientists, the grant writing process itself forces new researchers to seek relevant data, but the act of writing a dissemination plan seems to have little influence as it comes at the end rather than beginning of the process (Survey respondent).*

Those who agreed that new researchers are influenced by the knowledge transfer requirement to some extent pointed out that early career researchers are often left to figure out relevant knowledge transfer requirements from very broad-brush guidance. A few noted that this was still a relatively new emphasis leading to calls for more detailed guidelines (2/15).

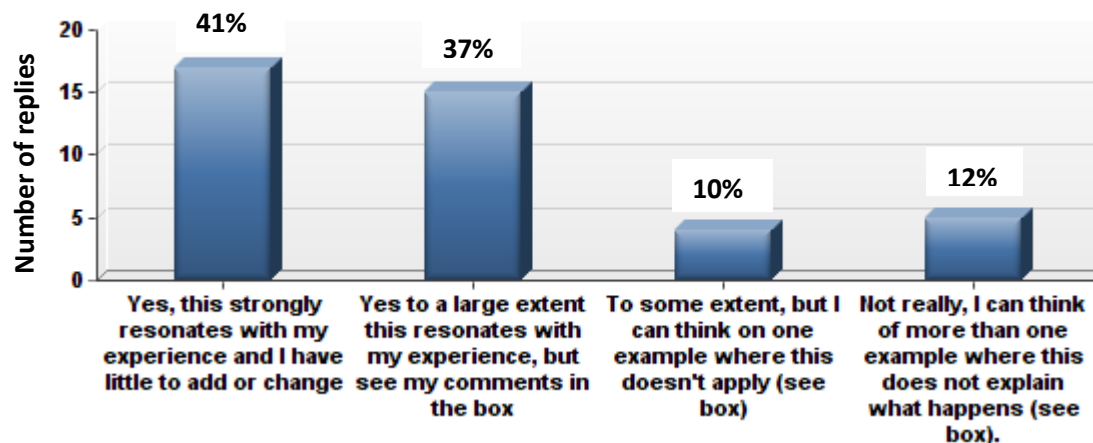
#### 6.5.2 Proposition Two: Influence of partnership expectations

The second proposition focused on how conversations (and negotiations) with end-user partners alert researchers to the type of activities needed to influence the opinions and actions of others. The majority of respondents agreed that in situations where partnerships with users are formed, conversations and negotiations with these users play an important role (Figure 6.10). Many respondents (37 percent) took the opportunity to provide comments on the ways partnerships can be valuable in ensuring research ideas are “pertinent in the clinical setting” or where there may be “social issues that could influence the application of new clinical tests”. Others gave examples of when partnerships can struggle – that is, in situations without a clear

focus or similar understanding over what constitutes a “user”, or clear criteria to benchmark a partnership. One highlighted a concern that researchers can overpromise the benefits for users to get them on board at the beginning only to find the partnership suffers later when these are not realised.

FIGURE 6.10: PROPOSITION TWO: INFLUENCE OF PARTNERSHIP EXPECTATIONS

**Researchers have formed partnerships with users encouraged by partnership programme requirements. Conversations (and negotiations) with these partners alert researchers to the type of activities needed to influence the opinions and actions of others.**



From the 17 comments, a common theme (6/17) was to sum up the type of difficulties that are regularly reported on as barriers in the research utilisation literature. The comment below is good summary of the woes of expecting a rationally based decision-making process:

*Users are not necessarily able to identify research questions that can be answered. Their timeframes are often incompatible with those of well conducted research, such that research that is picked up by partners is based more on fortunate timing and events than detailed forward planning (Survey respondent).*

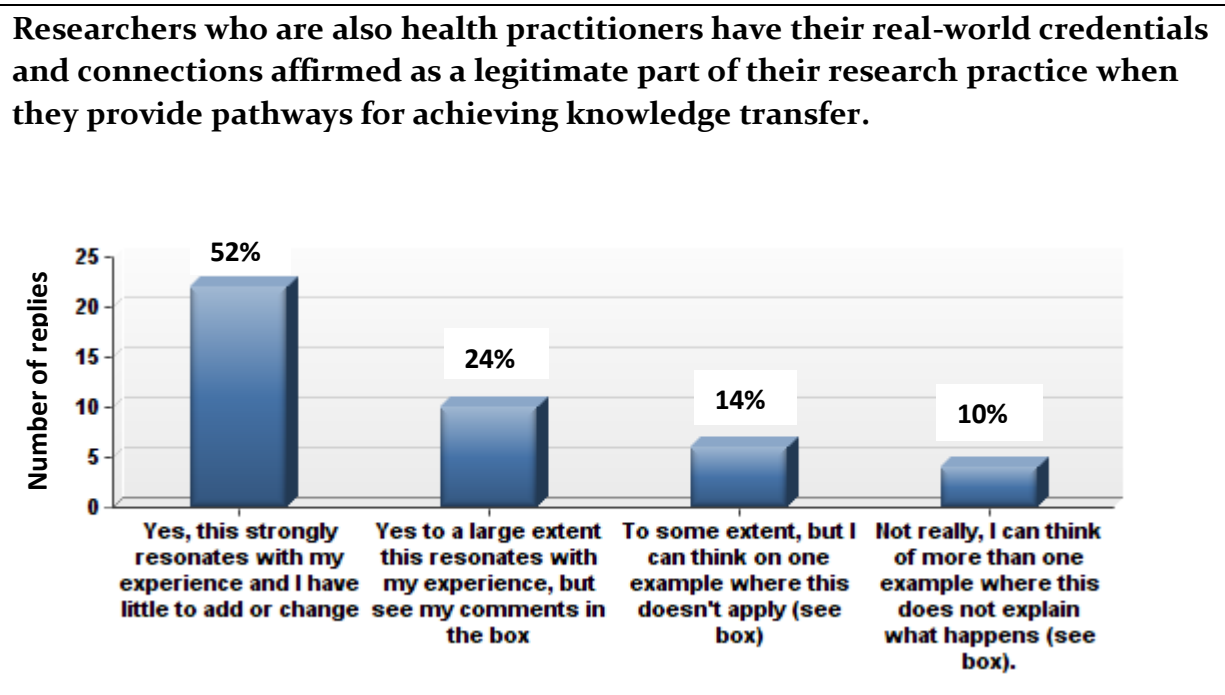


Those that disagreed with the statement that conversations (and negotiations) with partners alert researchers to the type of activities needed to influence the opinions and actions of others (12 percent) suggested that either partnerships in research should already have a clear business footing around who does what or that these conversations can limit research and introduce bias.

### 6.5.3 Proposition Three: Influence of real world relevance

There was strong support for the third proposition that research practitioners had their real-world credentials affirmed as a legitimate part of their research practice when they provide pathways for achieving knowledge transfer (Figure 6.11).

FIGURE 6.11: PROPOSITION THREE: INFLUENCE OF REAL WORLD RELEVANCE



Only a few respondents chose to add any comments about the ways this may (or may not) resonate with their experience (12 comments). Two respondents raised concerns as to what was meant by researchers who are also health practitioners, pointing out that not everyone uses the same language to mean the same thing. Some wanted to

add their own definition of what was legitimate to expect from health researchers who were also health practitioners as the two quotes below illustrate:

*A position as a health practitioner can be seen as a distraction from optimal research effort and a weakness compared to full-time researchers. However, if the applicant is both a qualified practitioner and an excellent researcher, then this is a real advantage (Survey respondent).*

*So medically qualified people speak with a more authoritative voice? Yes and no, depending on who is assessing them (end-user might), but on committee we have seen plenty of applications which try to fly on clinical credentials but with essentially poor science. It is the product, and if that person is capable of producing the product (Survey respondent).*

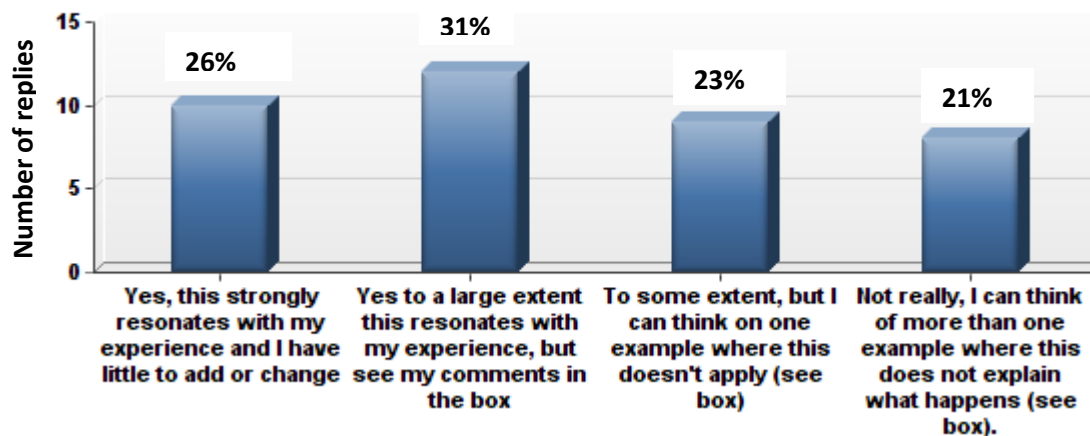
One noted that there are other opportunities in a research application for a researcher to provide information about themselves suggesting there was nothing special about the knowledge transfer pathways section in being able to establish real-world credentials.

#### 6.5.4 Proposition Four: Influence of a written commitment

The fourth proposition, that having made a written commitment to knowledge transfer actions in the research application, the researchers were then more likely to commit to those actions when funding becomes tight, had the most diverse response across respondents (Figure 6.12). While 26 percent (10/39) agreed that this strongly resonated with their experience and had little to add, another 21 percent, (8/39) were clear this was not the norm in their experience. Just under a third (31 percent, 12/39) agreed to a large extent and 23 percent (9/39) to some extent.

FIGURE 6.12: PROPOSITION FOUR: INFLUENCE OF A WRITTEN COMMITMENT

**Researchers make a public commitment to carrying out actions listed in their pathway to knowledge transfer, often to their research team and partners as well as to the HRC. As a result of these commitments, researchers find that the relational and financial resources associated with their pathways will continue to be honoured within the team, even when research finances become tight.**



Those that provided comments revealed the different conditions that shape this diversity (22 comments). Respondents noted developments outside the research project may influence whether the commitments made are followed though. This can also include whether partners continue with their own commitments. A good example is illustrated in this plea for recognition of the realities of change in the health sector:

*The real world of health service organisation and politics and the often shifting sands of bureaucratic structures can mean that commitments are followed through in a somewhat flexible fashion or, at worst, can be lost in the changes that often happen; this applies to governmental health services and also to non-government organisations (Survey respondent).*

The realities of personnel budgets were also stressed (4 comments) so, while knowledge transfer commitments are sometimes honoured, much depends on how personnel resources are distributed within the project. Keeping researchers employed can become a priority. As explained by one respondent:

*If significant members of the research team are on soft money and need to find work elsewhere before the project completion – knowledge transfer often suffers when this happens” (Survey respondent).*

The university hierarchy can also have a say in what happens:

*My experience is that universities gobble up everything the accountants regard as non-essential, including funding for translation events. HRC needs to win more battles with the universities if the HRC (public) agenda is to be better respected (Survey respondent).*

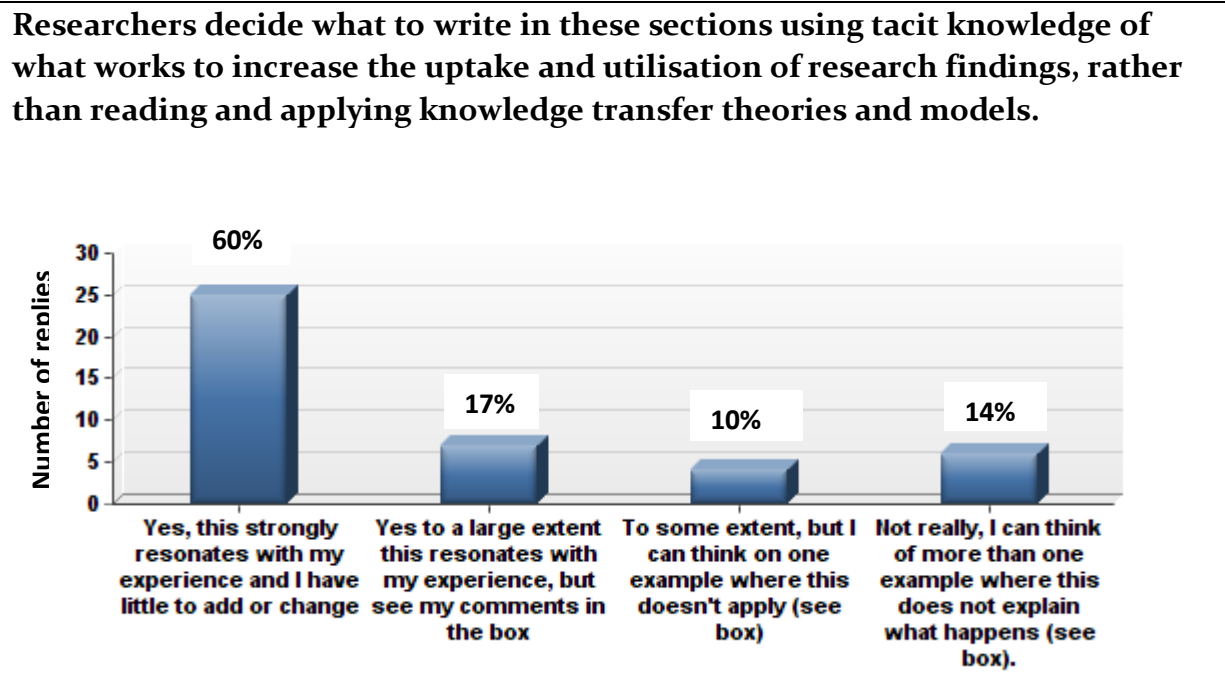
Those that disagreed with the proposition were adamant that “a line in the budget at the time of application will not necessarily translate into action down the track” and stressed that once the money is available to researchers they “have a great deal of freedom to change the plan”. Further, that “when money becomes tight, hard decisions need to be taken and knowledge transfer plans may be the first to go”.

#### 6.5.5 Proposition Five: Influence of knowledge transfer theories, models and frameworks

Of the five propositions on how knowledge transfer policies work, the fifth proposition that researchers decide what to write in these sections using tacit knowledge of what works to increase the uptake and utilisation of research findings, rather than reading

and applying knowledge transfer theories and models, had the most support (Figure 6.13).

FIGURE 6.13: PROPOSITION FIVE: INFLUENCE OF KNOWLEDGE TRANSFER THEORIES, MODELS AND FRAMEWORKS



Sixty percent of respondents agreed and had little to add. Those that did add comments (11) indicated some uncertainty over what a knowledge transfer theory and model might be. A few echoed the views of the group of researchers interviewed earlier that knowledge transfer is a straightforward process akin to a marketing strategy or a change-management process. These respondents wanted to stress the “straightforwardness” of what was involved:

*People understand that getting a good product out requires working within a complex network – small teams (which drive the work), linkages to partnerships to leverage the work, training to ensure critical mass and next generation, leadership within multiple agencies, universities or institutions to do the work in, granting agencies to get the money, forums local, national and international to*

*deliver to etc etc. This seems to me to encompass knowledge transfer (Survey respondent).*

and could be deeply sceptical of anything that suggested otherwise:

*Many researchers think that knowledge transfer models are hot air and experienced people will tend to rely on their own experience and the relationships that they have with partners. (Survey respondent).*

Others who commented were not quite so condemning of the idea of knowledge transfer theories and models but acknowledged that “theories are well and good, but partners sometimes do not operate rationally and in accordance with expectations”. Questions were raised about the extent to which researchers should be expected to be familiar with this literature. One respondent could envisage a situation where there may not be an appropriate theory or model so the research may even seek to develop a theory or model.

While there was overall support for the proposition that tacit knowledge trumps research-based knowledge in designing knowledge transfer pathways, an interesting juxtaposition in this area surfaced from a comment made by one respondent at the completion of the survey. This respondent suggested that the investigation covered by the survey could learn more by “evaluating what knowledge transfer and practice change has actually happened for studies funded four to five years ago, and then compare the characteristics of studies with successful and less successful outcomes”. This suggestion resembles the well traversed “barriers and facilitators” research utilisation literature introduced in Chapter Two. However, as the results of any such proposed evaluation are likely to enter the knowledge transfer literature, the resulting findings will not find a large researcher-based audience interested in *applying* the findings, if the results for the fifth proposition are anything to go by.

## 6.6 A CREDIBLE ASSESSMENT PROCESS

Finally, respondents were asked to agree or disagree with a set of actions that could increase confidence that a credible assessment of knowledge transfer pathways had been undertaken. Figure 6.14 presents the overall results. Each action is discussed in detail below, along with any further comments proffered when researchers were asked to indicate what they think would increase researcher's confidence that a credible assessment process has been followed.

The action with the highest number of strongly agrees was that “guidelines are provided of what is important to cover in pathways for achieving knowledge transfer (30 percent). The desire for guidelines was not unanimous as another 31% either disagreed or strongly disagreed. Comments called for “specific guidance around budget items that will be permissible”, stressing that “the better the guidelines, the better the applications will be”. One raised a concern that too detailed guidance may increase the potential for pro-forma copy-and-paste statements. Another respondent, who disagreed that more guidelines would increase researchers' confidence, wanted to stress the importance of keeping the delicate balance between the applied and basic research understandings that currently characterises the HRC's operations:

*Guidelines and training are not really needed here. It is important to know that basic science without clear knowledge transfer is still an important part of what the HRC funds, as well as applied science with a clear knowledge transfer goal (Survey respondent).*

While 16 percent disagreed that “assessors who understand how research will play out in the real world are regularly chosen by the HRC, others were more positive with 28 percent strongly agreeing. There was also general support for “feedback is given on how an application did, or did not, meet the assessment standard”, with 23 percent of respondents strongly agreeing and 35 percent agreeing.

A wide diversity of opinion was apparent on the recommendation that knowledge transfer assessment training is provided to research assessors. Collectively, 49 percent either agreed or strongly agreed while 31 percent either disagreed or strongly disagreed. High numbers were equivocal about the idea that the HRC should hold forums between researchers and assessors to agree what is credible to expect to see recorded and judged (42 percent neither agreed nor disagreed). Additional comments offered an insight into why this might be the case as respondents pointed to the difficulties of doing these forums well. One drew on direct experience with efforts by other research funders to run such forums noting that:

*It's very difficult to do this kind of thing well and it is so easy to set up forums and get people together so that they can be frustrated and waste their time and get irritated with each other; pursuing such initiatives needs to be planned for and good advice needs to be taken on how best to go about it (Survey respondent).*

The least favoured by those who responded was that “applications that do not provide high-quality knowledge transfer pathways are failed (35 percent disagreed or strongly disagreed). While 33 percent were uncertain in that they neither agreed nor disagreed, a further 32% did agree.



FIGURE 6.13: ACTIONS TO INCREASE CREDIBILITY OF ASSESSMENT OF PATHWAYS

Researchers I interviewed recommended actions that would increase their confidence a credible assessment of pathways to achieving knowledge transfer is being made. Please indicate the extent to which you agree or disagree with these recommended actions.

Actions to increase credibility of the assessment of pathways	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
Guidelines are provided of what is important to cover in pathways for achieving knowledge transfer.	13 (30%)	15 (35%)	8 (21%)	6 (19%)	1 (2%)	43
Assessors who understand how research will play out in the real world are regularly chosen by the HRC.	12 (28%)	15 (35%)	9 (21%)	5 (12%)	2 (5%)	43
Feedback is given on how an application did, or did not, meet the assessment standard.	10 (23%)	21 (49%)	6 (14%)	5 (12%)	1 (2%)	43
Specific knowledge transfer assessment training is provided to research assessors.	5 (12%)	16 (37%)	9 (21%)	8 (19%)	5 (12%)	43
The HRC holds forums between researchers and assessors to agree what is credible to expect to see recorded and judged.	5 (12%)	10 (23%)	18 (42%)	6 (14%)	4 (9%)	43
Applications that do not provide high-quality knowledge transfer pathways are failed.	4 (9%)	10 (23%)	14 (33%)	13 (30%)	2 (5%)	43

Respondents commented generally on what increases confidence that a credible assessment process has been followed. Some acknowledged the inherent challenges in using the peer-review process as a way to create a change in how researchers operate. A few respondents pointed to the quality of the judgements they had seen being applied. In these instances, “savvy” panels” were able to judge research projects and their potential to make a difference in the world. Moreover, the HRC, it was claimed, uses “experienced researchers and clinicians who have deep experience in knowledge

transfer and in the types of research applications that have been submitted”. One respondent offered a further idea of what might increase the researcher’s confidence in the process suggesting a “shadowing” role on a committee:

*Perhaps giving researchers the experience of sitting on an assessing committee would help them to see that the process is robust? From my experience, being part of a committee has helped me understand the assessment process tremendously, and it has provided me with insights regarding why some of my previous applications have not been funded. Providing detailed feedback is also important for enabling researchers to see that their application has had a thorough hearing and been well considered/reviewed (Survey respondent).*

One respondent wanted to reassert that confidence in the HRC’s “rigorous process for assessing the science of their project” extends into knowledge transfer pathways. This respondent reasserted, as others had stressed in previous comments, that knowledge transfer requirements need to be “tailored to the different arms of funding”. The ways different arms of funding see the world differently is demonstrated by the following statement in support of the knowledge transfer section overall:

*With the tight resource in New Zealand around health research it is critical that researchers design projects in a way that they contain strong statements on how effective research translation is to be achieved. Generating benefits from health research must be a clear requirement for publicly funded research (Survey respondent).*

Beneath what can easily become a crude “for” knowledge transfer or “against” knowledge transfer dichotomy, the following reflection by one respondent at the end of the survey reveals the deeper currents:

*I am concerned that the investment stream signals ask for a lot from researchers (perhaps too much?). Knowledge transfer/implementation science is a specialist area in itself, and I'm not sure that all researchers should commit themselves to developing capacity in this area. Perhaps (as mentioned previously in the options) knowledge brokers or specialists are needed as part of the named research team, and should be accorded separate tasks to help achieve these objectives. However, what is the boundary between implementation science and actual implementation (Survey respondent)?*

## 6.7 SUMMARY OF KEY FINDINGS

Of the five propositions on how knowledge transfer policies work, the fifth proposition, that researchers decide what to write in these sections using tacit knowledge of what works, had the most support. The general “straightforwardness” of what is involved in knowledge transfer is more prized than expecting researchers to be familiar with the knowledge transfer literature. These findings echo the conclusion from my interviews with researchers that personal experiences (specifically, those that helped researchers understand the context of how their findings will be used) outweighed an interest in applying the formal literature on how knowledge transfer should be undertaken.

The importance of a being grounded in the “real world” that will apply their findings was reinforced by the strong support given for the proposition that research practitioners can have their real-world credentials affirmed as a legitimate part of their research practice when they provide knowledge transfer pathways. Concerns were raised, however, that not everyone uses the same language to mean the same thing. When reviewing potential actions that could increase the confidence that a credible assessment of the pathways had been undertaken, strong support was given by

respondents to the action of ensuring assessors are chosen by the HRC who understand how research will play out in the real world.

The proposition that having made a written commitment to knowledge transfer actions in the research application meant that then researchers were more likely to commit to those actions when funding becomes tight, had the most diverse response. Many respondents highlighted how commitments made at the beginning of a research project are not followed through due to the realities of university budgets (including the ways research personnel are carried on research budgets), the opportunities for researchers to change their minds, and the sheer potential for change in the commitments made by health sector partners.

The majority of respondents agreed that, in situations where partnerships with users are formed, conversations and negotiations with these users play an important role. A common theme was to sum up the types of difficulties that are regularly reported on in the barriers to research utilisation literature: particularly the problem with different timeframes and the potential to overpromise at the beginning of a project merely to get users on-board.

Finally, when asked to agree or disagree with a set of actions which could increase researcher's confidence that a credible assessment of knowledge transfer pathways had been undertaken, the most supported recommendation was that guidelines be provided of what is important to cover knowledge transfer pathways. This action was followed by choosing credible assessors who understand how research will play out in the real world and providing feedback on how the application did (or did not) meet the assessment standard. There was less support for failing applications that do not meet the standard, and a diversity of views over whether specific knowledge transfer training or specialised forums would be useful.

## 6.8 UPDATING THE THEORY

In this section, the findings from the survey are used to further update my realist theory. Outcomes change under different contexts. They can include multiple planned, unplanned, and even contests among outcomes (Pawson & Tilley, 2004). The updated theory in this section is based on a more complex footprint of outcomes beyond the outcome initially proposed; that researchers would increase their efforts to proactively prepare and make connections with those who will implement their findings.

When given the opportunity to state their interpretation of the aim of asking for knowledge transfer pathways, none of the assessors surveyed directly mentioned the importance of the researcher acting proactively. Nonetheless, words were used that suggested a change or improvement was occurring in the use of research findings. The understandings that were provided by research assessors were spread fairly evenly across the expectation that the aim of asking for these pathways was to: facilitate the translation of research generally, prompt researchers to think about this aspect, improve the quality of research, and encourage a deliberate plan. A small sub-set of respondents sourced the aim back to demonstrating the value of research back to government funders. The latter logic was also more recently picked up by the HRC Chief Executive when she described how being able to “tell the story of impact” is essential for health to receive greater investment.

Research assessors are very alert to disciplinary norms. Assessors from disciplines such as public health and health services research, which start with an applied mind-set, gave examples in the survey of how their judgements were centred around wanting (and seeing) the quality of knowledge transfer pathways improved. Those with a biomedical research background regularly questioned whether the language around end-users and other knowledge transfer concepts was appropriate. These respondents stressed that basic biomedical research assessments pay more attention

to the strength of the methods and much less to the translational impacts. There was support for the statement that researchers may not take requests for pathways for knowledge transfer seriously, though many respondents wanted to add that this may be because it was not appropriate for different types of research, and, in particular, for biomedical research.

At the end of the third phase of this investigation, two further updates are made to the refined realist theory based on the insights offered by the survey of research assessors. These insights deepen understandings on:

1. How research assessors with different prior beliefs about the importance of knowledge transfer are likely to have different tolerance for the type of change expected from the HRC's knowledge transfer policy.
2. How the assessment process for knowledge transfer pathways can appropriately recognise the tacit ways researchers engage with knowledge transfer practice.

## 6.9 DIFFERENCE TOLERANCES FOR THE TYPE OF CHANGE

Since the HRC was formed (1990) from the Medical Research Council, an ongoing challenge has been to reconcile the understanding of the environments needed to best support basic biomedical research with those likely to encourage relevant applied health research (MoRST, 2009). The earlier review of the HRC's planning documents demonstrated how the HRC was managing this delicate balance by appealing to researchers themselves to decide how to interpret requests for knowledge transfer pathways. For example, in its written material, the HRC stresses that conference presentations and publications in peer-reviewed journals are an integral part of the transfer of knowledge from research projects, but that, in addition, "researchers should consider whether there are additional appropriate audiences for this knowledge, and by what mechanisms and activities potential research users could best

access it” (Health Research Council, 2010a, pp. 28-29). The reliance on expecting researchers to interpret what is appropriate was also mentioned by the HRC key informants when they explained “knowledge transfer could be an inherent part of any piece of research regardless of where on the spectrum it falls; from very basic to very applied research” and that “researchers are thinking about [knowledge transfer] from the very beginning, in an appropriate way for that piece of research”.

The survey findings reveal more about how this delicate balancing act between applied and basic research plays out in the minds of research assessors. All those who sat on the HRC’s Assessing Committees in 2015 received the survey (92 emails), not just those who sat on the Partnership Programme, New Zealand Health Delivery, Māori Health or Public Health Committees. Consequently, the survey findings covered contexts where research assessors may *not* have strong prior beliefs in the importance of knowledge transfer. What counts as effective knowledge transfer actions by researchers varies between the biomedical and social science traditions. The following two quotes highlights the intensity with which researchers make a connection with these respective traditions:

*... there are projects I do not take on because if there is no audience at the end who is taking notice, then this is not a project for me. This is why I do this type of research and not basic science. (Researcher interviewee)*

*The vast majority of biomedical research is basic, animal and cell-based work. This whole conceptual [knowledge transfer] framework is only marginally relevant (Survey respondent).*

Having made these prior commitments, when the research funder uses language and directions that look more favourable to social science and applied research understandings, then concerns are raised that the HRC is moving away from the status

quo. One respondent summed up their view of the status quo when they said they wanted to know “that basic science without clear knowledge transfer is still an important part of what the HRC funds, as well as applied science with a clear knowledge transfer goal”. The importance of being seen to balance the interest of disciplines within health research was introduced briefly in an overview of the literature on how research funders operate (section 2.1). The survey results deepen this aspect highlighting the need for the HRC to maintain the trust of its broad research community and demonstrate it is managing the different meanings attached to the research-practice gap.

Health research, with its combination of biomedical and social science understandings is known for cultivating a focus on the importance of basic research alongside its broad mission of funding research that improves health (Sarewitz, 2010). The biomedical view of knowledge transfer focuses on research as formal explicit knowledge that needs to “transferred” to the practice community, while, by contrast, social science traditions typically see research-based knowledge as socially situated and subject to wider social structures and norms (see, for example, Greenhalgh & Wieringa, 2011). The results of the survey point to the ways researchers with strong prior beliefs in the importance of basic research want to see the HRC operate in ways that recognise their disciplinary norms. This is summed up in the plea from one respondent who stressed that it was important to “appreciate that not all fundamental science is close to deliverables”.

When Dutch investigators evaluated the impact of a new societal impact section in research applications, they found a gap in understanding between what the policy expected to be recorded and what the researchers thought was wanted. They concluded that the lack of understanding on the part of the researchers reflected a failure by the research funder to successfully fulfil its role as a *buffer* between government and the research community (de Jong et al., 2016). The amalgam of statements about knowledge transfer in the HRC’s policy and planning documents,



presented in Chapter Four, attests to a complex “buffering role” being played the HRC. The earlier timeline mapped how the HRC’s enthusiasm for knowledge transfer shifted from being seen as an inherent part of what any researcher does, to encouraging more knowledge transfer through incremental policy shifts, to the tactical justification of how existing investments are evidence that a priority is being given to knowledge transfer.

Beneath what looks like a collective interest from health researchers in strategies to increase the uptake of research are tensions between different concepts of research-based knowledge and how best to close the gap. These tensions could crudely be characterised as a tension between ideas concerning more “transfer” or ideas concerning more “co-production”. Chapter Two presented these ideas as a progression between three generations of thinking about knowledge transfer from linear, relational and system-based thinking, but overlaying these generational shifts are biomedical and social science traditions. Comments received in the survey reinforce the power of these cultural norms:

*If the group are interested in influencing health care directly, they already care about knowledge transfer. If they are interested in more basic science, they will not. They will then answer the requirements of the grant accordingly (Survey respondent).*

Scholars have challenged the dominance of the importance of basic research in science policy (defined as “science for its own sake”) pointing out the equal importance of applied or mission-orientated research to providing knowledge to advance societal goals. Arguments for why basic research has succeeded as a political symbol have been sourced back to: (1) the use of a theoretical model by economists that embeds basic research as a core factor in the origins of growth, (2) the institutionalisation of the term “basic research” as a formal category in accounting and statistics on research and development, and (3) the lack of development of a politically acceptable substitute (Pielke Jr, 2012). Hemlin and Rasmussen (2006) reported on a study of 50

scientists and research policy-makers in the United Kingdom and the United States that found that basic research was something that both groups protected as a valuable symbol. Scientists thought that they must make their research appear applied to obtain funding, while policy-makers stressed that basic research was secure and that there was no move toward more applied research funding. The study concluded that both groups used basic research in a rhetorical way when it worked for them.

## 6.10 UPDATED REALIST THEORY

Those researchers who have strong beliefs in the importance of applied research are looking for signs that the HRC is taking knowledge transfer seriously, and expect to be affirmed in their desire for a credible assessment process of knowledge transfer pathways. On the other hand, those researchers who have strong prior beliefs in the importance of basic research are looking for signs the status quo is being maintained, and expect to be affirmed in their desire to see the HRC balance applied and basic research understandings in its communications around knowledge transfer. The implications for my realist theory are listed below.

### **Updated realist theory**

The HRC is more likely to be able to maintain the trust of the research community and act as an effective buffer between the government and the research community (O) when:

- Researchers who have strong beliefs in the importance of applied research (C) are affirmed in their desire to have confidence in the HRC's assessment of knowledge transfer pathways (M).
- Researchers who have strong prior beliefs in the importance of basic research (C) are affirmed in their desire to see the HRC balance applied and basic research understandings in its communications around knowledge transfer (M).

## 6.11 THE TACIT WAYS RESEARCHERS ENGAGE WITH KNOWLEDGE TRANSFER

Researchers in the previous chapter expressed concerns that, without a credible assessment process, rather than driving real change, the call for knowledge transfer pathways could promote window dressing and compliance. The survey explored a list of potential actions that could increase confidence in the assessment process. The most supported action was to develop guidelines of what is important to cover in pathways for achieving knowledge transfer. That said, given the further finding that both researchers and research assessors are fairly equivocal about the usefulness of knowledge transfer theories, frameworks and models overall, it is interesting to consider whether guidelines might actually be used.

Guidelines will need to draw on the formal knowledge transfer literature. They will need to use the evidence provided by the implementation science community about what works in particular contexts as a base for advice. Internationally, knowledge transfer planning guides have been developed doing exactly that (for instance Reardon et al., 2006). Nevertheless, much as there is a body of research outlining how the findings from clinical and health services research are not driven directly into healthcare practice (see, for example, Gabbay & le May, 2004; Greenhalgh & Wieringa, 2011), my results suggest that the findings from the knowledge transfer literature are equally not driven directly into the practice of research.

Systematic reviews of the use of clinical guidelines, for example, reveal only a third of research-informed guidelines are routinely adhered to, resulting in calls to move beyond studies reporting individual barriers and facilitators towards delving into the contexts which need to be taken into account (Lau et al., 2015). Equally, reviews of the use of research evidence are also calling for more sophisticated understandings than lists of barriers and facilitators (see, for example, Ling et al., 2011; Nilsen et al., 2013; Nutley et al., 2007). In the rest of this section, I draw out these parallels further between guidelines for health practitioners and guidelines for researchers, in order to

conclude with an updated set of CMO propositions of what makes a credible assessment process of the knowledge transfer section more or less likely.

#### 6.11.1 Detailed guidelines or learning by doing?

A review of the emerging knowledge transfer guidance for United Kingdom researchers expresses concern that guidance involving lists of relevant knowledge transfer activities may encourage “a check-list” approach to planning knowledge transfer activities (Ward et al., 2010, p. 6). Scholars have offered alternative forms of guidance based on: (1) “frameworks of thinking” where researchers are encouraged to think through a range of issues and questions built around the importance of seeing the knowledge transfer process as a dynamic, multidirectional and interactive process (Ward et al., 2010), (2) audit criteria to evaluate past applications and identify areas for systematic improvement (Ruppertsberg et al., 2014), and (3) a sophisticated research contribution framework (Morton, 2015). The literature is not unanimous in this respect. The United States experience of the broader societal impacts criterion in research applications found there were advantages to “distressingly vague requirements” as it allowed maximum autonomy on the part of researchers and research assessors to provide their own answers to these requirements (Holbrook & Frodeman, 2011).

Guidelines need to be followed by researchers. They also need to be consistently applied by other researchers; those who sit on assessing committees. The United Kingdom’s Research Excellence Framework (REF) introduction of “impact case studies” as a form of quality assessment has led to much discussion on how researchers judge the impact of the research. In one report, despite a wealth of inputs and guidance, the final assessments were complicated by a tendency to prioritise hard (or immediately certain) impacts over those deemed more soft (or nebulous) (Watermeyer & Hedgecoe, 2016). Early work establishing a baseline of what assessors thought they were judging when they scored for impact found that some “hard-nosed”

assessors were only prepared to say a piece of research had an impact when it had made a marked difference in public health statistics or in quantifiable economic terms, while others recognised the role of secondary impacts such as being included in clinical guidelines, or in drug development (Samuel & Derrick, 2015).

Studies of how research peer review actually works reveal how much these follow customary rules which are never formally taught but are learnt through professional socialisation (see, for example, M. Lamont, 2009). While there is a strong tendency to assume that better guidance will ensure all assessors apply the same criteria this is not automatic. In situations where assessing committees have only limited time per applicant to come to a decision, social dynamics as opposed to defined criteria can have a very strong impact on the outcomes (van Arensbergen, van der Weijden, & van den Besselaar, 2014). Having observed how scoring decisions are reached across a number of assessing committees, Lamont explains that assessors:

need to reach a consensus about a certain number of proposals by a predetermined time, a practical concern that shapes what they do as well as how they understand the fairness of the process. They develop a sense of shared criteria as the deliberations proceed, and they self-correct in dialogue with one another, as they “learn by monitoring” (M. Lamont, 2009, p. 8).

#### 6.11.2 Parallels with the idea of situation-specific wisdom

When discussing how research is used in a clinical encounter, Greenhalgh and Wieringa explain how medicine is a practice involving skills built not from a set of abstracted rules and recommendations, but from deciding which of the many competing rules is the most relevant in a particular clinical encounter (Greenhalgh & Wieringa, 2011). These authors tease out how “situation-specific practice wisdom” underpins clinical judgement. By this phrase, they are referring to the tacit knowledge

that is built and shared among clinical practitioners. The phrase is offered as a lens to consider how best to introduce a more sophisticated use of clinical guidelines in healthcare practice (Greenhalgh & Wieringa, 2011, p. 506). These ideas have parallels with the ways the process of knowledge transfer is *not* a series of discrete steps, but involves considerable tacit knowledge learning what knowledge transfer actions work best. The former point was reinforced in the on-line survey when strong support was given to the proposition that researchers decide what to write in knowledge transfer sections using tacit knowledge of what works, rather than reading and applying knowledge transfer theories.

Insights into the nuanced ways researchers learn the craft of writing research applications emerged from the survey. Survey respondents highlighted how researchers learn what to write in knowledge transfer pathways from senior colleagues and from being inculcated into disciplinary norms. The replies indicate similarities in the way that tacit knowledge is built and shared among clinical practitioners. A good example of the way tacit knowledge is theorised to develop in clinical contexts involves Gabbay and le May's amalgamation of explicit and tacit knowledge in clinical contexts in the form of mindlines (Gabbay & le May, 2004).

In Gabbay and Le May's scenario, health professionals are theorised to combine knowledge and information from a wide range of sources into mindlines (internalised, collectively reinforced, tacit guidelines) which they use to inform their clinical practice. Diverse forms of knowledge are continually being built into these mindlines and result in knowledge-in-practice-in-context. The concept offers an indication of what could be happening when researchers and research assessors stress the importance of learning from real- life situations when designing knowledge transfer pathways. The ease with which survey respondents could list what characterises a poor quality knowledge transfer pathway starts to identify the knowledge-in-practice-in-context benchmarks already being set for knowledge transfer pathways. These benchmarks involve: (i) providing evidence of connectivity or engagement with

named people or organisations, (ii) clarity in the written description of the pathway, (iii) avoiding an assumption journals and scientific publications are enough, and (iv) demonstrating realism in what is provided.

Further support for the importance of the concept of knowledge-in-practice-in context comes from another source. In the same way as I am drawing on what has been learnt on how clinicians actually use knowledge, so scholarship on how policy-makers use knowledge reinforces the same concept (albeit with different words). In her case study on how civil servants in England's Department of Health use knowledge, Maybin (2014) draws attention to the concept of "know-how" as having explanatory power. She argues that policy knowledge does not take the form of codified propositional knowledge (of the sort that researchers often produce), but is embedded in the actions of civil servants. As she explains, knowing how to make policy happen is the most important kind of knowledge in the civil servant's work. This knowledge is "learned through experience, watching others and being exposed to stories from colleagues about past experiences" (Maybin, 2014, p. 298). In much the same way that Maybin argues that the practice of policy involves knowledge that is embodied in individuals rather than prescribed in texts, so the practice of knowledge transfer by researchers appears to be strongly embodied in individual experiences shaped by different working environments.

### 6.11.3 Turning tacit knowledge into codified knowledge

Strong support from survey respondents was given to two further actions in order to increase the credibility of the assessment process: (1) the value of appointing assessors who understand how research will play out in real-world environments, and (2) the usefulness of giving feedback on how an application did or did not meet the assessment standards. Both these actions recognise the ways in which knowledge transfer practice is a form of situation-specific wisdom.

By contrast, there was less support for providing specific knowledge transfer training for researchers and inconsistent support for forums to agree what is credible to expect to see recorded and judged. The inconsistent support for forums is interesting as the logic of running these forums is that they offer a way of translating tacit knowledge into quantified parameters (codified knowledge). The HRC has already run a process of turning tacit knowledge concerning kaupapa Māori into more codified knowledge for other researchers to apply. The written guidelines on health research involving Māori (Health Research Council, 2010b) are a demonstration of doing exactly that. Furthermore, a number of interviewees mentioned the way Māori responsiveness assessments have been improved as a template for improving the knowledge transfer assessment process.

## 6.12 WHAT DOES THIS MEAN FOR THE REALIST THEORY?

The realist approach seeks to identify the varieties of successes and failure that any policy experiences and the factors that contribute to all of the eventual outcomes. In Chapter Five, I theorised that researchers are more likely to believe a credible assessment process is being applied to the knowledge transfer section when feedback is given on how an application did, or did not, meet the assessment standard for the knowledge transfer section, and reviewers of research grants demonstrate they understand the real-world contexts in the application. Both these actions were presented as contexts that would trigger a researcher's confidence that a credible assessment has been undertaken. The findings of the survey deepen the sense of *how* research assessors believe the confidence of researchers is built. This includes seeing actions by the research funders and research assessors that recognise the ways in which knowledge transfer practice is a form of situation-specific wisdom. The concept of situation-specific wisdom draws from Greenhalgh & Wieringa's (2011) attempts to explain how clinical decisions are made using a combination of tacit and codified knowledge.



This idea is backed up by the work of other scholars. Davis and colleague's review of how agencies were applying knowledge mobilisation ideas found that, while patchy progress has been made in applying the knowledge transfer scholarly literature, formative learning from practical experience was occurring (Davies et al., 2015). Any changes a health research funder puts in place to improve the assessment of knowledge transfer pathways, needs to recognise the way researchers and research assessors learn about knowledge transfer as a form of tacit knowledge. These has the following implications for my updated realist theory.

### **Updated realist theory**

The HRC is more likely to be able to run a credible assessment process of any knowledge transfer section of a research application (O) when:

- Guidelines are provided that *do not* rely heavily on check lists built from abstract knowledge transfer theories, models and frameworks (C) so that researchers are prompted to engage in reflective learning from past knowledge transfer experiences and increase formative learning on what works (M).
- Feedback is given on how an application did or did not meet the assessment standard for the knowledge transfer section (C) so that feedback supports the tacit way researchers learn how to develop context-specific knowledge transfer activity (M).
- When reviewers of research grants demonstrate they understand the real world contexts in application (C), then researchers have more confidence that tacit real-world understanding is being applied to what is always going to be very situation specific experiences (M).

## **6.13 CHAPTER SUMMARY: A RICHER PATTERN OF CONTEXTS MECHANISMS AND OUTCOMES**

This thesis investigates what happens when health research funders introduce the concept of knowledge transfer pathways to prompt researchers to think about their

role, not just as knowledge producers, but as translators of research findings. A key motivation was to explore if researchers who are asked to provide “knowledge transfer pathways” when applying for research funds see these new instructions as a “tick the box” exercise, or is more effort made to encourage others to use their findings. In the literature and planning documents, bold claims are made of the benefits of moving from merely noting journal articles and conference presentations as key “knowledge transfer” activity, to asking researchers to make more proactive efforts to ensure their findings are used. As a reminder, I list below the explanation of what the HRC expected to achieve from introducing new knowledge transfer pathways into its funding processes from 2010:

By making knowledge transfer a component of impact assessment, we are encouraging and incentivising researchers to look beyond the outputs of their work and understand specific areas where they can proactively help in the dissemination and, where appropriate, the implementation of their results (Health Research Council, 2013, p. 23).

I theorised that the outcome being sought from the HRC’s new knowledge transfer policies was that more effort is made by researchers to proactively prepare and make connections so research findings are more likely to be used. However, fieldwork in phase three has emphasised that the HRC’s knowledge transfer policy does not achieve one outcome only but is likely to involve a combination of:

- Justifying why the government should invest more into health research by collecting information from researchers on who they expect to partner with in order to realise the benefits from research. In contexts where government funders are looking for increased accountability from taxpayers funds, the mechanism triggered by this outcome is less likely to involve a change in the thinking of health researchers and more likely to involve a change in the visibility of information collected by HRC staff.

- Seeking to maintain the trust of the basic biomedical research community by demonstrating that it has an appreciation of the different trajectories of different types of research. In contexts where the HRC wants to maintain its role as a buffer between government's desire for relevance and the research community's desire for excellence, then the HRC may look for language that favours pipeline imagery. The mechanism triggered by this outcome is *not* necessarily a change in the thinking of health researchers but an affirmation (particularly for basic biomedical researchers) that the ways they conceive of the research-practice gap is recognised.
- Seeking to maintain the trust of the applied health research community by demonstrating that it has a credible assessment process for any requests for knowledge transfer pathways (or pathways to impact). If the HRC wants to put in place actions to improve the assessment of knowledge transfer pathways, then these need to recognise the way researchers learn about knowledge transfer as a form of tacit knowledge. The mechanism triggered by this outcome is not necessarily a change in the thinking of health researchers, but an affirmation for those researchers who have strong beliefs in the importance of applied research that knowledge transfer is being taken seriously.



## 7 CONCLUSION: INTERWEAVING TRACKS THROUGH WHICH KNOWLEDGE TRANSFER POLICY WORKS

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*If the programme seeks significant behavioural transformation, then the co-ordination of a series of ideas and agents is required to create durable change. Programmes need to construct runways rather than springboards for change.*

(Pawson, 2013b, p. 131)

This thesis asked “how does the Health Research Council’s (HRC) knowledge transfer policy change the mind-set of researchers”? An evaluation of something as complex and evolving as the HRC’s knowledge transfer policy can only take a limited and specific cut at the issues. In this thesis, this has meant focusing attention on the changes introduced in 2010 instructing researchers to provide a defined pathway to achieving knowledge transfer in their applications for funding. Internationally, the claims that researchers are encouraged to behave differently as a result of requests for “knowledge transfer pathways” are often made, but are rarely evaluated.

The stakes are high for researchers because acquiring external funding to carry out a piece of research is a significant milestone towards gaining academic status. Researchers are not only expected to comply with new instructions from research funders, but are also expected to be prompted to think differently about their role as translators of research. Therefore, it is important to know if the time and energy going into drafting knowledge transfer pathways (and assessing the quality of those pathways) achieves the expected change in the mind-set of researchers.

This chapter presents details of six mechanisms that drive knowledge transfer policies, along with the contexts that are more or less likely to prompt these mechanisms to work. These findings are built from a realist evaluative approach. Rather than the standard analysis of barriers and facilitators to the implementation of a new policy, the realist approach applies a structured process to conclude with explanations of what works for whom in what circumstances. This chapter starts with a summary of the structured process followed, before the answers are presented to the research questions underpinning the thesis. The original research questions are addressed as follows:

- A detailed account is provided of the different ways the HRC's policy influences the thinking of researchers to answer the question of *how* the HRC's knowledge transfer policy works. This account is presented in the form of six mechanisms. An explanation is given the contexts that make a difference to how these mechanisms work. Many of these contexts relate to the differences between health researchers; differences related to different beliefs on how the gap between research and practice should be characterised.
- Mechanism six (in section 7.4.5) argues for the importance of reflexive understandings in answer to the question of *what* researchers draw on when they provide written accounts of what they will do in a research application. When researchers were asked to describe the concepts they applied when filling in the knowledge transfer pathway section, the replies gave a strong emphasis to being grounded in the "real world". The argument is made that if a health research funder wants to do more to move research into action, then they need to create conditions that prompt researchers to learn from past knowledge transfer experiences.
- A set of recommendations is provided after considering the variables important when implementing new knowledge transfer instructions. These recommendations take into account the likely scope of benefits and scale of

effort required to reach the desired outcome of improving the effective application of research results (section 7.3).

## 7.1 DEVELOPING AND REFINING THE REALIST THEORY

The realist evaluative approach is built from the basis that, whenever a policy is implemented, it is testing a theory about what might cause change, even though neither that theory nor the testing may be explicit. The evaluator's task is to make the theory explicit, and then to successively test the theory in the form of CMO propositions in order to conclude with an understanding of not only how a policy works, but the conditions that influence its success (Pawson, 2006b). The concluding explanatory theory is expected to operate at the middle range in that it is not abstract to the point of addressing larger theories of social and cultural forces, but equally transcends mere description (Pawson, 2013b).

Confidence in the quality of any particular piece of realist evaluation comes from developing theory iteratively as emerging data are analysed (Wong et al., 2013). The expectation is that the combination of qualitative and quantitative evidence should invite a sense of explanatory completeness or synthesis or closure (Pawson & Tilley, 1997). In order to come as close as possible to achieving explanatory completeness in this investigation, not only was a variety of evidence gathered, but a process of zigzagging between conceptual and empirical work was undertaken to develop and refine theory through three phases of fieldwork.

Realist evaluations set out to develop, support, refute or refine aspects of the theory that underpins how an intervention is expected to work (Wong et al., 2016). The following discussion summarises how each of the chapters in the middle of the thesis (Chapters Four, Five and Six) addressed the need to progressively test in different conditions the theory buried within the HRC's knowledge transfer policy.

Chapter Four introduced the concept of *sensitising* as a way to describe what is happening when knowledge transfer pathways influence the minds of researchers. The initial proposition was that the outcome expected from the HRC's knowledge transfer policy was an increased effort would be made by researchers to proactively prepare and make connections so research findings are implemented. Three potential candidates were proposed to explain how this increased effort occurred through different forms of sensitising. These candidate mechanisms were distilled from a combination of the literature, the policy and planning documents and key informant interviews:

- Candidate One suggests researchers are sensitised as a result of reading and applying the growing range of knowledge transfer theoretical constructs and advice.
- Candidate Two suggests researchers are sensitised about how their research will be used as a result of conversations with the user.
- Candidate Three suggests researchers are sensitised as a result of possible sanctions and lack of future funding if they do not take on board knowledge transfer activity.

After a detailed review of instructions to researchers from three research funds, followed by an analysis of what was written in research proposals and a follow-up interview with researchers on what happened, the initial propositions were refined further. Chapter Five presents the results in the form of a set of refined propositions. Candidate One (suggesting that researchers were applying knowledge transfer models and frameworks) was abandoned to be replaced by a recognition of the importance of tacit ways of learning about knowledge transfer. Candidate Two (highlighting the importance of conversations with users) was retained as having strong explanatory power in certain situations. Candidate Three was refined to recognise that, rather than worry about sanctions, researchers with a strong belief in the importance of



knowledge transfer were concerned that the request to provide knowledge transfer pathways was not taken seriously enough. Researchers were looking for evidence that their beliefs about knowledge transfer were affirmed in ways that meant they could give greater priority to actions involved (involving relational and financial resources) and that a credible assessment process was being followed. Finally, the idea that those researchers new to research had the most to gain from being prompted to draft a knowledge transfer pathway was added to the refined theory.

The results presented in Chapter Six deepened understandings about the different tolerances across different disciplinary norms for the pace of change expected from the HRC's knowledge transfer policy. Moreover, the survey findings highlighted the important role for the HRC in maintaining credibility with both applied and basic researchers. Both types of researchers work beneath the generic label of "health researcher", yet have different conceptions of the type of knowledge transfer activity (and language) appropriate for their type of research.

#### BOX 7.1: PROPOSITIONS TESTED IN ON-LINE SURVEY

<b>Proposition One: Influence of different starting points</b>	Being asked to provide a knowledge transfer pathway alerts researchers new to research, or coming fresh to the topic being researched, to consider knowledge transfer activities they might have otherwise overlooked.
<b>Proposition Two: Influence of partnership expectations</b>	Researchers have formed partnerships with users encouraged by partnership programme requirements. Conversations (and negotiations) with these partners alert researchers to the type of activities needed to influence the opinions and actions of others.
<b>Proposition Three: Influence of real-world relevance</b>	Researchers who are also health practitioners have their real-world credentials and connections affirmed as a legitimate part of their research practice when they provide pathways for achieving knowledge transfer.
<b>Proposition Four: Influence of a written commitment</b>	Researchers make a public commitment to carrying out actions listed in their pathway to knowledge transfer, often to their research team and partners as well as to the HRC. As a result of these commitments, researchers find that the relational and financial resources associated with their pathways will continue to be honoured within the team, even when research finances become tight.

<b>Proposition Five: Influence of knowledge transfer theories, models and frameworks</b>	Researchers decide what to write in these sections using tacit knowledge of what works to increase the uptake and utilisation of research findings, rather than reading and applying knowledge transfer theories and models.
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## 7.2 HOW DOES THE POLICY INFLUENCE THE THINKING OF RESEARCHERS?

Pawson's explanation that programmes (or, in this case, a policy) seeking behavioural change require the co-ordination of a *series* of ideas and agents as a runway rather than a springboard for change (Pawson, 2013b) sets the scene for the conclusion to this realist evaluation. Rather than a runway, I propose a series of mechanisms which are lined up as a set of interweaving tracks by which knowledge transfer policies work. Each of these is discussed in turn in order to answer the question of how the HRC's knowledge transfer policy works to change the mind-set of researchers.

At the end of the discussion of each mechanism, a "dimmer switch" diagram is presented noting the contexts which mean the mechanism is more likely to be illuminated (in the form of an increasing glow) and the contexts that are less likely to illuminate the mechanism (in the form of a slow fade). In presenting each mechanism in this way, I am drawing on and extending Dalkin and colleagues' "dimmer switch" analogy (Dalkin et al., 2015). These scholars developed the dimmer switch metaphor as an alternative to the more common realist terminology of mechanisms "firing" or "not firing". Dalkin and colleagues' evaluation of a palliative care intervention found a set of reasoning by professionals which did not switch on and off in a binary fashion, but developed over time as health professionals experienced the effects of change. The idea of a continuum of reasoning helped explain circumstances in this investigation where researchers were becoming more mindful of what is involved in knowledge transfer, but were not likely to markedly change their original behaviours, even though behavioural change from researchers was at the root of explanations of the desired outcome from the policy.

### 7.2.1 Mechanism One: Sensitised to knowledge transfer by being new

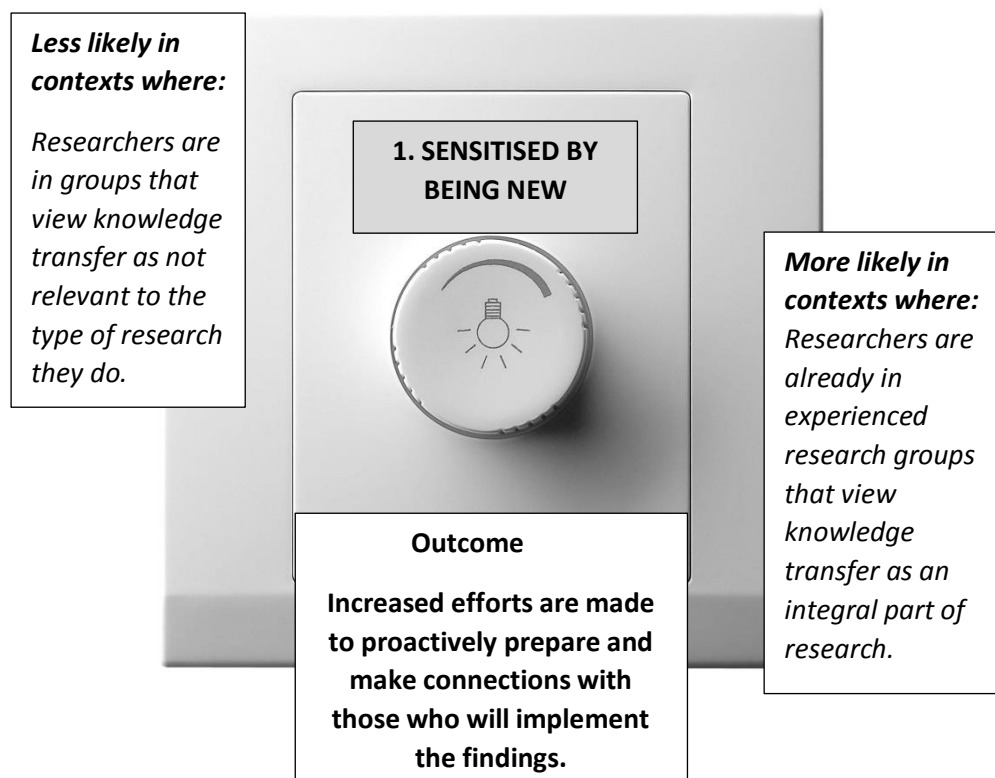
When the HRC explains that they expect their knowledge transfer policy to encourage and incentivise researchers to understand specific areas where they can proactively help in the implementation of their results, the group of researchers most likely to reason differently are those research practitioners who are *new* to the research application process. Under certain conditions, these researchers are encouraged to make more connections with those who will implement their findings.

The mechanism that “causes” this reasoning is linked to the sensitivity that comes from being new to the research application process and, potentially, a freshness that comes from being unaligned to disciplinary norms. These disciplinary norms are often concerned with how much end-users should (or should not) be engaged in shaping research questions and applying findings. These norms can also stem from different views over whether the use of research involves passing along pipelines or involves research embedded within a collaborative and participatory process.

In the survey, research assessors confirmed their support for the notion that instructions to provide knowledge transfer pathways was most useful for those new to research. Further elaborations by research assessors highlighted how much the craft of writing research applications is heavily influenced by disciplinary norms. From the comments provided by research assessors, I judge that some researchers (often basic biomedical researchers) are likely to be socialised into ignoring this aspect of the application. The international experience that researchers are often confused about what is expected of them (as exemplified by Tetroe et al., 2008), parallels comments I received on how early career researchers are left to themselves to figure out what the HRC’s knowledge transfer instructions actually mean.

Figure 7.1 summarises the operation of Mechanism One where researchers may be *sensitised* to do more thinking about who is going to connect with their findings when they are new to research or coming fresh to the topic being researched. In these contexts, filling in a section of the research application asking for a knowledge transfer pathway can direct attention to the need to do more to proactively connect with end-users. The novice researcher can be prompted to undertake actions which might not have otherwise happened.

FIGURE 7.1: SUMMARY OF MECHANISM ONE



#### 7.2.2 Mechanism Two: Sensitised to knowledge transfer by conversations with users

In any year, up to 10 percent of the HRC's overall investment is directed towards requests for proposals on designated topics through the Partnership Programme. This programme includes specific requirements to engage with end-users. The HRC's

planning documents explain that involving end-users in the research process ensures that “the findings are more likely to be understood and taken up and applied” (Health Research Council, 2014a, p. 15); an explanation that echoes the relational approach to knowledge transfer which places a strong emphasis on the importance of interactions between researchers and users (Best & Holmes, 2010). While end-user connections are mandated in the HRC’s Partnership Programme, they are also an implicit requirement in other investments. In the survey, research assessors report that, after conference presentations and journal articles, the creation of stakeholder groups who would make an early commitment to use the research were a common feature listed in knowledge transfer pathways. A poor quality pathway was also regularly described as one that did not provide evidence of connectivity or engagement with named people or organisations.

While much is theorised about how the collaborations between researchers and decision-makers lead to greater understanding and improved communication, little is still known about the nature of the meetings that are the foundation of these partnerships (Gagliardi et al., 2016). What is clear from this investigation is that conversations at the beginning of a research proposal can go only part of the way to ensuring the findings of research are taken up. Following the trajectory of the partnership projects in this investigation, researchers experienced fairly straightforward set-up meetings and conversations with users, variable ongoing connections, and some surprises and negotiations over final reports.

Despite regular best-practice advice on maintaining relationships with users throughout the research project, two contextual features conspire to make this particularly difficult. Firstly, the project-based nature of these researcher–user connections which has implications for the sustainability of these activities once project funding comes to an end. Secondly, the influence of organisational turbulence where it is difficult to develop ongoing relationships because of the high turn-over of staff. In environments of continual change, where researchers are not able to

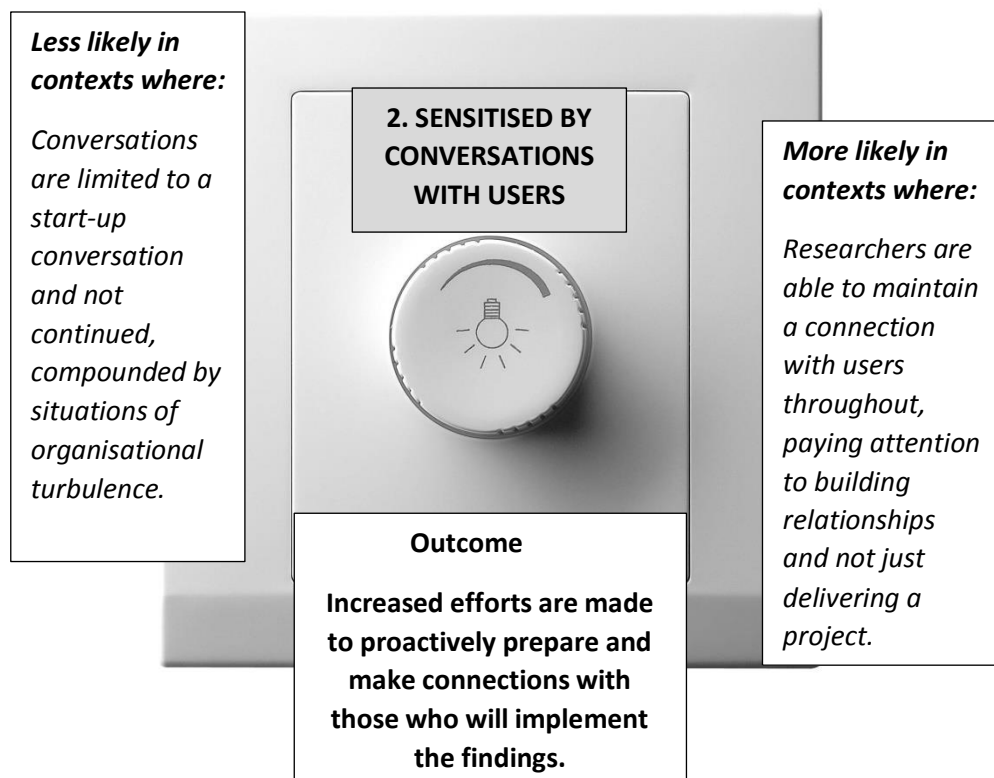
maintain a connection with a user throughout their project, then the value of any sensitisation at the start of a project can wane.

When researchers in this investigation described what happened in research partnership with users, a picture emerged of the ways in which tacit knowledge about knowledge transfer is being assembled. Researchers apply to these funds, expecting there is a hunger for the research being undertaken and that they will agree what connections are the most useful to ensure findings are taken up in policy or practice. A number of interviewees reflected on what was happening when they unexpectedly found themselves negotiating with end-users over what was said in any final report. They found end-users who were “highly invested, which is great in terms of knowledge transfer”, but the challenge involved being “academically honest” in negotiations. The importance of the tacit understandings built from these experiences was deftly illustrated by one researcher. She described the hard-earned skills she had learnt shifting end-users away from a response that involved saying, either “we have heard all this before and it doesn’t make a difference”, or “we don’t have time to even think about that”, towards an interest in taking research results and doing something with them.

Jagosh and colleagues suggest that the mechanism at work in research partnerships is “trust” with “the outcomes of one stage of the partnership life course informing or transforming the context for subsequent stages” in a “ripple effect” (Jagosh et al., 2015, p. 3). Jagosh and colleagues’ sample consisted of research partnerships between academics and community groups that exhibited high levels of co-decision-making and governance over time. It is very likely these were higher levels of co-decision-making than the levels in projects explored in this investigation. Nevertheless, it seems reasonable that conditions that supported trust-building and maintenance are relevant contexts in this investigation as well. However, as a first step, the mechanism causing researchers to undertake more activities occurs as a result of insights through *conversations* (and negotiations) within these partnerships. Moreover, what is

apparent across all the partnership projects reviewed in this investigation was how conversations negotiating respective views at the end of a project, in contrast to the conversation around what could happen at the start of a project, triggered more insights into what needs to happen if others are going to pick up findings. If projects are going to exhibit high levels of co-decision-making and governance, then the conversations with users encompassed by Mechanism Two (summarised on Figure 7.2) need to happen first.

FIGURE 7.2: SUMMARY OF MECHANISM TWO



### 7.2.3 Mechanism Three: Authorises time spent on knowledge transfer

The previous two mechanisms provided explanations of how the HRC's knowledge transfer policy leads to a change based on the HRC's formal statements of expectations about how the policy will work. In this third and the following fourth mechanism,

more subtle ways in which researchers respond are revealed based on the importance for the HRC of maintaining the trust and confidence of different research communities.

For researchers who are also health practitioners, being asked to provide pathways for achieving knowledge transfer authorises the time spent on knowledge transfer as a legitimate part of their research practice. The reasoning being applied by these researchers is less about deciding whether to start or undertake more knowledge transfer actions, and more about the degree to which the policy supports behaviour that is already a defining feature of the research community they identify with. Statements that these researchers are “not in an ivory tower” and work in ways that “blur the lines of who is doing the research” provide an insight into the defining features of that community. These researchers were less likely to make distinctions between what research is and what knowledge transfer is, and want their real-world credentials to be taken seriously when they apply for research funds.

University-based (as opposed to research-practitioner) researchers who have strong beliefs in the importance of applied research were authorised less by displaying their real-world credentials and more by making a public commitment to the resources needed when they developed a plan for knowledge transfer. When funding becomes tight, having made a written commitment to particular knowledge transfer actions in the research application, these researchers were more likely to hold firm and ensure commitments made at the beginning of a research project were followed through. In these circumstances, knowledge transfer policy works not only by legitimising their particular identity but by legitimising their research practice. In contexts, however, where university management does not provide back-up support for knowledge transfer activities, this commitment could still become unstuck. For instance, when research teams were composed of many researchers who are on soft money, keeping these researchers employed became a bigger priority than putting resources into knowledge transfer actions.

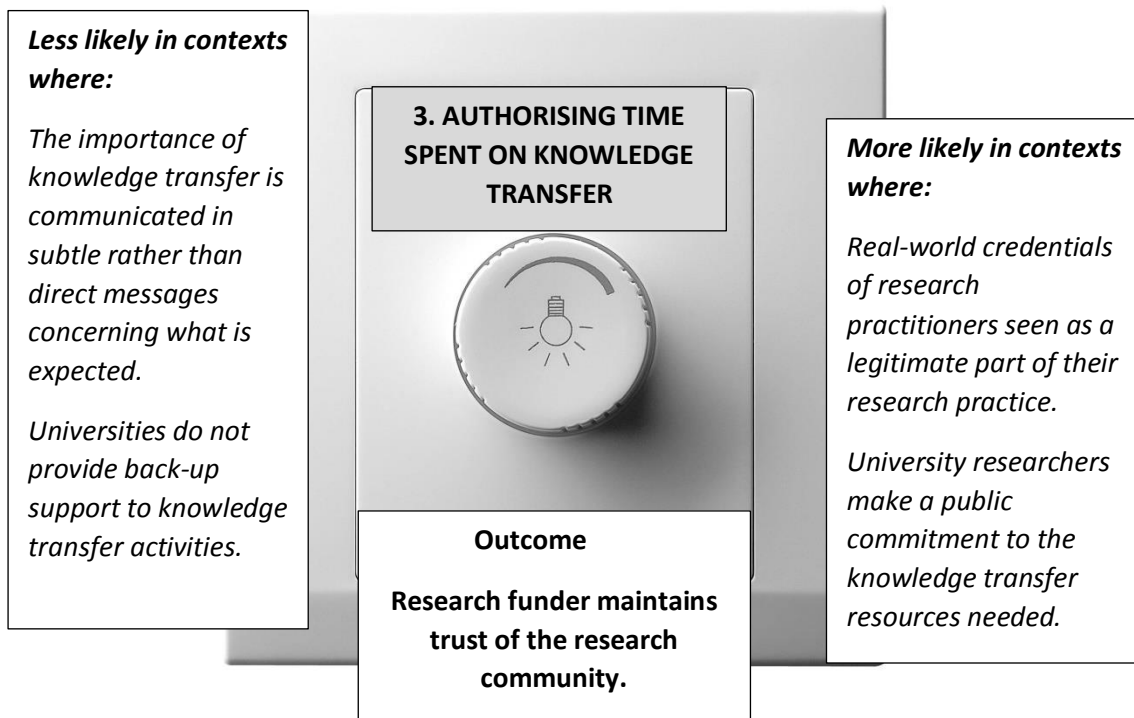


Figure 7.3 summarises the contexts where researchers with strong prior beliefs in the importance of knowledge transfer are authorised to spend more time and resources on these activities, believing that the HRC views such activity as a legitimate part of research practice. To operate effectively as a health research funder, the HRC is expected to maintain the trust of the health research community and work as a buffer between government's desire for relevance and the research community's desire for excellence. Both those university-based and research-practitioner researchers who have strong beliefs in the importance of applied research are looking for signs that the HRC is taking knowledge transfer seriously. They expect to see a credible assessment process applied to knowledge transfer pathways.

The survey of research assessors revealed a level of uncertainty over what the HRC's knowledge transfer policy actually involves. This is not an area that has become a visible symbol of what the HRC is doing to drive a different form of research practice. Statements in HRC accountability documents reveal that the response to the ministerial expectation that the HRC is to give a priority to knowledge transfer is to point to the amount of applied research being undertaken.

In these circumstances, the HRC's knowledge transfer policy is not about promoting a change but tactically confirming the status quo. The uncertainty in the survey over what the HRC's knowledge transfer policy comprises may also help explain why the recent Strategic Refresh of the HRC concluded that there was little guidance on how to interpret or assess instructions for knowledge transfer pathways (Ministry of Health & Ministry of Business Innovation and Employment, 2015). A key informant in this investigation did suggest that the 2010 changes in the research application process only sent subtle messages to researchers that they needed to think about the real world, rather than direct messages that they needed to change how they operated.

FIGURE 7.3: SUMMARY OF MECHANISM THREE



#### 7.2.4 Mechanism Four: Affirming basic research norms

Those research assessors who have strong prior beliefs in the importance of basic research expect to be affirmed in their desire to see the HRC use language that reflects the importance of research developed without a particular end-use in mind. In common with Mechanism Three, Mechanism Four also reflects the importance of the HRC being seen to support behaviours that are a defining feature of a research community different health researchers identify with.

Health research, with its combination of biomedical and social science understandings, is known for cultivating a focus on the importance of basic research alongside its broad mission of funding research that improves health (Sarewitz, 2011). The biomedical tradition draws on basic research understandings that continue to

hold a powerful sway in terms of assessing the robustness and rigour of methods used to produce different forms of research-based evidence. In the survey, a number of biomedical researchers stressed the importance of judging the proposed methods for a research project above all else.

Scholars have pointed out that an exclusive reliance on presenting results in academic conferences or published in peer reviewed journals can be problematic. When researchers are solely focused on developing research applications that will be favourably reviewed by other researchers, the resulting focus on the internal validity of research designs can come at the cost of the external validity (Glasgow et al., 2012). External validity refers to the consideration of all the factors that are likely to influence how any new knowledge is applied. While basic researchers will argue for the benefits to innovation of basic research without any particular application in mind, concerns that such research becomes divorced from wider societal interests grows. Nightingale and Scott (2007) point out that:

In the biological sciences, the “contribution to healthcare” justification for public funding is largely at odds with the outcomes. Major causes of illness, such as poverty, lack of education, and poor housing and healthcare are social and political issues that are poorly addressed by the current science-intensive research system (Nightingale & Scott, 2007, p. 543).

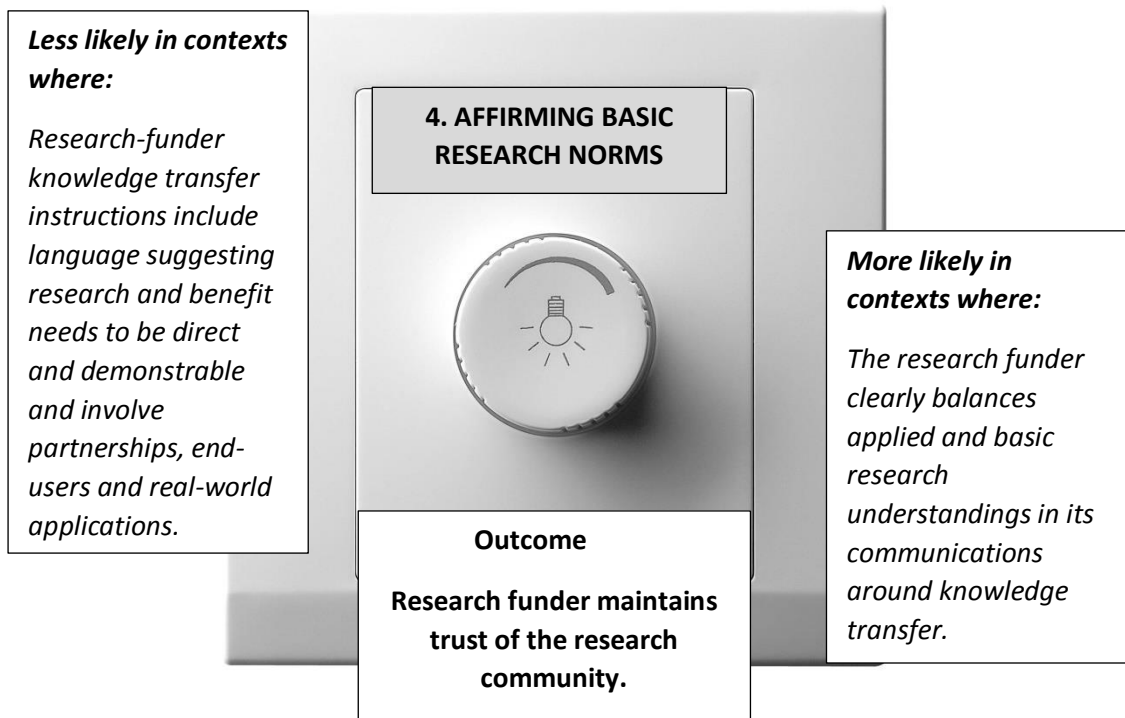
Chapter Six discussed in detail the appeal for research funders like the HRC in forging a bond with the scientific research community without jeopardising their relationship with government (see section 6.3.1). To create this bond, the HRC needs to balance an awareness of the importance of different types of research and show it is able to bridge assessment processes for both basic research and applied research. Forty percent of all the HRC’s funding goes towards biomedical research (Ministry of Health & Ministry of

Business Innovation and Employment, 2015). Given a key understanding for biomedical researchers is that basic research is the top of a hierarchy of activities worth pursuing, then any language that appears to threaten this stance is quickly seized upon. For instance, when explaining that biomedical scientists largely engaged in getting knowledge out to their scientific communities, one research assessor stressed “it is important to appreciate that not all fundamental biomedical science is close to deliverables, and it is a mistake to think that it is”. Biomedical researchers favour language that matches a pipeline view emphasising moving down the value chain.

By contrast, researchers drawing from a social science tradition favour language that reflects the complex, collaborative and context-specific processes involved in knowledge transfer. This may not involve looking to provide “deliverables” as such, but it does involve language involving end-users buttressed by the expectation that research should demonstrate tangible benefits in the real world.

Mechanism Three previously presented the contexts where researchers with strong prior beliefs in the importance of knowledge transfer are authorised to spend more time and resources on these activities. The researchers do this in the belief that the HRC views such activity as a legitimate part of research practice. Mechanism Four presents the contexts where researchers with strong beliefs in the importance of basic research are *affirmed* that the HRC still recognises the importance of basic research in its communications around knowledge transfer. These researchers are looking for subtle signals that the degree to which the link between research and benefit needs to be direct and demonstrable does not apply to them (Figure 7.4).

FIGURE 7.4: SUMMARY OF MECHANISM FOUR



#### 7.2.5 Mechanism Five: Articulating knowledge transfer actions

Over the life of this investigation (2012 to 2016), appeals to the importance of accountability to the taxpayer have emerged as a justification for knowledge transfer policies. What could crudely be characterised as the “knowledge transfer agenda”, with its roots in encouraging researchers to close the gap between research findings and their eventual use, has started to merge with the “impact agenda”, where governments are taking a critical look at their investments in the research and are seeking more evidence that they are getting a return on this investment (Gluckman, 2014). A small percentage of research assessors (10 percent) explained that the aim of asking for knowledge transfer pathways was to demonstrate the value of research to government funders.

More powerful evidence of the merging of impact and knowledge transfer agendas comes from an explanation from the HRC Chief Executive of why replacing knowledge transfer pathways with “pathways to impact” statements was a useful step. In a general email to all researchers, the HRC Chief Executive explained that not only do pathways to impact statements provide an opportunity for researchers to articulate how any one project connects to the next link in the chain, they will also help the HRC tell the story of impact; “essential for health to receive greater investment”<sup>15</sup>.

Internationally, discussions on the forces shaping academic life are opening a space for what has been described as some of the most powerful struggles the academic community can engage in. These struggles involve concerns over academic autonomy clashing with desires by governments to encourage other desirable researcher behaviours; pressuring researchers to be more productive and impactful in terms of the research they undertake (S. Smith, Ward, & House, 2011). Those scholars who support the idea of policies to encourage more active engagement with researchers and end-users have started to express concern that the “accountability and advocacy argument” dominates conversations around the use of research. The accountability and advocacy argument links new requirements for more information on knowledge transfer actions to the need to justify and advocate for public investment in research. Commentators have pointed out the subsequent debate results in less attention being given to the positive benefits of “making research better, building demand into the research cycle, enhancing personal development and career progression” (Clappison A, 2013).

In Mechanism Five, the reasoning expected from researchers is not about changing their behaviour, but about making current behaviour more visible; enlisting researchers into processes of *articulating* how their research delivers value. The resulting articulation could be used in two ways. Firstly, the information could be used by the HRC staff to construct narratives of successful impact in order to meet

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<sup>15</sup> Email to HRC researchers 16 November 2015 HRC Chief Executive

requirements for accountability for taxpayers' funds. The earlier HRC key informant interviews referred to the usefulness for accountability purposes of the annual performance reports from researchers using their initial knowledge transfer pathways as a benchmark to report back on what they had achieved.

The logic of using the research application process as a site to gather better accountability information looks less convincing when it involves every researcher developing a narrative for every application, whether they are successful or not in receiving funding. The argument looks more convincing if it is a feature *after* a researcher has received funds and is able to say what has happened, rather than what will happen. It is a less convincing use of the researcher's time if information is gathered before the researcher knows the research will actually be carried out.

Secondly, the articulation provided by researchers could be used as part of a broader strategy of enlisting researchers into communicating the value of research in general to the public. As the instructions to researchers on what to record in the three specific HRC funds revealed, requests for more active relationship-building actions such as explaining "how the decision-maker is integrated throughout the research process"<sup>16</sup> are regularly layered on top of a base interest in the passive dissemination in the results of research involving "leaflets, reports, workshops, participant newsletters, guidelines, hui and public meetings, conference presentations and mass media items as appropriate"<sup>17</sup>.

The literature regularly classifies communication and dissemination as a transactional process with no evidence that it makes a difference to changing health providers' behaviours (Grimshaw et al 2001). The research community and their funding agencies have, however, expressed an interest in changing the behaviours of the public

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<sup>16</sup> Statement in Figure 5.1. Instructions for Knowledge Translation Plan in Research Partnerships New Zealand Health Delivery.

<sup>17</sup> Statement in Figure 5.1. Instructions for Dissemination Strategy in Partnership Programme .

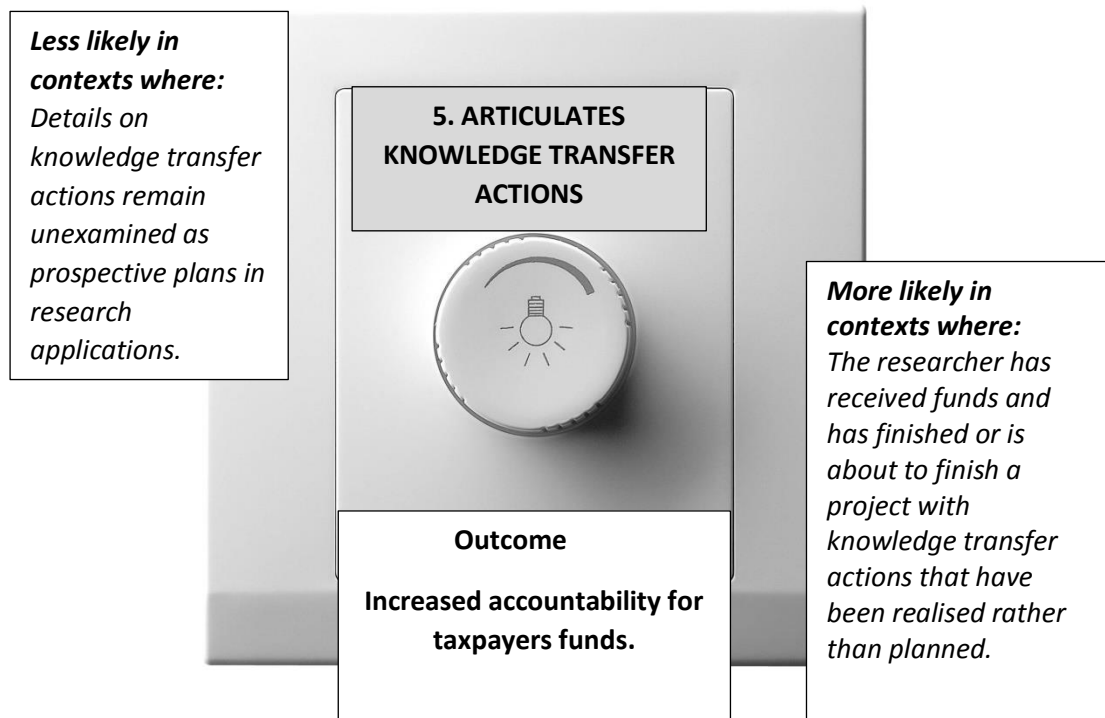
in terms of seeking greater engagement and interest in public investment in research. One of the aim of the New Zealand Government's National Strategic Plan for Science and Society is for a more scientifically and technologically engaged public and a more publicly engaged science sector. The National Strategic Plan conflates language and ideas around knowledge transfer with dissemination when it advises that:

Public research funding bodies will review and update the knowledge translation expectations for research contracts, and assess the current state of publicly relevant knowledge transfer and end-user engagement practice among funding recipients, including with iwi and Māori organisations". (Ministry of Business Innovation and Employment, Ministry of Education, & Office of PMCSA, 2014, p. 30).

Some interviewees were interested in teasing out the difference between terms such as "dissemination", "transfer", and "utilisation". One interviewee suggested that the concept of dissemination was well understood by researchers, but the nuances of how to build relationships to achieve change was less well understood. Another interviewee interpreted calls for knowledge transfer as calls to communicate to the public and questioned the feasibility of such an undertaking where "if we took that to the nth degree, there would be nothing in the news except medical research". Figure 7.5 connects the concept of articulating knowledge transfer actions back to an outcome of increasing accountability to taxpayers' funds, but the potential also exists for a further round of theory building based on connections with public engagement in science.



FIGURE 7.5: SUMMARY OF MECHANISM FIVE



#### 7.2.6 Mechanism Six: Reflexive understandings

Chapter Two highlighted the significant number of detailed models and frameworks that have been developed to demonstrate the complexity of what happens when research is taken up in policy or practice (see, for example, Buxton, 2011; Damschroder et al., 2009; Lavis, Robertson, Woodside, McLeod, & Abelson, 2003; Morton, 2015), though little is known about how much researchers themselves read and engage with these models and frameworks. Consequently, one of the sub-questions for this investigation asked what ideas about how knowledge transfer occurs do researchers draw on when they provide written accounts of what they will do in a research application?

When researchers were asked to explain what they drew on when filling in the knowledge transfer pathway section, the replies gave a strong emphasis to being grounded in the “real world” that will apply their findings. I concluded, that for my sample, personal experiences that helped researchers understand the context of how their findings will be used outweighed an interest in applying the formal literature and advice on how knowledge transfer should be undertaken. This matched the conclusion that formative learning from practical experience for health research funders is proving to be more common than applying “proven” approaches to knowledge transfer (Davies et al., 2015). I am extending this finding to what is common practice among researchers. Based on my interviews with researchers, I argue that researchers are more likely to improve their understanding of what to do to move research into action when they engage in reflexive learning from past knowledge transfer experiences. Beneath this conclusion I found some subtle differences between researchers.

Researcher practitioners are more likely to consider knowledge transfer as a straightforward process akin to a marketing strategy or a change-management process, while others (particularly university-based researchers) are more likely to see knowledge transfer as a process requiring deep and deliberate thought and understanding. Only five of the 26 written knowledge transfer pathways reviewed for this investigation explicitly referenced a knowledge transfer theory, although the implicit actions recorded generally matched advice on activities commonly recommended as being an effective means of knowledge transfer. Research assessors also strongly agreed with the proposition that researchers decide what to include in knowledge transfer pathways using tacit knowledge of what works rather than reading and applying knowledge transfer theories and models.

The argument in Chapter Six that the practice of knowledge transfer is a form of “situation-specific wisdom” marries with the emphasis given by my interviewees on

the importance of real-world understandings. At the heart of the scholarship of what researchers should do if they want to improve the chances of their research results being used is the relatively simple conclusion that researchers need to decode the context in which research is expected to be used and design an approach that fits that context using available knowledge transfer models and guidelines (Constandriopoulos et al., 2010). Interest in the possibilities of encouraging a more reflexive science is emerging from those providing a defense of the British impact agenda, explaining that the “Research Excellence Framework could help to embed impact considerations among the routine reflexive tools for the research process”(S. Smith, 2012). In practice reflexivity means that:

... researchers begin to question their own values and practices and use the new science studies literature to understand their own work. In this way, reflexivity is a deliberate and intentional self-reflective thinking of one’s work and activity as a researcher. This way of thinking can be contrasted with traditional understandings of what a researcher is doing – an understanding that is not so much reflected on but into which researchers are socialised (Hemlin & Rasmussen, 2006, p. 180).

A good example of the reflexive thinking already being done by researchers is seen in this quote of the ways in which experience – “knowing the games” – trumps abstract theories:

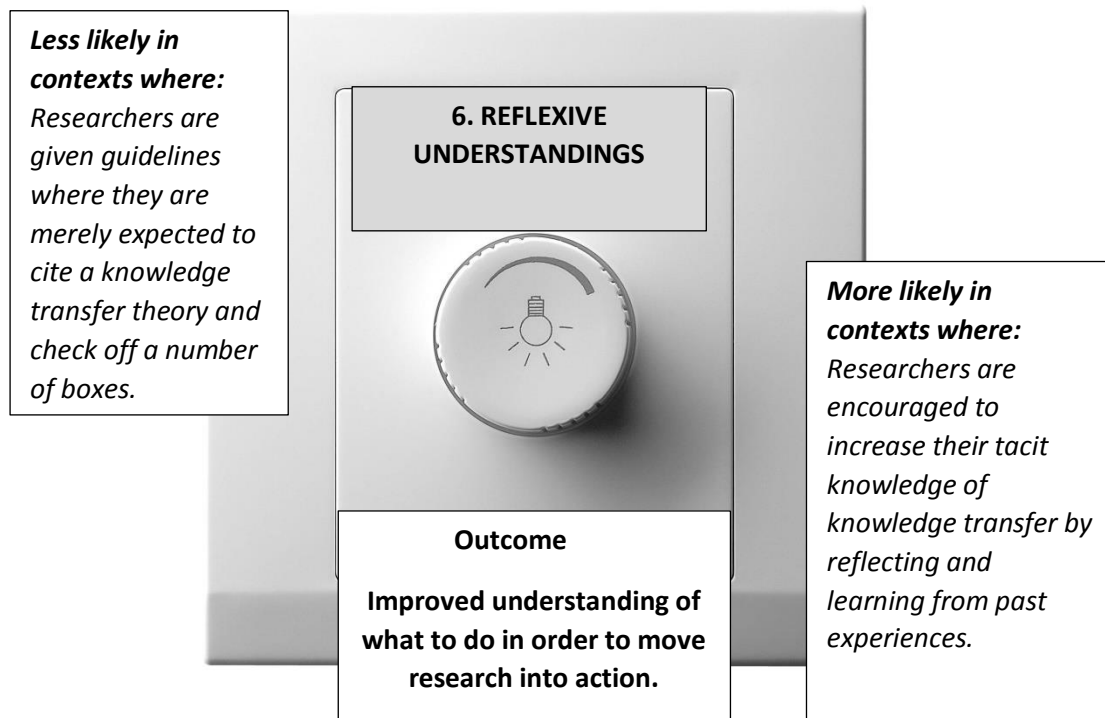
*I know the games; the games around funding, the relationships between provider arms and funding and planning in organisations, the relationships with MoH, the priorities of DHB executive managers (what pushes their buttons and what they need to achieve) around implementing models and who to make sure gets the credit for it (Researcher interviewee).*

The proposition being made here is that if a health research funder wants to achieve the outcome of improving the actions recorded in knowledge transfer pathways on what to do to move research into action, then it needs to create the conditions that

prompt reflexive understandings by researchers. Moreover, if a research funder wants to break away from linear views of knowledge transfer which are only likely to be effective in certain situations, then encouraging system thinking ideas such as co-production could be useful. The imaginative leap here is not to assume research-based knowledge and practice are two separate practices, but to think about conditions which support researchers and research assessors to learn about knowledge transfer as a form of tacit knowledge built from engaging with how a system works (“knowing the games”).

Having a rigid knowledge transfer template to fill in at the beginning of a research project could mean, as one interviewee suggested, researchers easily adopt a starting position that they have a research product to push, which can overestimate the market for their results. In their extensive review of how scientific research is used in public policy, Prewitt and colleagues point to how conceptualising the problem as one that is focused on increasing the use of research in decision-making misses an opportunity to formulate the issue more productively as one that asks how can decision-making be improved (National Research Council, 2012). A key conclusion in the knowledge transfer literature is that the influence of research on health policy and practice decisions is associated with local contextual and organisational factors and unpredictable windows of opportunity, as much as it is with the skills of individual researchers and the quality of their research (Newson et al., 2015). Figure 7.6 summarises the operation of this mechanism concerning the importance of reflexive understandings.

FIGURE 7.6: SUMMARY OF MECHANISM SIX



#### 7.2.7 Summary of six mechanisms

Six mechanisms are proposed as a set of interweaving tracks by which knowledge transfer policies work:

1. *Sensitised by being new:* in which researchers new to research or coming fresh to the topic being researched are encouraged to make more connections with those who will implement their findings than they would have done otherwise.
2. *Sensitised by conversations with users:* researchers in collaborations with users are more likely to undertake activities to influence the opinions and actions as a result of ongoing conversations (and negotiations) within these collaborations.
3. *Authorises time spent on knowledge transfer:* in which researchers with strong prior beliefs in the importance of knowledge transfer reason that they are

authorised to spend more time and resources on these activities. The outcome of this mechanism is that a research funder is able to demonstrate knowledge transfer is a legitimate part of research practice and thus maintain the trust and confidence of the different research communities within health research.

4. *Affirms basic research norms*: in which researchers with strong beliefs in the importance of basic research reason that the research funder is making an effort to balance applied and basic research understandings in its communications around knowledge transfer. The outcome of this mechanism is that the research funder is able to demonstrate that it is not always necessary to provide a direct and demonstrable link between research and benefit, and is thus able maintain the trust and confidence of the different research communities within health research.
5. *Articulates knowledge transfer actions*: in which the reasoning expected by researchers is not about changing their behaviour but making current behaviours more visible. Narratives of impact are able to be constructed and used to increase accountability for taxpayers' funds.
6. *Reflexive understandings*: in which researchers engage in learning from past knowledge transfer experiences in order to improve their understanding of what to do to move research into action.

### 7.3 WHAT CAN BE DONE TO MAXIMISE THE CHANCES OF SUCCESS?

In the previous section, the explanatory power of the realist evaluative approach has been employed to better understand under what circumstances the HRC's knowledge transfer policy produces the hoped-for outcomes. Rather than offer a blanket judgement on whether the HRC's policy works or not, the aim of this research was to uncover what can be done to maximise the chances of success, or minimise the chances of failure, of the HRC's attempts to be more active in the space between research results and their eventual use. The conclusion from the literature previewed

in Chapter Two was that one of the consequences for those health research funders who place increased knowledge translation expectations on researchers is that they need to help researchers develop the skills to do this well, clear up any confusion for researchers on what is required, and build a commonly understood assessment of what a good-quality knowledge transfer plan looks like.

The recent recommendation to the HRC by its overseeing government departments that they should introduce “pathways to impact” statements was designed to overcome a perceived problem that there is little guidance on how to interpret or assess requests for knowledge transfer pathways (Ministry of Health & Ministry of Business Innovation and Employment, 2015). However, a key insight from this investigation is that any guidance needs to recognise that researchers and research assessors learn about knowledge transfer tacitly; by reflecting on past experiences and applying disciplinary norms.

The following recommendations for the HRC are based on the likely scope of benefits and the scale of efforts required if further actions are going to be taken to improve knowledge transfer. These recommendations are based on the assumption that the HRC wants to be more active in encouraging researchers to undertake activities other than research, and equally that it wants to ensure that any policies put in place to achieve this outcome address identifiable concerns.

**Recommendation One:** The HRC could spend more effort in designing knowledge transfer policies that support self-reflexivity by different groups of researchers rather than creating more hoops within the research application process. The bulk of the HRC’s effort is directed towards running a nine-month-long assessment process involving 240 expert committee members and 450 to 500 specialist reviewers, so it is not surprising that interventions to promote change look to leverage off this considerable effort. However, if the HRC wants to support the development of “deep

situation-specific wisdom” around knowledge transfer, rather than expect researchers to cite abstract explanatory theories in advance of any project, or anticipate what will happen, a policy intervention that encourages learning at the end of a project is likely to be more effective. Things change over the life of a project. Those researchers who, for example, had partnership funding found their early conversations with users matched their prior expectations that they would get connections that would help them implement their findings. As time elapsed, however, surprises and negotiations over final reports could arise, particularly if connections between researchers and users were not maintained. The importance of learning from personal experiences in order to understand the context of how their findings will be used dominated the insights presented in both phases of this investigation.

One example of the type of activity that could support more self-reflexivity by researchers as a result of what has happened rather than what will happen are mid-term research progress reviews. The Science Foundation of Ireland, for example, brings together different experts to evaluate the progress made against the original Impact Statement as submitted in the funded proposal in order to ensure emerging findings are linked to the most effective knowledge transfer actions.

**Recommendation Two:** Drilling down to what the HRC needs to do to run a credible assessment process of any knowledge transfer section of a research application, the following features are recommended:

- a) Provide feedback on how an application did, or did not, meet the assessment standard for the knowledge transfer section. There would be some advantages in codifying the rules of thumb already being developed by those on assessing committees.
- b) Appoint reviewers of research grants who can demonstrate they understand the real-world contexts of applications. Furthermore, active efforts to take



the learning about knowledge transfer from each assessment round into the next round would support the work of these reviewers.

- c) Invest time to run processes with research assessors and researchers of what high-quality “pathway to impact statements” should cover. Running a collective process to build a shared view between research assessors and researchers on what are credible measures of quality is likely to be more effective than assuming renaming knowledge transfer pathways “pathways for impact statements” is going to result in any change. There was inconsistent support from those surveyed for such collective learning forums, so these will need to be of a quality that builds confidence and avoids too heavy an emphasis on presenting checklists built from abstract knowledge transfer theories, models and frameworks.
- d) Recognise that there is value in using language that takes into account the different views within the health research community of what is credible to expect a researcher to be able to influence. This includes being clear in instructions for researchers to not conflate dissemination with terms such as knowledge transfer or translational research. The latter describe an active process of engaging end-users in order to increase the use of research while the former are used to describe a more passive process of publishing and promoting research findings to a broader audience.



## 8 FINAL IMPLICATIONS

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*If the group are interested in influencing health care directly, they already care about knowledge transfer. If they are interested in more basic science, they will not. They will then answer the requirements of the grant accordingly.*

Survey respondent

In this final chapter, I reflect on the appropriateness of the realist evaluative approach. I also offer some commentary on what my findings add to the overall literature, and consider where else further investigation could be undertaken. This thesis contributes to an emerging field of interest on how researchers are experiencing efforts by health research funders to increase the use of research. As such, the study adds new knowledge to the fields of knowledge mobilisation and knowledge transfer. There is a vast literature on how knowledge transfer occurs, much commentary on why it should occur, but only sparse insights into how policies expected to prompt researchers to think more about knowledge transfer actually work.

Claims that the production of knowledge and the process of research are being transformed, are striking a chord of recognition but are only just beginning to be investigated. As noted in the introduction, ideas concerning Mode 1 and Mode 2 require more empirical investigation to understand how Mode 2 is interacting with the dynamics of disciplinary cultures and institutional arrangements (Nowotny et al., 2006). Despite rich conceptual development and a variety of knowledge transfer initiatives across health research funders and others, there has been little systematic effort to map, conceptualise and learn from these initiatives (Davies et al., 2015). While research utilisation scholarship has provided insights into the ways in which research may influence policy or practice, there is much less insight into the ways researchers might respond to policies designed to increase the likelihood of such

influence (de Jong et al., 2016; Hammarfelt & de Rijcke, 2015). This thesis is intended to contribute to debates about what health research funders should be doing if they want to introduce policies that work.

Rather than contributing another study expanding on the barriers and facilitators to using research results in complex systems, this investigation was deliberately designed to evaluate a specific policy designed to improve the use of research results. Those interviewed and surveyed were often well aware of the difficulties in engaging with end-users of research. These difficulties involve “trying to get incredibly busy people in one room” or, conversely, being buffeted by too much of the wrong type of attention when users “capture” the research. The latter experience highlights the difficult terrain researchers need to negotiate when they also expect to maintain a critical stance in order to challenge dominant agendas.

In this final chapter, I start by offering some reflections on my own experience of applying the realist evaluative approach, and how this compares to the experiences of others. My key research question drew me towards the realist approach. My interest in how the mind-set of researchers was influenced by changes in the research application process matched the realist emphasis on uncovering the reactions and reasoning of individuals in response to new resources. Over time, the key challenge was managing the different underlying outcomes buried within the policy being investigated. On the surface, the policy looked to be majorly concerned with increasing the timely realisation of the benefits of research. Underneath was an attempt by the HRC to act as a buffer between the interests of biomedical researchers in having basic research norms affirmed and the interests of public health researchers<sup>18</sup> in legitimising the time needed to undertake collaborative context-sensitive research.

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<sup>18</sup> This broader term is used to cover public health researchers, clinical researchers, health services researchers and Māori and Pacific researchers.

In the second part of this chapter, I present further insights on the way this evaluative approach lead me to consider who is expected to use the outputs of implementation science and how different health researcher identities are formed. I discuss the challenges these different identities impose on translating knowledge transfer intentions into desired changes, and the politics and processes involved in judging knowledge transfer pathways. Finally, I ask, given all the complex routes to behavioural change, is there value in requesting knowledge transfer pathways?

## 8.1 APPLYING THE REALIST APPROACH

### 8.1.1 Were the advantages of using the realist approach realised?

Looking back, the reasons why a realist approach was chosen for this investigation held firm though the practicalities of assembling CMO propositions had their challenging moments. Pawson and Tilley's (1997) foundational book on realist evaluation does not offer a strict set of requisite steps. The realist community is developing key principles through practice and debate (Jagosh et al., 2016).

Researchers are providing their own written reflections on the issues they confront (see, for example, Pawson & Manzano-Santaella, 2012; Rycroft-Malone et al., 2012; Salter & Kothari, 2014). During the period of this investigation, the Realist and Meta-review Evidence Synthesis: Evolving Standards (RAMESES) website<sup>19</sup> was an important source of insight into the issues being faced by other realist researchers, as was an Australasian realist book club, and presentations available from the first and second international conferences on realist approaches to evaluation and synthesis.<sup>20</sup>

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<sup>19</sup> [www.jiscmail.ac.uk/RAMESES](http://www.jiscmail.ac.uk/RAMESES)

<sup>20</sup> The 1st International Conference on Realist Approaches to Evaluation and Synthesis: Successes, Challenges, and the Road Ahead. October 27<sup>th</sup> – 30<sup>th</sup>, 2014. University of Liverpool. The 2<sup>nd</sup> International conference on Realist Evaluation and synthesis: Advancing Principles. October 2<sup>nd</sup>-6<sup>th</sup>, 2016. University of Liverpool.

Three features drove the adoption of the realist approach at the beginning of this investigation: (1) the attention paid to working with, rather than stripping away, the complexity surrounding knowledge transfer policy interventions that intervene into complex social systems, (2) the presence of a body of realist theory to support the theory building stage on what makes knowledge transfer interventions work, and (3) the emphasis on uncovering the motivation of different researchers to avoid the more common situation where researchers are grouped as a homogenous whole. I particularly wanted to overcome the tendency in the literature to regard researchers as a group with similar preferences; preferences that were then contrasted with the preferences of the users of research.

#### 8.1.2 A pragmatic way to deal with complexity

The review of HRC planning documents in order to understand the history of the HRC's knowledge transfer policy highlighted the lack of an authoritative version of the policy, yet that was not a barrier to evaluating whether the directions being communicated (albeit in an evolving form) were working as expected. At the heart of the realist approach is a view that it is not possible to easily create closed-system investigations because realists see physical and social reality as stratified and emergent (Dalkin et al., 2015).

When Pawson advises the realist evaluator to step back and consider “the contours of complexity” (Pawson, 2013b, p. 43) that embody and surround an intervention being evaluated, the result can be a daunting array of complexity. When Pawson's seven dimensions of complexity was used as a frame to understand more about the history and ongoing evolution of the HRC's policy (see the application of the VICTORE framework in Chapter Four), the stratified and emergent nature of the HRC's knowledge transfer policy was confirmed. The danger was that, without applying the realist guidance to pay attention to the key causal pathways, the general messiness of the various possible routes to change could have been all that was presented in the

final evaluation – a criticism that has been made of the early policy implementation research. In the policy implementation field, the early attention paid to uncovering implementation failures has led to the overall field being nicknamed “misery research” (Nilsen et al., 2013). The pragmatism of the realist advice, that once the contours of complexity are mapped then the evaluator proceeds by deciding which features to take on trust and which to focus the inquiry on (Pawson, 2013b), was a useful corrective to focus on finding explanations and not problems.

#### 8.1.3 Difficult to find transferable mechanisms

The second anticipated advantage, that the presence of a body of realist theory would support theory building in phase one, was partly realised. None of the available realist research that was available was directly analogous to the attention being given in this investigation to what was happening in the minds of researchers. However, more generally, the recent work of Jagosh et al. (2015), Evans et al. (2014) and Heaton et al. (2015) provided a lens into what realist contexts, mechanisms and outcomes could be relevant, and also provided warnings of what to avoid.

Evans and colleagues’ realist evaluation of public involvement in research projects, distinguished between clinical research and health services research as key contexts (Evans et al., 2014). As the investigation proceeded, they found the importance of the researchers’ prior beliefs and understanding held more significant sway in the propensity to include the public in research proposals. The mechanism offered by Evans and colleagues as an explanation for what was happening was described as “the identification of a senior lead for involvement, resource allocation for involvement and facilitation of research partners” (Evans et al., 2014, p. 99). Strictly speaking, this mechanism was not realist in the sense that it provides an insight into *cognitive* responses of participants to the resources offered; instead, the authors provided a theory of action more akin to the policy definition of a mechanism. The lesson here is that, even though realist research is available, it is not always applying realist principles consistently.

A realist evaluation of newly created research and health sector partnerships did something similar to Evans and colleagues when it presented five simple rules as the mechanisms by which research and health sector partnerships achieved their outcomes (Heaton et al., 2015). The simple rules they listed with associated mechanisms – for example, rule two “establishing small strategic teams led by strong facilitative leaders” with mechanisms involving facilitative leadership (M5) and a small strategic core (M6) – also looked more like the policy definition of a mechanism rather than a realist mechanism (Heaton et al., 2015, p. 8).

Jagosh and colleagues’ realist investigation of community-based participatory research did highlight mechanisms that were clearly cognitive responses of participants to the resources offered, when they teased out “trust” as the mechanism operating in a “ripple effect” (Jagosh et al., 2015, p. 3). However, as outlined earlier, Jagosh and colleagues’ sample consisted of partnerships between community groups and academics that already exhibited higher levels of co-decision-making and governance. While it would be reasonable that conditions that supported trust building and maintenance are relevant contexts in this investigation, the importance of conversations (and negotiations) within these partnerships was an important first step in situations where there was not already a platform of co-governance.

#### 8.1.4 Illuminating differences between researchers

The third advantage was clearly realised. The findings avoided the simplifying assumption that researchers are a homogenous group and uncovered a diversity of researchers’ motivations. The empirical findings presented six interweaving tracks of how knowledge transfer policies work which could have only emerged from applying a realist evaluative approach. In realist evaluation the reasoning of the intended beneficiaries of a policy is socially and culturally conditioned (Westhorp, 2014). Underneath the overarching label of “health researcher”, is a diverse mix of constituencies with different norms and beliefs which shape this reasoning. I discuss



more fully the importance of different researcher identities, and how they are changing, further on in this chapter (section 8.2.1).

#### 8.1.5 Key challenges

Those undertaking realist syntheses have reported keeping logs of processes and decisions (Rycroft-Malone et al., 2012). A log was kept in this investigation. The on-line community of practice is frequently exploring whether Context-Mechanism-Outcome (CMOs) propositions are the signature of realist methods and, if so, why they are so frequently misunderstood, and whether there is an issue with people claiming the use of realist approaches who are not. From postings on the RAMESES list serve, I observed that pragmatists within the community are less concerned about the definitive presentation of CMOs, wanting instead to focus on producing a plausible explanation of what was observed. Those of a more purist inclination argue that refining well-built CMOs is at the core of realist inquiry and these should be built on the basis of both empirical research and theories.

Those seeking to apply the approach for the first time often report being overwhelmed by the amount of work needed to build theory, with a common trap being to catalogue CMO propositions without presenting the links between them (Salter & Kothari, 2014). A very first draft of CMOs for this investigation fell into the trap of describing rather than explaining the policy being investigated, but was quickly improved by following Westhorp's advice that each CMO must be able to be read as a sentence along the lines of "in this context, this mechanism generates this outcome" (Westhorp, 2014). The final set of CMOs at the end of the first phase of fieldwork was shaped as a testable hypothesis, though the links between the first conjectured CMO propositions were admittedly still very loose.

What was important overall throughout this investigation was to realise that CMO are tools to help produce perceptive context-sensitive claims about the nature of the policy being investigated. They are not the ultimate objective of the realist approach.

Two features were helpful in avoiding the CMO swamp. The first involved theorising three candidate mechanisms in advance of major fieldwork. The second applied Dalkin and colleagues' recommendation to view realist mechanisms as a continuum of activation rather than firing in an on/off fashion (Dalkin et al., 2015). Pawson and Tilley's explanation of how mechanisms operate use the image of a spark on gunpowder to illustrate how the chemical composition of gun powder (mechanism) results in an explosion (outcome), with the proviso that if the context is not right as a result of, say, damp conditions, then the mechanism will not fire (Pawson & Tilley, 1997).

Dalkin and colleagues found it difficult to apply the firing analogy to interventions where human decisions are entwined in the intervention when they were trying to explain differing levels of anxiety for health professionals working with palliative care patients. They found in these cases that reasoning was rarely activated via an on/off switch, but instead "activation operates along a continuum similar to the light of a dimmer switch where intensity varies in line with an ever-evolving context" (Dalkin et al., 2015, p. 5). Their alert that realist researchers are better able to develop their realist thinking when this on/off reasoning is dispelled was a useful prompt in this investigation. I extended the idea to explain differing levels of affirmation and sensitisations in the reasoning of researchers in response to the HRC's knowledge transfer policy. Moreover, I experimented with the image of a dimmer switch to display interactions between the mechanism and different contexts for each of the six final mechanisms.

The most significant challenge was substantiating whether the outcomes of the policy were achieved or not. The collection of quantitative data is generally recommended in order to track outcomes (Salter & Kothari, 2014), but there is little that is quantifiable when tracking whether the outcomes from knowledge transfer policies are achieved. By gathering a sample of written knowledge transfer pathways of successful research proposals, and asking researchers about the subsequent size and type of knowledge

transfer effort they made, a qualitative assessment was made of whether an increase in knowledge transfer activity occurred or not (see Chapter Five). Extrapolating from this sample to a broader population is always a methodological challenge. The representativeness of the findings were tested further in the survey of research assessors (see Chapter Six). Nevertheless, this extension can still only offer a partial account of whether the behaviour of researchers is changing. A key principle of the realist approach (principle six outlined earlier) is that full explanatory completeness is never achieved as the researcher is on an ongoing quest for knowledge. The best that can be hoped for is that the final middle-range theory brings evidence into a relationship with theory, but further investigations will again test, refine, and judge this theory once more (Pawson & Tilley, 2004). An outline of where these further investigations could look is presented in the concluding section of this chapter.

#### 8.1.6 Limitations of the study

The previous section outlined the challenges of applying the realist evaluative approach to an issue that could be best described as a policy phenomenon rather than a specific intervention or programme. Both are an attempt to create change but the latter often has more explicit goals directed towards a specific end point. Pawson and Tilley's introduction of realist evaluation started with very specific localised programmes such as prisoner education (Pawson & Tilley, 1997), though the ideas have been extended to evaluating policy changes which are themselves systems within highly complex systems ((see, for example Rycroft-Malone et al., 2016). This thesis sits within this extension of the realist approach. Potentially a more experienced realist researcher may have been prepared for, and identified earlier, the multiple outcomes nested within the HRC's knowledge transfer directions.

The limitations of this investigation emerge from the sensitivity of the interviews in the second phase to the diversity of knowledge transfer experiences. The 15 researchers interviewed in phase two were likely to be already well-disposed to the

concept of knowledge transfer. I was guided to focus on successful applicants to three funds during an early exploratory discussion with the HRC. They explained that these funds were beacons of where the HRC expected to see researchers behave differently, because these funds had more detailed guidance of what was expected when drafting a knowledge transfer pathway. By focusing on successful applicants to these funds who had recently finished their project, I gave a priority to investigating those researchers most likely to have good recall of what they wrote, which could then be matched up with what actually happened.

In approaching successful applicants of these three funds, not all researchers emailed were interested in sending me their written knowledge transfer sections, or were prepared to be interviewed. From 41 delivered emails I was able to assemble a database of 26 written pathways (a response rate of 63 percent). Of the 41 approached at the beginning, 15 agreed to be interviewed (a response rate of 36 percent). Those that agreed to be interviewed may have had a more positive history of undertaking proactive work with users than those that who only sent their written knowledge transfer pathway.

The HRC was concerned from the beginning that researchers might not be truthful, particularly if they thought I was undertaking an audit of their project with the aim of revealing various inconsistencies back to the HRC. This may have influenced the thinking of those researcher that chose not to be interviewed (despite assurances in the information sheet about the independence of the research), but I believe that those I interviewed spoke honestly about their experiences. I was able to capture both positive and negative experiences from interviewees interested in understanding more about the conditions that supported the use of research results.

PhD's are generally a solo endeavour so I did not have the advantages of others with whom to debate the credibility of emerging CMOs. Exposing the working CMO

propositions for comment in the survey of research assessors went some way to remedying this by creating a process whereby others were engaged in testing and refining working propositions. That said, I did rely on those responding being prepared to add explanatory comments for their views, which was generally the case. The survey of research assessors was deliberately designed to test emerging explanations for how knowledge transfer policies work and sought disconfirming comments as well as confirming examples. The survey response rate (56.5 percent) was better than trends seen in on-line surveys of scientists and engineers (Sauermann & Roach, 2013)<sup>21</sup> and was evenly spread between biomedical research assessors (42 percent) and public health assessors (42 percent).

## 8.2 THE CONTRIBUTION

### 8.2.1 Who is expected to “use” implementation science?

In this investigation, a sub question explored how researchers engage with the formal advice on what to do to move research into action. A relatively patchy use of the evidence base was uncovered. One survey respondent summed up the dilemma for researchers given “knowledge transfer/implementation science is a specialist area in itself”, explaining that “I’m not sure that all researchers should commit themselves to developing capacity in this area”.

Others have pointed out the irony that a field of study like implementation research which is so concerned with supporting others to use research based evidence, does not always put the same thought into how their own knowledge is used (Soper & Hanney, 2007). One review aiming to guide researchers to select an appropriate model for their own dissemination and implementation study found 61 potential research

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<sup>21</sup> Sauermann and Roach report that given the relative ease in obtaining email contact information for large samples of scientists and engineers there is a growing trend for on-line surveys which can often exhibit response rates of around 10-25 percent

utilisation models. They concluded that what they termed the “dissemination and implementation community” needed to look for ways to break away from just talking to itself, and spread findings to researchers who are less versed in such research (Tabak et al., 2012).

Different terms for knowledge transfer are used interchangeably (McKibbin et al., 2010). The quote at the beginning of this section with its reference by one survey respondent to “knowledge transfer/implementation science”, deftly highlights the issue. The sheer diversity of terms creates problems for other scholars seeking to search for, and synthesise findings from, relevant knowledge transfer research (Colquhoun et al., 2014). Arguably, it is likely to be even harder for researchers outside the field who are looking to apply the findings.

The split in this study between those interviewees who saw knowledge transfer as a process akin to a marketing strategy or change management, compared to those who saw the concept as one that required deliberate thought, highlights the contested nature of the implementation research field overall. The burgeoning of available theories and frameworks suggests a knowledge base seeking the status of a new discipline with an internal focus on developing its own paradigm and quality standards. The desire of the implementation science community to be recognised as an area of funding and prestige within healthcare systems has been well documented (see for example Eccles et al., 2009). While the field initially arose from the practical concern that there was a gap between what is shown in research to be effective in healthcare and what is actually practiced in healthcare (Nilsen et al., 2013), the current stage of development appears to match what Kogan, Henkel, and Hanney (2006) describe as the phase of paradigm articulation. In this phase, the specific research work undertaken focuses on the development of key theoretical models dictated by “internal needs incompatible with external problems” (Kogan et al., 2006, p. 30). In other words, following this theorised account of how disciplines form and evolve, it is not surprising that the field appears to be talking to itself as it seeks to establish

generalisable and accepted knowledge on which type of research findings and clinical guidelines are likely to lead to adoption.

Moving through to the post-paradigmatic stage involves testing the basic explanatory models and co-ordinating their elaborations with more pragmatic problem solving. A recent paper synthesised insights and themes from a number of knowledge to action case studies which were then workshopped with policy makers, researchers and practitioners to provide a short term action plan (Holmes et al., 2016). Such work suggests moves towards more pragmatic problem solving in its focus on tangible advice to others outside the implementation science research community. In line with the dilemma posed at the start of this study, this paper calls for research funders to be more realistic about their expectations of what asking for knowledge transfer pathways actually achieves:

... grant applications require researchers to promise more by way of impact than it is reasonable or possible to deliver, and conditions of award hold researchers responsible for getting media attention for specific studies (as opposed to bodies of knowledge) whose results are far from having any impact on the public's health, and which paint a misleading, often simplistic picture of the complexities of research and its application (Holmes et al., 2016, p. 17).

The authors conclude, in a vein with some similarities to the specific recommendation of this study, that a more fruitful path for research funders is to offer what they term “co-production awards” and support awardees in these endeavours” (Holmes et al., 2016, p. 12); though what “support” looks like other than research funds is not specified.

### 8.2.2 The importance of different researcher identities

The realist evaluative approach stresses that change occurs through the reasoning and reaction of people, and not through the mere existence of a particular policy intervention (Pawson & Tilley, 1997). The specific contribution made by this investigation is to not only confirm that researchers are likely to selectively interpret new knowledge transfer policies by using an additional set of professional rules that influence whether they chose to comply or not, but to highlight the multiplicity of ways in which these professional rules can come into play under the broad banner of “health research”.

Chapter Two touched on scholarship suggesting what might shape these professional rules. Clinical scientists, for example, tend to be positive about knowledge transfer as it aligns with their prior training, work environments and careers (Estabrooks, et al., 2008); an insight borne out by this investigation. What was also borne out was the suggestion that, for basic biomedical researchers, knowledge transfer is “high risk” as it is not sufficiently valued by their peers “to form authentic knowledge that would bestow symbolic capital in their field” (Morgan, et al., 2011, p. 949 ). An extreme example of this devaluing by basic biomedical researchers is seen in the comment by one survey respondent that “many researchers think that knowledge transfer models are hot air”. A study of the experiences of a research translator hired to promote the culture and practice of translational research in a university/hospital site in the United Kingdom revealed the importance of previous exposures to the ways that research is taken up and used (Morgan et al., 2011). In this study, some basic researchers diverged from their peers in their preparedness to be more receptive to social science economic understandings. The authors explained this finding as a result of the exposure of these researchers to market-oriented thinking.

What is striking at the end of this investigation is how much different researcher *identities* shape how requirements on researchers to provide an account of what will happen to their research are received and acted upon. From the beginning, the



likelihood that those undertaking different types of health research, such as health services, public health, clinical and biomedical research, would respond differently to requests for knowledge transfer pathways was anticipated, particularly as the combination of biomedical science and social science traditions within health research place different meanings on what are credible actions to close the research-practice gap.

However, by the end, a richer pattern of insights into the self-images of researchers emerged. Interviews with private-sector researchers revealed how they co-constructed research projects with those that would be affected by the research (that is Māori and Pacific communities), driven by a belief that “if we weren’t driving this project through to make change, then it wasn’t worth doing”. Researcher practitioners stressed a desire to move away from a research model which privileges the production of research towards giving a priority to the ways in which research-based knowledge is used. Those interviewed working on disability issues placed a strong emphasis on improving the relationship between researchers and those being researched.

Case studies on organisational changes in universities have revealed how difficult it is to transform disciplinary identities and academic practice (Henkel & Vabø, 2006). Academics may face altered circumstances with considerable resilience. Much of the knowledge transfer literature assumes the old ways of doing research are shifting under the impress of new forms of knowledge (particularly problem orientated mode 2 knowledge) and new government university relations (see for example Warren & Garthwaite, 2015). In fact, different health researcher identities and modes of work filter the impact of these new knowledge transfer directions.

Writing in the LSE’s impact of social science blog Smith and colleagues optimistically point to new self-images for researchers in opportunities to: co-produce with users, write for (or set up) think tanks, and position themselves to attract industry funding or engage with non-academic social networks (S. Smith et al., 2011). Waterton (2005) describes how environmental researchers are now simultaneously working on several different kinds of contractual research. The consequence being that with each of the

contracts (with industry, with policy agencies, and with research funders), a different kind of relationship with the funding body is needed. In turn, this means the researcher conceives of the research they produce and communicate in subtly different ways.

These movements are not all positive. The relationship between relevance (applied problem-solving research) and enlightenment (unbounded academic curiosity) has never been simple. On the one hand, arguments are made that the research society most needs is not automatically generated by the current governance structures of science (Nightingale & Scott, 2007). However, if researchers are going to focus on society problems at hand and provide decision-makers with guidance about practical solutions, then academic values of openness to criticism and engagement with implicit and explicit assumptions are still needed. Smith's (2014) case study on health inequality researchers expresses concerns that these values are compromised when researchers are encouraged to engage with end-users. She points out the risks that researchers become locked into particular ideas which "adapt rather than challenge overarching institutional ideas" (K. Smith, 2014, p. 573).

When Anderson and colleagues investigated the norms held by biomedical, clinical, biological and behavioural researchers in American universities, they confirmed the importance of Merton's norms of communality (new findings are openly shared), universalism (research is evaluated only on its merits), disinterestedness (scientists are motivated by the desire for knowledge and not personal gain) and organised skepticism (Anderson, Ronning, DeVries, & Martinson, 2010). Norms that clearly bring researchers together rather than divide them. The authors concluded with further emergent norms related to governance (the importance of scientists being responsible for the direction and control of science) and quality (scientists judge each other's contributions to science primarily on the basis of quality). The researchers they surveyed believed the overall responsibility for decision-making and for the control of scientists rests squarely with scientists themselves as opposed to administrators, and pointed to "the incongruity of administrative control of science by

those without scientific credentials or the trust of their peers” (Anderson et al., 2010, p. 10).

The reinforcement of the governance norm is another reminder of the considerable scope the experienced researchers who sit on assessing committees have to modify or ignore knowledge transfer policies, by re-asserting core disciplinary values, and managing the pace of any change. Other scholars have found similar beliefs when studying the actions of researchers (Morris, 2003; Morris & Rip, 2006). The resulting conviction among researchers that it is not the research funder that funds them, but their peers on assessing committees, therefore creates an opening for researchers to ignore those requirements from research funders that they believe get in the way of doing their research work in ways that align with their prior disciplinary norms.

Kogan et al. (2006) account of the differing assessments of research quality of the United Kingdom Department of Health and Social Services’ (DHSS) own domain-oriented research units reveals the complexity of the task for assessing committees when they are judging areas of research at different stages of disciplinary development. At that time in fields such as health services research, general medical practices, social work and nursing, there was no established or dominant paradigms, no agreement on the most relevant disciplines and no clear academic networks. As a consequence, hybrid units emerged with their own evaluation standards (often derived in part from policy questions), career paths (often including practitioners as well as researchers) and with their own understanding of the theory-dissemination-practice relationship. When these units were then assessed against “traditional” scientific standards, conflicts of power interwove with those of epistemology. The key thrust from Kogan and colleagues case study was to demonstrate that when researchers move away from firm disciplinary bases, and into domains of health policy interest where the starting point is a social problem (e.g. how best to care for the elderly), then networks, connections and logics are needed which are not easily defined in terms of academic disciplines.

Two themes emerge for further investigation: (1) how can knowledge transfer policies evolve to support researchers and research assessors to learn about knowledge transfer as a form of tacit knowledge? and (2) how are the dynamics of research assessment Committees changing to take into account a different view of knowledge production; one concerned as much with the domains of health interest as disciplinary standards?

### 8.2.3 Is there value in requesting knowledge transfer pathways from researchers?

The conclusions in the previous chapter highlight that there is some value in requesting knowledge transfer pathways when researchers are new to research, in contexts when the request authorises time and attention to activities other than undertaking research, and when researchers take responsibility to increase their tacit knowledge about what works to engage with users. Much depends, though, on working with those researchers already enthusiastic about applied research.

There are some parallels with the finding from a recent study looking to distil the factors that make researchers more likely to be open to including end-user's knowledge in their research processes (Olmos-Peñuela, Benneworth, & Castro-Martínez, 2016). This study found that personal characteristics do not affect the researchers' propensity to incorporate user knowledge, nor did different types of research fields (for example, those researchers in science fields compared to social science fields). Those researchers more likely to be receptive to what the authors described as "open research behaviours" were those who experienced professional signals validating such behaviours. These signals came not just from end-users, but from external agents who demanded results which confirmed the power of scientific governance systems in shaping what happens.

Arguments have also been made that the work research funders do to appraise the quality of knowledge transfer before the research starts is preferable to the retrospective appraisals being conducted by processes to distribute university research funds (for example, New Zealand's Research Performance Research Fund). Upton and colleagues claim that the knowledge transfer process adopted by research funders creates a self-reinforcing process for those researchers already enthusiastic about applied research (Upton et al., 2014). What is left unexamined is whether these processes actively change behaviours to the extent that more researchers are taking responsibility to think about their role not just as providers of research, but as translators of research.

This investigation has revealed that there was much about the request for knowledge transfer pathways from the HRC that was a symbolic attempt to legitimise the actions of those already working that way, and, concurrently, to avoid antagonising those groups of researchers who had no intention of working differently. Looking back, there were early signs from the key informant interviews that this was not a policy driven as strongly by a desire to close the gap between research findings and their use as the literature suggests. This investigation has, in fact, confirmed the complex co-existence of different policies within one health research funder.

While there may be value in requesting knowledge transfer pathways to support and affirm those researchers who want to operate in this way, what is less valuable is linking requests for knowledge transfer pathways to opportunities to profile the value of government investment in health research. Following the line of logic that requiring knowledge transfer pathways (or the more recent terminology "pathway to impact statements") supports making the case for increased funding, a key question is why does the construction of the case need to involve every researcher developing a narrative for every application, whether they are successful or not in receiving funding?

Rather than collecting a detailed narrative from everyone who is seeking funding, new technology could be harnessed to provide real-time information on how research results are being applied. Globally, other research funders are looking to the use of altmetrics derived from on-line activity such as mentions, downloads, tweets, blogposts as a way of supplementing citation counts and journal impact factors and moving beyond illustrating impact with success stories (Khazragui & Hudson, 2015). The United States STAR Metrics programme, under the banner of not “asking researchers to lift a pen”, tracks impact by using existing data to link research grants to the researchers that receive them, the intellectual products they produce and the resulting social and economic outcomes (Lane, 2011). Collectively, these moves are in their infancy and need to be developed in ways that do not fall into the trap of privileging traditional research outlets and missing research picked up by informal processes.

#### 8.2.4 Topics for further investigation

Recognising that the realist school of philosophy involves an ongoing quest to understand the explanatory forces causing change (see principle six), the following areas would warrant further cycles of theory building and testing:

1. **What are the responsibilities of researchers to ensuring their findings are taken up and how does this shape discussion in assessing committees?**

Studies are becoming available of the social interaction, group dynamics and evolution of committees that make decisions on research funding (see, for example, van Arensbergen et al., 2014), though few are looking directly at the politics and processes involved in judging knowledge transfer pathways. It is generally well established that peer review is not a process in which reviewers apply a set of objective criteria to assessment, but it is widely influenced by

group interactions, involving a set of customary rules that are never formally taught but are learnt through professional socialisation (as demonstrated by M. Lamont & Huutoniemi, 2011; Samuel & Derrick, 2015). Questions remain on how to bring committee members together from differing backgrounds to reach consensus about how to judge knowledge transfer pathways. There was some support from those surveyed in this investigation for offering training in assessing knowledge transfer (51 percent very important or fairly important), but there was also a third who were equivocal about how useful this would be (33 per cent neither important nor unimportant).

**2. What experiences are most influential in forming researchers' and researcher assessors' beliefs and perceptions around knowledge transfer?**

Further testing is needed of the proposition put forward that the practice of knowledge transfer is a form of situation-specific wisdom. The idea that the skills that researchers need to undertake knowledge transfer activities are tacit clearly emerges from the insights gathered from those interviewed and surveyed for this investigation. As one interviewee explained, she learnt after years of experience to move end-users away from relative indifference to research results towards stronger engagement. Further research could explore in what contexts situation-specific wisdom is formed, and what policies are available to strengthen the creation of such wisdom.

Another possible route into examining researchers' beliefs and perceptions and around knowledge transfer emerges from scholarship on the transformation of academic life. A transformation that began at the end of last century. Scholars are probing the way academic labour is being shaped by these changes; including how individual academics are understanding their own capacity for reflexive labour (see, for example, Cannizzo, 2016; Müller, 2014; Waterton,

2005). In an ethnographic study of biomedical researchers, Rushforth and de Rijcke (2015), indicate that the common criticism that top-down performance metrics seek only to control academics misses the nuances of how such metrics acquire meaning through their uses in academic discourse. Such research could provide a platform to investigate the meaning given to “knowledge transfer” in different discourses among researchers.

**3. How is the practice of research changing (or not) to absorb ideas around knowledge transfer as an intrinsic part of a system rather than a separate practice?**

If models of co-production are to be embraced by research funders, does it change their organisational focus from producing knowledge – with the bulk of energy and operational resources going toward deciding what research to fund – towards mobilising research knowledge? What are the options for knowledge transfer policies that support self-reflexivity by different groups of researchers as opposed to options that create more hoops within the research application process? The body of work advocating for the benefits of multidisciplinary research has started to consider the way debates over different epistemologies between researchers are negotiated. These may offer a lens into how debates over different views of the research-practice gap could be negotiated.

Scholarship on multidisciplinary research is based on the widespread belief that integrative multidisciplinary approaches to problems afford greater explanatory power and societal value than unidisciplinary studies (Stokols et al. 2005). The field is a significant topic in its own right stemming from Kuhn’s (1962) seminal work highlighting how getting stuck in established paradigms can inhibit innovation. In the health sector, topic based research centres involve a number of researchers from many disciplines working within their own disciplinary objective to address a joint goal (for example, disease-specific issues such as cancer or public health issues such as injury prevention). As



more multidisciplinary teams and centres are being encouraged<sup>22</sup>, there is a growing line of business in supporting teams to find a balance between diversity and debate among different disciplinary based investigators, and intellectual integration and social support (Stokols et al., 2005). Tool-kits are becoming a popular way of determining whether team members have important epistemological differences and how to deal with them (Bammer, 2012). These tool-kits are based on the theory that the current training of senior researchers is not providing them with the skill-sets needed to help them establish strong collaborative relationships. For example, the Toolbox Project provides multidisciplinary researchers with “a piece of philosophical technology” that encourages researchers to think through their fundamental research assumptions and then workshop these to find a way to integrate perspectives<sup>23</sup>. The guidance being developed to help researchers become more literate about knowledge transfer (see, for example, Bayley, 2016; Morton, 2015) may be improved by recognising such fundamental philosophical assumptions.

#### 8.2.5 Concluding statement

Few could argue with the need to find ways to increase the delivery of health research results to ensure effective, high-quality and acceptable health care. However, in seeking to address the challenge of improving the timely use of health research, we need to move beyond describing the complexity of what happens to ensuring policies put in place to achieve change work in the ways expected. This thesis has investigated a relatively simple and common policy put in place by research funders in order to close the gap between research and practice. Yet, in order to work, a diversity of

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<sup>22</sup>For example, the US National Academies of Science produced a report in 2005 on the importance of facilitating interdisciplinary research, calling for new organisational modes and a modified reward structure to facilitate such interactions (Committee on Facilitating Interdisciplinary Research, 2004).

<sup>23</sup> [www.cals.uidaho.edu/toolbox/index.asp](http://www.cals.uidaho.edu/toolbox/index.asp) Philosophical Approach to Improving Cross-Disciplinary Communication. See also <https://www.teamsciencetool-kit.cancer.gov/public/home.aspx?js=1>

mental models of how change occurs as a result of research findings need to be incorporated. If instructions are confusing for researchers then it is likely to have consequences for the practical implementation of the policy.

This investigation has highlighted the different disciplinary understandings and interpretations health researchers bring to a policy asking them to think differently about their practice as researchers. On the surface, an individual choice is involved on whether a researcher decides to think and engage more in the translation of research findings, rather than just their production. In practice, my findings indicate that propensity for the researcher to change their research practice derives much from their group identity and prior experiences as a researcher.

Based on the assumption that the HRC wants to improve their knowledge transfer policy, further attention needs to be paid to supporting self-reflexivity by the different groups of researchers and strengthening the processes by which knowledge transfer sections are judged. The investigation confirmed that researchers are likely to selectively cope with new knowledge transfer policies by using an additional set of professional rules (rules linked variously to biomedical and social science understandings). The realist evaluative emphasis on uncovering the reasoning and reactions of individuals was a useful way to uncover the contexts that shaped these professional rules and the pattern of outcomes that occurred.

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## APPENDIX ONE: COPY OF INFORMATION SHEET

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### Improving Knowledge Transfer

#### INFORMATION SHEET

I am inviting you to participate in a study of the effectiveness of policies designed to speed up the use of health research findings. This study is being done for my doctoral research at the Health Service Research Centre (Victoria University of Wellington). I am focusing on the behaviours triggered by “knowledge transfer policies”, with the overall aim of producing a theory of how knowledge transfer policy works, for whom, and in what circumstances.

I have identified you as a possible participant as you are named as the principal investigator on a research project which started with high expectations of “knowledge transfer”. The core of my fieldwork covers Health Research Council funded research from the District Health Board Research Fund, New Zealand Health Delivery Research portfolio projects finishing on or before 2014, and a subset of Health Research Council Partnership Fund projects.

#### Request to participate

I would greatly appreciate you:

- a) Emailing me **a copy of the section in your original research application** that explained how you expected your research results to be used. The particular application I am referring to is listed in the accompanying email. The section I am interested in is variously titled; Research Impact, Dissemination of Results, or Knowledge Translation Plan. If it is easier to send me the whole application, rather than pull out the particular section, then please do so. I want to use this information to investigate the theories of change being used by health researchers in these sections.
- b) Confirming by reply email **if you are willing to be interviewed** in early 2014 on your experiences of knowledge transfer with this particular research, and more generally. I am interested in how expectations of “knowledge transfer” at the beginning of research projects compares with what happens at the end. So if your research is at a point where you expect others to pick up and use your findings, I am interested in interviewing you. This will be over the phone and will take up to 45 minutes.

#### What is the purpose of the study?

This study is being done for my PhD. It builds from my long-standing interest, particularly as a research policy practitioner, on how best to increase the use of research findings.

I am studying how policies designed to speed up the use of health research findings work in practice. These “knowledge transfer policies” expect more action from researchers than a journal article or conference paper at the end of the research. My fieldwork follows up on projects which have successfully responded to new research proposal requirements for detailed accounts of how the final results will be disseminated to users.

The definition of knowledge transfer I am using is “the exchange, synthesis, and ethically sound application of knowledge – with within a complex system of interactions among researchers and users – to accelerate the capture of the benefits of research through improved health, more effective services and products, and a strengthened healthcare system”<sup>24</sup>.

The objective of the study is to produce a theory of how knowledge transfer policy works, for whom, and in what circumstances, by investigating the ways in which knowledge transfer policy is understood by researchers and reviewers, and located in the broader networks of knowledge sharing in the New Zealand health sector.

### **What is the relationship with the Health Research Council?**

There is no direct relationship. The Health Research Council is aware of my study, and interested in the final results, but has not directly commissioned this work. Whether or not you decide to take part will have no effect on your past or future funding relationship with the Health Research Council. If you decide to take part, you have the right to not answer any particular question.

The aim is to *not* to directly evaluate whether a particular Health Research Council research portfolio has had an impact on health sector decisions, but develop theory about how researchers think about knowledge transfer.

### **Will I be identified in the final report?**

No. All those who participate will be assigned codes and unique identifiers to preserve anonymity, and individual research projects will be described in as broad as terms as possible to ensure research teams are not able to be identified.

The aim is to uncover what can be done to maximise the chances of success, or minimise the chances of failure of knowledge transfer policy. I am not trying to “catch researchers out” if their research has not transferred as expected.

### **How will the information be handled?**

All data will be kept in a locked physical file or password protected electronic file until the conclusion of the doctoral project. The information will then be securely stored for another five years, in accordance with standard academic research practices to ensure the integrity of subsequently published research results.

A summary of the findings will be emailed to those who participate.

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<sup>24</sup> adapted from Canadian Institute of Health Research 2004.

## Contacts

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Professor Jackie Cumming, Health Services Research Centre: [jackie.cumming@vuw.ac.nz](mailto:jackie.cumming@vuw.ac.nz) or 04 463 6567

Dr Amanda Wolf, School of Government: [amanda.wolf@vuw.ac.nz](mailto:amanda.wolf@vuw.ac.nz) or 04 463 5712

**Committee Approval Statement** This evaluation has been reviewed and approved by the Victoria University of Wellington Pipitea Campus Ethics Committee.



## APPENDIX TWO: INTERVIEW SCHEDULE FOR KEY INFORMANTS

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Aims: (a) to identify the range of theories and explanations as to how knowledge transfer policies are supposed to work to influence the reasoning of researchers and (b) to produce an updated concept map of the type of policies currently being used in the health sector and other sectors in New Zealand.

### **Knowledge Transfer (general)**

1. I am defining **knowledge transfer** as the process by which research findings are taken up and used in policy or practice. Would you add anything to this definition?

*Probe if any of their recent policy documents define knowledge transfer and to what type of research they think this definition most often applies*

2. Using the attached concept map which distinguishes between micro, meso and macro policies, what other examples would you add about knowledge transfer policies in New Zealand?

3. How do you think researchers are expected to act differently as a result of these particular policies?

*Probe for the ways researchers are expected to respond as a result of the incentives offered and why these policies are needed in the first place.*

4. How do you think researchers decide what action to take in response to calls to do more knowledge transfer?

*Probe for how you think researchers learn about knowledge transfer?*

### **Knowledge Transfer (specific to the health sector)**

5. Is there anything you have observed that is distinctive about the way research ideas get taken up in the health sector?
6. How does this distinctiveness shape the type of knowledge transfer policies that are being put in place?
7. What do you see as the key learnings that have emerged from practical experience of these policies?

## CONCEPT MAP OF KNOWLEDGE TRANSFER POLICIES

<b>Micro level: new directions</b>	<b>Meso level: new funds</b>	<b>Macro level: new institutions</b>
Knowledge transfer policies which intervene at the micro level, by influencing what individual researchers do in their regular grant applications.	Knowledge transfer policies which intervene at the meso level providing funds to cover the extra “development” costs after research is completed. These are expected to create stronger incentives for researchers to undertake knowledge transfer.	Knowledge transfer policies which intervene at the macro level by creating new institutions and/or networks with a mandate to bring researchers and users together. Researchers in these institutions are given a variety of opportunities (eg advice, funds, networks) to engage outside their research interests.
<b>New Zealand examples in the health sector:</b>  Health Research Council introduced research impact scoring across all investment streams.	<b>New Zealand examples in the health sector:</b>  Health Research Council Māori Health Research Knowledge Translation Grants provides small amounts of funding (\$5,000) to disseminate research to key stakeholders.	<b>New Zealand examples in the health sector:</b>  New Zealand Health Innovation Hub was created as an independent Crown entity to provide industry with access to clinical advice and health sector innovators and researchers with advice on product and service realisation pathways.
<b>New Zealand examples in other sectors:</b>  <b>Sandpits</b> in partnership with the European Funding covering freshwater research and diabetes and obesity. These “sandpits” involve intensive, interactive, five-day residential workshops where researchers and users come together to develop novel and potentially transformative approaches to an issue in advance of a funding round.	<b>New Zealand examples in other sectors:</b>  Technology Transfer funds such as the Pre Seed Accelerator Fund which provides development funding to move publicly funded research projects to the stage where they stimulate and attract investor interest.	<b>New Zealand examples in other sectors:</b>  Callaghan Innovation was created as a crown entity which both provides research and supports and co-ordinates national technology networks. The aim is to increase the speed with which New Zealand firms commercialise their ideas and inventions by assisting them to develop research skills and grow their expertise in taking products to market.

## APPENDIX TWO: INTERVIEW SCHEDULE FOR PRINCIPAL RESEARCHERS

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Aims: to understand what was triggered by drafting a knowledge transfer section in an HRC research proposal and the resulting experience when the project finished.

### **Knowledge Transfer with respect to specific project**

1. Tell me what stage your research project is at now?
2. Tell me about the moment you were facing the section “Dissemination Plan and Engagement of End-Users to Support Knowledge Transfer and Uptake” on a blank computer screen – what did you draw on to decide what to write?
3. Can you recall what formed those original expectations?
4. Did your research followed the path you expected when you drafted your knowledge transfer section?

### **Knowledge Transfer generally**

5. Do you think there is value in having “knowledge transfer” expectations in research proposals?
6. How do you think research assessors judge the knowledge transfer section?
7. What has worked for you in the past in having your research findings picked up and used?
8. What influences are you aware of that support or detract from knowledge transfer expectations?
9. Given what you have experienced with this project, and more generally in your research career, what would you want to pass on to a new researcher that they might find beneficial when drafting the knowledge transfer section of their research proposal.

**Researcher details:**

<p>1. Where would you describe yourself in your research career?</p>	<p>a. <input type="checkbox"/> Early researcher  b. <input type="checkbox"/> Mid-career  c. <input type="checkbox"/> Senior experienced researcher  d. <input type="checkbox"/> Other (please state _____)</p>
<p>2. What organisation are you employed by?</p>	<p>a. <input type="checkbox"/> University  b. <input type="checkbox"/> District Health Board  c. <input type="checkbox"/> Public research agency (eg CRI)  d. <input type="checkbox"/> Private research agency  e. <input type="checkbox"/> Other (please state _____)</p>
<p>3. Have you worked in other roles that have influenced how you think about knowledge transfer?</p>	<p><input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>If so, in what roles _____)</p> <p>How has it influenced you?</p>

## APPENDIX THREE: ON-LINE SURVEY OF RESEARCH ASSESSORS

Q1.

### IMPROVING KNOWLEDGE TRANSFER

Thank you for responding to this survey request. It has been sent to those who have been on recent assessment committees for the Health Research Council of New Zealand (HRC).

The survey forms a part of my PhD research exploring how New Zealand can ensure faster take-up of health research findings (what I call 'knowledge transfer', but it is also known as 'translational research').

I am interested in how knowledge transfer policies work to ensure faster take-up of research findings, and in particular how requests in funding applications for researchers to provide pathways to achieving knowledge transfer, work in practice. These pathways can vary depending on the type of research undertaken and the type of grant being applied for.

At the end of my research I expect to provide advice on the features that will enable faster application of the outcome sought from these policies, and flag other policies that could be considered.

I do hope you will participate in the survey, by completing the following questions. The survey should take no more than twenty minutes of your time.

Q2.

### CONSENT

Your responses are anonymous. The Health Research Council has agreed to forward the link to this survey, but has not commissioned this work and I will not know who has replied.

By clicking on the I agree button below you are giving your consent to take part.

### Contacts

PhD student: Lesley Middleton: lesley.middleton@vuw.ac.nz or 04 463 5233 ext 9854

PhD supervisors:

Professor Jackie Cumming, Health Services Research Centre:  
jackie.cumming@vuw.ac.nz or 04 463 6567

Dr Amanda Wolf, School of Government amanda.wolf@vuw.ac.nz or 04 463 463 5712

Please contact Dr Wolf if you have further questions about this research. The survey has been approved by the Victoria University of Wellington Human Ethics Committee.

☐ I agree

Q3.

What organisation are you affiliated with? *Tick as many as apply*

- ☐ University
- ☐ District Health Board
- ☐ Government Department
- ☐ Private Research Agency
- ☐ Other

Q4.

How often have you been on an assessing committee for the Health Research Council in the last five years? *Tick one*

- ☐ Only once
- ☐ Between 2-3 times
- ☐ Between 4-5 times
- ☐ More than 5 times

Q5.

Which research **project** assessing committees have you been on since 2010? *Tick as many as apply*

- ☐ District Health Board Fund Assessing Committee
- ☐ Partnership Programme Assessing Committee (including Research Partnerships for New Zealand Health Delivery)
- ☐ Rangahau Hauora Māori Assessing Committee
- ☐ New Zealand Health Delivery Assessing Committee
- ☐ Public Health Assessing Committee
- ☐ Biomedical Assessing Committee
- ☐ Clinical Trials Assessing Committee
- ☐ Other

- ☐ None

Q6.

Please mark the Assessing committee you were **last** a member of? *Tick one*

- ☐ District Health Board Fund Assessing Committee
- ☐ Partnership Programme Assessing Committee (including Research Partnerships for New Zealand Health Delivery)
- ☐ Rangahau Hauora Māori Assessing Committee
- ☐ New Zealand Health Delivery Assessing Committee
- ☐ Public Health Assessing Committee

- ☐ Biomedical Assessing Committee  
☐ Clinical Trials Assessing Committee  
☐ Other

Q7.

Based on your experience of the last assessing committee you were on, what have you seen researchers provide as evidence to meet the request for a **defined pathway to achieving knowledge transfer** in funding applications?

*In general the evidence is laid out in sections asking researchers to describe the impact of their research and in sections asking for information on the dissemination of research and/or knowledge transfer plans.*

*Tick many as apply from the list below.*

- 
- ☐ Conference presentations and journal articles.  
☐ Distribution of printed recommendations (e.g clinical practice guidelines).  
☐ Stakeholder groups assembled purposely to design research projects and make commitments to use the results.  
☐ Education sessions/workshops/seminars for end-users.  
☐ Planned connections with relevant clinical networks, iwi and other Māori or Pacific groups and other communities of practice.  
☐ Use of the Internet including websites, email list serves, social media, blogs and interactive web based tools.  
☐ Use of television, radio, newspapers, magazines, to increase awareness or change patient behaviour.  
☐ Creation of knowledge brokers.  
☐ Development of training materials for healthcare professionals.  
☐ Involvement of patients/consumers in the co-production of research.  
☐ Provision of audit and feedback processes for healthcare professionals.  
☐ Connections with opinion leaders who have a high profile within a discipline or practice group.  
☐ Information on the general magnitude and importance of the issue being researched

Q8.

Please list any other activities or features that you have seen but are **not** listed above?

Q9.

In your role as an assessing committee member how important to you have the following features been in forming a **judgement on the quality of the defined pathway to achieving knowledge transfer** provided by researchers?

*Please indicate how important you think **each** feature is.*

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## Improving knowledge transfer: a realist evaluation

	Very Important	Fairly important	Neither important nor unimportant	Not that important	Very unimportant	Don't know
Evidence of existing engagement with relevant end users.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The researcher describes a process to integrate the end-user.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At least one knowledge transfer theory/model or framework is referred to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The attributes which suggest the results are more likely to be taken up are listed ( <i>eg timing, policy context</i> ).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research results are tailored to different audiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence of mutual knowledge generation with research participants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The engagement plan is clearly achievable within the time frame	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity is shown with the principles of the Treaty of Waitangi and its implications for Māori health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A history of jointly publishing with relevant end-users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10.** Please feel free to add any comments on how you judge the quality of the pathways to achieving knowledge transfer.

**Q11.** In your experience what characterises a **poor** quality pathway?

**Q12.** What do you think is the overall aim of asking for these pathways in the research application process?



## Q13.

The following list represents actions research funders might undertake if they want to support "knowledge transfer" generally. *Please indicate how important you think **each** one is.*

Research funders can ...

	Very important	Fairly important	Neither important or unimportant	Not that important	Very unimportant	Don't know
Require the involvement of end-users throughout the research.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support activities to increase the ability of researchers to communicate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide forums for end-users and researchers to connect and design research projects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Require a detailed knowledge transfer plan for all funded projects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pay knowledge transfer costs (e.g. costs for end-of-grant conferences/hui).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facilitate easier access to research by end-users (e.g. provide research repositories or require open access publishing).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer training in assessing knowledge transfer for peer reviewers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Q14.

As far as you are aware does the Health Research Council undertake any of the following actions? *Please indicate your awareness of **each** one listed.*

The Health Research Council...

	Yes	No	Don't know
Requires the involvement of end-users throughout the research.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports activities to increase the ability of researchers to communicate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provides forums for end-users and researchers to connect and design research projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Requires a detailed knowledge transfer plan for all funded projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pays knowledge transfer costs (e.g. costs for end-of-grant conferences/hui).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facilitates easier access to research by end-users (e.g. provide research repositories or require open access publishing).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offers training in assessing knowledge transfer for peer reviewers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q15.

In my earlier interviews with health researchers, a number claimed many researchers do not take the requests for pathways for achieving knowledge transfer seriously, and provide pro-forma cut-and paste-information.

*To what extent do you agree or disagree with that statement using the categories below.*

- 
- ☐ Yes, very strongly, I have little to add or change
  - ☐ Yes, to a large extent, but see my comments in the following box
  - ☐ To some extent, but I can think on one example where this doesn't apply (see following box)
  - ☐ Not really, I can think of more than one example where this does not explain what happens (see following box).

Q16. Box for comments on how researchers interpret requests for pathways for achieving knowledge transfer.

Q17.

**Various situations may influence researchers to vary their efforts in response to requests for pathways for achieving knowledge transfer plans.**

**Consider the following five situations.**

***To what extent does each resonate with your own experience of what happens? In answering the following questions you may draw on your experience as a researcher as well as a research assessor.***

Q18.

**Situation One: Influence of different starting points**

Being asked to provide a knowledge transfer pathway alerts researchers new to research, or coming fresh to the topic being researched, to consider knowledge transfer activities they might have otherwise overlooked.

- 
- ☐ Yes, this strongly resonates with my experience and I have little to add or change
  - ☐ Yes to a large extent this resonates with my experience, but see my comments in the box
  - ☐ To some extent, but I can think on one example where this doesn't apply (see box)
  - ☐ Not really, I can think of more than one example where this does not explain what happens (see box).

Q19. Box for comments and examples of what happens in situations where researchers are new to research, or the topic being researched.

Q20.

**Situation Two: Influence of partnership expectations**

Researchers have formed partnerships with users as encouraged by partnership programme requirements. Conversations (and negotiations) with these partners alert researchers to the type of activities needed to influence the opinions and actions of others.

- 
- ☐ Yes, this strongly resonates with my experience and I have little to add or change
- ☐ Yes to a large extent this resonates with my experience, but see my comments in the box
- ☐ To some extent, but I can think on one example where this doesn't apply (see box)
- ☐ Not really, I can think of more than one example where this does not explain what happens (see box).

Q21. Box for comments and examples in situations where researchers have formed partnerships with users.

Q22.

**Situation Three: Influence of real world relevance**

Researchers who are also health practitioners have their real-world credentials and connections affirmed as a legitimate part of their research practice when they provide pathways for achieving knowledge transfer.

- 
- ☐ Yes, this strongly resonates with my experience and I have little to add or change
- ☐ Yes to a large extent this resonates with my experience, but see my comments in the box
- ☐ To some extent, but I can think on one example where this doesn't apply (see box)
- ☐ Not really, I can think of more than one example where this does not explain what happens (see box).

Q23. Box for comments and examples in situations where the researcher is also a health practitioner.

Q24.

**Situation Four: Influence of a written commitment**

Researchers make a public commitment to carrying out actions listed in their pathway to knowledge transfer, often to their research team and partners as well as to the HRC. As a result of these commitments researchers find that the relational and financial resources associated with their pathways will continue to be honoured within the team, even when research finances become tight.

- 
- ☐ Yes, this strongly resonates with my experience and I have little to add or change
  - ☐ Yes to a large extent this resonates with my experience, but see my comments in the box
  - ☐ To some extent, but I can think of one example where this doesn't apply (see box)
  - ☐ Not really, I can think of more than one example where this does not explain what happens (see box).

Q25. Box for comments and examples in situations where a commitment is made to the relational and financial resources associated with knowledge transfer plans

Q26.

**Situation Five: Influence of knowledge transfer theory**

Researchers decide what to write in these sections using tacit knowledge of what works to increase the uptake and utilisation of research findings, rather than reading and applying knowledge transfer theories and models.

- 
- ☐ Yes, this strongly resonates with my experience and I have little to add or change
  - ☐ Yes to a large extent this resonates with my experience, but see my comments in the box
  - ☐ To some extent, but I can think of one example where this doesn't apply (see box)
  - ☐ Not really, I can think of more than one example where this does not explain what happens (see box).

Q27. Box for comments and examples of the influence of theories of how knowledge transfer works

Q28.

Researchers I interviewed recommended actions that would increase their confidence a credible assessment of pathways to achieving knowledge transfer is being made.

## Improving knowledge transfer: a realist evaluation

*Please indicate the extent to which you agree or disagree with these recommended actions.*

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Applications that do not provide high quality knowledge transfer pathways are failed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guidelines are provided of what is important to cover in pathways for achieving knowledge transfer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feedback is given on how an application did, or did not meet the assessment standard.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specific knowledge transfer assessment training is provided to research assessors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessors who understand how research will play out in the real world are regularly chosen by the HRC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The HRC holds forums between researchers and assessors to agree what is credible to expect to see recorded and judged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q29.**

Please feel free to add any comments on what you think would increase researcher confidence that a credible assessment process has been followed.

**Q30.**

Thank you for completing this survey. The results will be presented in my final thesis. I will also brief the Health Research Council on the aggregated findings.

Please feel free to add any additional comments below