Science and its policy impacts

Establishing a research monitoring, evaluation, reporting and improvement framework-discussion paper



Fire and adaptive research report no. 93



Environment, Land, Water and Planning



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This Discussion Paper presents a proposed monitoring, evaluation, reporting and improvement (MERI) framework for evaluating the contributions to policy and practice of research investments under DELWP's *Bushfire Science Strategy 2013-2017* (2013) (BSS). Both the proposed MERI and the process used to identify this proposed framework are described.

The paper was developed as part of a project entitled 'Science and policy impacts: establishing a monitoring, evaluation and reporting (MERI) framework'. That project was established under FFRG's 'Policy Driven Investments' Strategy of the BSS, which sought to identify a potential framework for evaluating the impact on policy of its bushfire-related research investments (excluding the wider suite of emergency management research).

This Discussion Paper presents the results of that project informed by a synthesis of existing literature reviews and reviews of relevant evaluation frameworks, and consultation with key stakeholders. It is presented in four main sections:

Section 1: describes the overarching project, briefly discusses why public sectors invest in research and sets out the paper's purpose and structure.

Section 2: outlines the proposed MERI framework for FFRG to trial in assessing the impact of its research investments on policy.

Section 3: describes the approach used to identify the preferred MERI framework, including an argument for Monitoring, Evaluation, Reporting *and Improvement* (MERI) framework. The Section draws upon a Scoping and Options Paper that identified key factors for consideration in development and implementation of an evaluation framework and formed the basis of consultation with key stakeholders. Drawing from that Scoping and Options Paper, Section 3 describes a proposed purpose and value criteria for the MERI framework, and touches on the existing evaluation frameworks and tools that were assessed against the identified key considerations for in development of a MERI framework.

Section 4: presents the proposed MERI framework in more detail to exhibit how it addresses the review's key considerations and the consultation feedback.

Context

The project

The project: 'Science and Policy Impacts - Establishing a Monitoring, Evaluation and Reporting Framework'

This Discussion Paper was produced as part of a project under auspices of the Department of Environment and Primary Industries' (DELWP)'s. Forest, Fire and Regions Group (FFRG) *Bushfire Science Strategy 2013-2017 (2013)* (BSS). The BSS "describes the drivers for DELWP bushfire science investment, and outlines strategies to ensure future investment is directed at meeting a vision of world class scientific evidence that meets bushfire management policy and operations needs on public land". It is underpinned by three strategies (Figure 1). The 'Policy Driven Investments' Strategy incorporates the Group's investment in external research through various research institutions, including the Integrated Forest Ecosystem Research (IFER) agreement and the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC). The project within which this Discussion Paper was developed is a key aspect of that Policy Driven Investments Strategy.



Figure 1: FFRG's Bushfire Science Strategy and its underpinning strategies

The public sector and research

Public sectors invest in research to inform and support the development, implementation and evaluation of public policies and their associated practices. The Australian Government's (2012) National Research Investment Plan states that Australia's national wellbeing, and the 'solving' of National and global challenges, including better service delivery by government, is dependent on research and innovation. Head (2014) argues that without drawing on research, policymaking might be based on ignorance, prejudice and opportunism. Certainly, the concept of 'evidence-based policy' stems from the idea that governments invest in research to inform policy.

While it is not the aim of this paper to enter debates about the role of research in policy, it does explicitly recognise that research is rarely the singular input to a policy (Funcowitz and Ravetz 1993; Pielke 2007; Bozeman and Sarewtz 2005). A range of diverse and interacting factors influence policy development, implementation and evaluation, and research is often evaluated and interpreted in the context of these other factors (Hammersley 2005; Pielke 2007). Nonetheless, research is a crucial

part of policy processes; particularly about appreciating the extent and limitations of knowledge on an issue, to addressing knowledge gaps, for exploring a range of alternatives, and for stimulating policy ideas.

More broadly, government investment in research maintains a more general research capability that can be drawn upon as needed (Wooding *et al.*, 2009:7). The investment encourages and nurtures a 'learning culture' within our society that 'facilitates innovation, creates a preparedness to challenge existing practices, and to search systematically for ways of doing things better' (*ibid*).

FFRG's BSS is consistent with the above rationale through a commitment to adaptive management. The strategy states that FFRG invests in research to support the:

- understanding, analysing and evaluating the cause and effect relationships between various strategic and operational policy interventions and outcomes
- developing and implementing programs with enough evidentiary basis to make sustained changes [in strategic and operational policy and practice]
- identifying science that may contribute to treatment options and risk mitigation.

This discussion paper

This Discussion Paper is the outcome of a literature review and initial consultation on the issues and options raised in that review regarding the establishment and conduct of a MERI for assessing the contributions to policy¹ of FFRG's BSS research investments. It builds upon an initial Scoping and Options Paper that outlined those issues and options and was used as the basis for initial consultation with key stakeholders on the topic of evaluating the impact of research investments on policy.

Purpose

The purpose of this Discussion Paper is twofold: to propose a MERI framework that FFRG will trial in evaluating contributions of research to policy; and to seek additional input from stakeholders around the challenge of evaluating the contributions of research to policy.

Structure

The Paper is comprised of four sections:

- Section 1: describes the overarching project, briefly discusses why public sectors invest in research and sets out the paper's purpose and structure.
- Section 2: outlines the proposed MERI framework for FFRG to trial in assessing the contributions of its research investments to policy.
- Section 3: describes the approach used to identify the preferred MERI framework, including an argument for Monitoring, Evaluation, Reporting and Improvement (MERI) framework. This Section draws upon a Scoping and Options Paper that identified key factors for consideration in development and implementation of an evaluation framework and formed the basis of initial consultation with key stakeholders. It describes a proposed purpose and value criteria for the MERI framework, alongside key considerations for development of a MERI framework. Finally, it outlines the existing evaluation frameworks and tools that were assessed against those key considerations.

¹ The definition of policy used here is from FFRG's 2013-2017 Bushfire Science Strategy: 'a statement of intent or commitment to a course of action that government and its agencies adopt, pursue, or direct as a principle or rule to guide decisions and actions'. *Expressions of policy* include 'legislation, statutory instruments, policy statements (both written and oral statements on the public record such as parliamentary speeches), and government directives (such as adoption of Inquiry recommendations)' (*ibid*). Other expressions of policy include day-to-day practices of policymakers and officers, and operational decision-making.

• Section 4: presents the proposed MERI framework in more detail to exhibit how it addresses the review's key considerations and questions raised in the initial round of consultation.

Approach

Identification of the proposed MERI and development of this Discussion Paper involved three stages:

- 1. Production of a Scoping and Options Paper to identify models, methods and/or frameworks for assessing the quality of science-policy interfaces, and the impact² of science investments on informing policy and its associated practices. It is worth noting that while a wide range of disciplines engage with the subject of evaluating the impact of research on policy, the review was unable to find any work by a fire or emergency management agency or department. The greatest amount of relevant work has been in evaluating the impact of health research on health policy. The Scoping and Issues Paper summarised:
 - a. key considerations in selecting and implementing a MERI framework aimed at evaluating the impacts of research on policy
 - b. existing evaluation frameworks and complementary evaluation tools, and how well they address the identified considerations
 - c. MERI framework options for the BSS' research investments.
- Consultation on that Scoping and Options Paper with key stakeholders including researchers within academic institutions, researchers and research managers within FFRG and within the State's other emergency service organisations and departments. This process informed selection of the proposed MERI framework and this Discussion Paper.
- Production of this Discussion Paper with a proposed MERI framework based on outcomes from the preceding stages. It summarises the project, including the options and process of selecting the proposed approach.

The proposed MERI framework

Purpose and scope

The sole and central purpose of this proposed MERI framework is to evaluate the contributions of research investments under FFRG's BSS to policies and practice. It is *not* aimed at evaluating DELWP's broader research investments, *nor* at evaluating policy and practice outcomes.

Principles

It is proposed that FFRG's MERI framework for evaluating the contribution of BSS research investments to policy and practice should be:

- credible and acceptable within both academic and policy communities
- able to explore economic, social, and environmental contributions
- able to capture evidence of public value not just cost-benefit
- · robust and adaptable to apply to all disciplines
- able to capture data that can be used for multiple purposes
- transparent and repeatable

² The initial project objectives were aimed at evaluating 'impact'. Through the review process, the purpose of the evaluation moved to assessing or exploring *contributions* of research to policy

- as practicable as possible
- complementary to other evaluation processes.

Proposed MERI

The proposed MERI is intended to provide a reflexive learning system that enables adaptive management of policies and practice, as well as the research program itself. Reflexive learning involves changes to existing policies or dominant policy instruments alongside the potential for change to overall goals and shifts in the institutional landscape (Hall, 1993). This idea of learning is very different to that which sees learning as simply the acquisition of more information; it requires actors to consider how they are conceiving of a policy sector's context and issues, how this directs preference for policies and programs, and whether this contributes to the maintenance of policy problems. Figure 2 below depicts this process and highlights the important role of monitoring and evaluation in a reflexive rather than linear approach to learning and improving the evaluation.



Figure 2: Proposed MERI

Table 1 (below) describes the purpose of each component of the MERI framework, the methods or tools to achieve that aim, and the outputs or what will be achieved.

Compone nt	Purpose/Aim	Evaluation method &/or tool	Outputs
Establish the MERI's Program Logic	 plan MERI's intent and focus revise as program evolves and through MERI results focus on the MERI <i>not</i> 	 develop with key stakeholders 	 Articulates: goals & types of contributions aimed for key assumptions about how contributions occur anticipated outputs and outcomes

Table 1: Aim, method and outputs of MERI components

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	the research program		 key evaluation questions and methods
			 Indicators of contributions (qualitative & quantitative)
Monitor	 ensure program is tracking as intended informs monitoring of projects – progress, research-policy interface, etc 	 agreed monitoring milestones - establish minimum monitoring milestones, with individual projects to decide upon any additional points. observational data from relevant meetings 	 Provides: data analysis of results – key findings & lessons periodic reviews that allow for adjustments and change, and inform overall program reviews
Evaluate contributio ns	 Bulk of the MERI: various contributions of the research investment to policy/ the research impacts of interest (Not all projects will provide all impacts) factors that enabled or constrained the research, and/or its contribution to policy or policy outcomes 	 interviews and surveys of researchers, FFRG personnel and other relevant stakeholders case studies Depicting contributions across the knowledge/impact continuum. Episode Studies or Most Significant Change tools quantification of knowledge production – publications, reports, training seminars, etc public value mapping of the contribution of academic knowledge in bringing about public goods, to achieve the public value results for which the research receives funding 	 Provides: data analysis of results – key findings & lessons strategies for improvement
Evaluate research- policy environme nt	 identify enabling and constraining factors in the research-policy environment/context 	• productive interactions a measure of 'exchanges between researchers and stakeholders in which knowledge is produced and valued that is both scientifically robust and socially relevant'.	 Provides: data analysis of results – key findings & lessons strategies for improvement
Report	 communicate findings to a broad audience data for future planning 	analysisformal program reportfinancial reporting	 Provides: reports communication of findings – websites, meetings, etc
Improve (reflect & learn)	 provides feedback and revises strategic direction by building on enablers and addressing barriers 	 end of year 'appreciative inquiry' workshop ongoing, informal reflections periodic reviews as identified in the monitoring component 	 Provides: reflections on what is & isn't working, and why identification of areas that need change/ support proposed strategies for change/ improvement

Application of the MERI

The following diagram (B. Denham 2014 pers. comm) seeks to depict the application of the MERI. It indicates that the evaluation may seek to evaluate the contribution of a research project to a policy or more generally through to the contribution of research to the sector. The farther to the right of this diagram the more complex and difficult the assessment beyond the complexities and challenges of evaluating the contributions of research to policy in general.



Figure 3: Application context of the MERI

Developing the framework

This section outlines the process used to identify the proposed MERI framework. It summarises the development of and consultation on a Scoping and Options Paper and discusses key considerations for developing a framework for evaluating the impact of research on policy.

Scoping and options paper

Development of the Scoping and Options Paper

The very first part of the project 'Science and Policy Impacts: Establishing a Monitoring, Evaluation and Reporting (MERI) Framework', involved development of a Scoping and Options Paper. That paper provided the basis for consultation with key stakeholders (researchers and policy practitioners) in identifying a potential framework for evaluating the contributions of the Bushfire Science Strategy's research investments to policy³. To identify such a framework, the paper synthesised relevant literature reviews and reviews of frameworks, guided by the question: "how have other institutions evaluated research impact or research impact approaches?" While the review did not cover all the available literature, by systematically drawing from existing reviews the Options Paper did provide a sound indication of the issues and approaches currently available. Detail regarding the literature review process can be found in Section 1.2.3. of the Scoping and Options Paper.

Consultation on the Scoping and Options Paper

Targeted consultation on the resultant Scoping and Options Paper sought to inform FFRG's selection of a preferred MERI framework. A summary consultation paper was provided with the Scoping and Options Paper such that stakeholders were able to quickly grasp the key issues and options and provide succinct feedback without having to read the detailed Scoping and Options paper. Input was primarily sought from the Project Reference Group. In addition, an information session was held with research managers from several other emergency service organisations and executive briefings were conducted within DELWP.

Across the board, there was consistent and broad support for the identified considerations and proposed directions for the MERI framework, along with support for FFRG to develop a fit-for-purpose MERI framework that draws on the most relevant components of other existing frameworks and approaches. The consultation also identified a handful of more detailed issues and these have been incorporated into this Discussion Paper either through clarification or by newly discussing the issue within the relevant section. In other cases, where the issue raised was not relevant to the MERI itself, it was not included in the Discussion Paper. For example, while there was general agreement on the principles for the MERI framework, some feedback suggested alternate principles. However, those suggested alternate principles related to the research program rather than the MERI, so were not included. Appendix 1 details the feedback received and tabulates responses to that feedback.

Framework principles

The review and consultation process identified fourteen key considerations in evaluating the impact of research on policy. Grouped under the four major headings of a Monitoring, Evaluation, Reporting *and Improvement* framework, each consideration was used to identify a MERI framework that could

^{3.} The definition of policy used here is from FFRG's Bushfire Science Strategy (2013-2017): 'a statement of intent or commitment to a course of action that government and its agencies adopt, pursue, or direct as a principle or rule to guide decisions and actions'. *Expressions of policy* include 'legislation, statutory instruments, policy statements (both written and oral statements on the public record such as parliamentary speeches), and government directives (such as adoption of Inquiry recommendations)' (*ibid*). Other expressions of policy include day-to-day practices of policymakers and officers, and operational decision-making.

suit FFRG's needs. Following the consultation, these considerations have been refined and are now presented as principles to be addressed in FFRG's MERI for its BSS research investments. While the discussion of these principles is structured under the headings of Monitoring, Evaluation, Reporting and Improvement, many of the principles apply across all phases of an evaluation process.

Foundations

Value criteria

For any MERI framework to be of public and policy value it should meet certain value criteria such as credibility, transparency and repeatability. These value criteria relate to the MERI framework and its outputs, not to the research program nor the goals of policies or standards of management (such as those found in the *Code of Practice for Bushfire Management on Public Land* (2012).

The BSS states that it requires an evaluation framework that will enable the Division to *transparently* measure and report on how its investment in science is contributing to the Strategy objectives (emphasis added). Adapting principles from the UK's Higher Education Funding Council for England (HEFCE) Research Excellence Framework (REF), the Scoping and Options Paper proposed that FFRG's MERI framework for evaluating the contribution of its BSS research investments to policy and practice be (as listed in Section 2.2 above):

- · credible and acceptable within both academic and policy communities
- · able to explore economic, social, and environmental contributions
- · able to capture evidence of public value not just cost-benefit
- able to capture data that can be used for multiple purposes
- · robust and adaptable to apply to all disciplines
- · transparent and repeatable
- · as practicable as possible
- · complementary to other evaluation processes.

Purpose of evaluating research contributions

The literature highlights that public policy research investments are most commonly evaluated for at least one of the following reasons (Guthrie *et al.*, 2013; Hanney, 2005):

- advocacy: demonstrate benefits of supporting research; enhance understanding of research and its
 processes among policymakers and the public, and vice versa; and as a basis to argue for policy or
 practice change
- **accountability**: evidence efficient and effective use of funds, and hold researchers to account, and to justify research expenditure
- **analysis**: understand how *and why* research is effective and how it can be better supported; to inform research strategy and decision-making; and to inform policy and management
- **allocation**: assist in prioritising future research; determining where best to allocate funds in the future; and making the best use possible of limited funding.

The BSS states that it requires an evaluation framework that will enable FFRG to transparently measure and report on how its investment in science is contributing to the Strategy objectives in policy development (advocacy and analysis), achievement of outcomes (analysis and accountability), and delivering value for money (accountability). The Investment Strategy of the BSS also states that monitoring and measuring the program's performance will support observers and participants to maintain confidence in the program (advocacy).

In addition, the BSS states, 'science is used within a risk management framework to guide strategies and actions'.... and 'the use of an adaptive management framework to promote continuous improvement in planning and management' (learning). As described in the 'analysis' dot point above, evaluation of research investments should not only allow for evaluation of achievement of outcomes, it should facilitate an understanding of how and why (or why not) research may have contributed to policy and practice.

All of this suggests that the purpose of FFRG's MERI for evaluating the impact of its research investments on policy should be to enable advocacy, analysis, accountability and learning.

Moreover, feedback on the Scoping and Options Paper indicated broad consensus on the purpose of evaluating research contributions to policy is to learn from the findings and improve the process. Therefore, the Scoping and Options paper argued for a MERI framework; consisting of monitoring, evaluation, reporting *and* improvement through learning. The remainder of this Section is therefore constructed around principles for a MERI framework: Monitoring, Evaluation, Reporting *and* Improvement.

Establish the policy 'problem' at which the research program and each project is targeted

The framing of the policy problem or issue directs research questions and methods (Schon and Rein 1994; Pielke 2007). This has implications for the research program, each research project, and for the MERI of the BSS' research investments. It is vital that the overall 'problem' of fire management to which its research investments are directed be explicitly stated within the overall research program. Equally, each research project needs to be based on a clear framing of the specific 'policy problem' at which it is directed. The *Code of Practice for Bushfire Management on Public Land* (2012) presents the BSS policy 'problem' as twofold:

- minimising the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment, where human life is afforded priority over all other considerations
- maintaining or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products.

These objectives suggest that research conducted under the auspices of BSS should contribute towards addressing these objectives, and therefore, that the evaluation is partly about assessing the contributions the research investments made towards addressing these objectives. However, concepts such as minimising impact and resilience are open to interpretation and without explicit definitions of these, policymakers may expect research to address one interpretation while researchers conduct their work within the context of another interpretation. Sociological studies of science demonstrate that research itself is value-laden; scientists bring a range of values, experiences, assumptions and expectations, which shape the questions they pursue, the methods they apply and the ways in which they interpret and write up their data (Smith and Freeman 2014). One of the most obvious examples is the concept of resilience, which can be framed from being 'the capacity to bounce back' to a capacity for change and transformation (*cf*, Handmer and Dovers 2007, Pelling 2010).

The implications of appreciating the role of framing are twofold for FFRG's MERI of its research investments. Firstly, the program logic for the MERI framework needs to be co-developed and co-reviewed between policy practitioners and researchers, particularly so that discussions, understanding and explicit statements about the assumptions of all participants are clear to all. During evaluation, the MERI framework could help ascertain:

- whether a clear and agreed 'problem definition' was established at the outset of a project
- · how that directed the choice of research question, methods and analysis
- · how the research contributed to addressing the problem as it was framed

• whether and how that framing changed because of the research.

Secondly, the research program could explicitly recognise multiple frames and facilitate research driven by differing frames to both provide the sector a more robust suite of policy options and to triangulate results for a stronger evidence-base (DeWulf 2013; Bosomworth In Press).

Monitoring principles

The review and consultation process identified the following key principles for the monitoring aspects of a MERI.

Periodic Monitoring - not just end of project or even program

Monitoring enables an ongoing awareness of how well the research program or a project is functioning and provides some capacity to address issues as they may arise. As such, its greatest value lies in an ongoing process that occurs throughout a project and program, rather than solely at the end of project or program. Periodic monitoring can provide early indications of issues within the research-policy interface, enabling them to be addressed. Regular (e.g. six monthly) reviews rather than reliance on an end-of-programme review can directly and more immediately inform the programme strategy (Hovland 2007), which can be of benefit to other projects within the program.

Essentially, monitoring is ongoing evaluation. It is particularly important about evaluating the impact of research on policy because timeframes can be long for the benefits or impacts of a given program of research to be realised or to be clearly understood (Australian Government, 2013). For instance, the Excellence in Innovation for Australia (EIA) trial considered impacts from research preceding the impact measurement period by 15 years. In addition, research contributions may be cumulative (building up over time) and are often diffuse and subtle.

Crucially, this highlights that the monitoring component of the BSS research program's MERI is not just about monitoring the progress of a research project but is about monitoring its contributions to changes in the policy environment.

Monitor at agreed milestones

As will be discussed below, there is a need to evaluate against agreed needs, objectives and management or policy questions, as well as factors impacting the research-policy interface such as changing institutional contexts. However, what also needs to be agreed within the research program and at the commencement of a research project is *when* monitoring of these factors will occur.

Even though policy-processes are typically non-linear, there are a handful of key points at which policy and research (perhaps more realistically, the policymaker/s and researcher/s) intersect and at which some form of evaluation might occur. These should be agreed at the outset of a research project and highlight the value of co-designed research projects.

As a minimum, the research program could establish common monitoring points, such as research plan development, establishment of research purpose/policy issue, when key findings are delivered, etcetera. What might also be agreed are some more 'flexible monitoring milestones' for when there are unforeseen events with implications for the research or policy. For example, when there is a change in funding, policy direction or even Minister, the researcher/s and policy practitioner/s could meet to discuss the implications of such issues for the research. This would provide both parties an opportunity to readjust agreed deliverables, milestones and the like. In addition, policy changes could be viewed as a trigger to undertake an analysis of the kinds of contributions research may have provided in those changes.

Part of monitoring or being aware of changes in the policy environment for indications of research impact could include monitoring of important stages or opportunities within a department or sector, when an existing piece or body of research may become more salient or acceptable.

For past and existing projects funded under the BSS, there is an opportunity to 'track back' from the policy or practice change and working with various stakeholders to identify various research contributions to those changes or impacts. Doing so could inform identification of valuable monitoring points for future work.

Consider the strategic (program) evaluation

There are many points and ways in which individual research projects can contribute to policy and practice, and an evaluation should ideally aim to identify as many of these as possible. However, evaluating the contribution of an entire research program to policy and practice requires consolidation of findings from evaluation of individual projects, and a holistic, strategic assessment.

Evaluation principles

Evaluate a range of potential 'impacts'

The most fundamental impact of research is to improve our understanding both of ourselves and of the world in which we live. As stated earlier, research in a public policy context also seeks to help appreciate the extent and limitations of knowledge on an issue, address knowledge gaps, explore a range of alternatives, and stimulate policy ideas. However, knowledge production is normally only an intermediate aim of policy-orientated research, and dissemination of that knowledge (publishing research outputs and communicating research evidence to policy communities) does not itself constitute impact (Hastings *et al.*, 2013). In fact, Weiss (1979 in Harris, 2013) posits that frustration with a 'gap' between research and policy may stem from the fact that observers only have this 'knowledge-driven' model in mind, wherein basic research is conceived as leading to applied research and in turn directly to application.

However, as discussed earlier, the purely knowledge-driven model of policy is rare and mostly unlikely. The literature (and arguably practice) highlights that research is also used conceptually, in mobilising support and in other wider influences (Garrett and Islam, 1998; Jones, 2011; Nutley *et al.*, 2003; Pielke 2007; RyMERI, 2011; Head 2014):

- Conceptual use is where research can change policy understandings of a situation, provide new
 ways of thinking and offer insights into the strengths and weaknesses of courses of action, which is
 then sometimes used in instrumental ways (Nutley *et al.* 2007). For example, research can inform
 FFRG's risk-based decision-making, or as Smith (2014) argues "focusing on *research-informed ideas* usefully draws attention to the centrality of values, politics and advocacy for public health
 debates."
- Mobilisation of support is where 'research or simply the act of research, becomes an instrument of persuasion, a tool to legitimate particular courses of action or inaction (*ibid*). Research can also help to evaluate or explore a range of policy options.
- Finally, 'research can have an influence beyond the institutions and events being studied. Evidence may be synthesised, come into currency through networks of practitioners and researchers, and alter policy paradigms or belief communities. Although both rare and hard to achieve, research adds to the accumulation of knowledge that ultimately contributes to large-scale shifts in thinking, and sometimes action' (*ibid*).

In short, research impacts can occur across 'a continuum from instrumental to conceptual, from raising awareness through shifts in knowledge, attitudes and culture, through to actual changes in day-to-day practice and policies' (ASCB, 2012; Boaz *et al.*, 2008; Hastings *et al.*, 2013; Nutley *et al.*, 2003). Acknowledging that research can have an influence at any point or points across a spectrum, suggests that FFRG's MERI framework for its research investments should aim to capture a range of impacts; such as those depicted in the spectrum below (Figure 4). Importantly, this Figure highlights that 'the boundaries between the different functions are fuzzy: it is not clear exactly when knowledge translation merges into knowledge brokering, or when an information provision becomes knowledge translation' (Shaxson *et al.* 2012:3).

Concurrent to recognising that research can have a variety of influences on policy and its broader context, there is a need to explicitly also recognise the limitations to what can be evaluated; particularly the degree to which research can be directly attributed to having had an 'impact' on policy. This leads to the next key principle of evaluating contribution not attribution.



Figure 4: A continuum of research impacts on policy processes. (Adapted from Shaxson et al 2012)

Evaluate contribution rather than impact

As Gibson (2003) has pointed out, it is simplistic to think of research translation to policy as a mere conversion of research language to policy language. The process is more accurately conceived as transformation, where the policy process absorbs and reconstitutes the research to meet its own goals. Moreover, **research is only one factor in an array of drivers and influences on policy, policy-making and associated practices.** Among the most influential factors are those that fall under the rubric of 'politics' and its inherent normative, value-laden debates (Kingdon 1984; Clay and Schaffer 1984 in Shaw and Bell 2010; and Lundin and Öberg 2014).

Therefore, while a research program may be based on a Program Logic of idealised contributions to various aspects of policymaking and implementation, the often diffusive, informing function of research means that links between original research and demonstrable impacts are rarely clear. There is a risk of over- and under-attribution: over-attribution occurs when multiple research groups claim the same impact, and under-attribution occurs when a researcher is unaware of the impact that they have had (Grant 2010). This returns us to the idea that the impact of research on policy is a dynamic process of change, rather than a series of easily identified 'impact points' (Ling 2011).

This is perhaps the most significant challenge of evaluating research 'impact'. At the very least, it suggests that an evaluation framework needs to be able to capture multiple and nuanced impacts, as well as be explicit about its limitations to genuinely represent impact at all. This has led many authors to argue for evaluation of research contributions to policy rather than seeking attribution of impact (E.g. Grant et al. 2013; Boaz 2008).

Importantly, recognising that research is unlikely to be the sole influence or impact on policy also stresses the need for a degree of realism about what can be 'evaluated' or measured, and the extent to which a policy, practice or change therein can be directly attributable to a piece or body of research. Because doing so, would require separating out all other possible influences.

Arguing that it is challenging enough to find ways of assessing and measuring 'gross effects' of research on policy let alone to be able to measure 'net effects' with any reliability, Bastow *et al.* (2014) provide a useful and simple diagram that depicts a spectrum of impacts and feasibility of measuring them (Figure 5 below). They argue that moving further to the right of the diagram moves us towards realms of impossibility; that is, our ability to say anything conclusive about 'net social benefits of the attributable outcome share' of the research.





Figure A.1: Spectrum of impacts and feasibility of measuring them

Within the realm of 'actual' recorded instances of influence amongst gross effects, Shaxson *et al.*'s (2012) work on knowledge translation suggests some potential indicators of contribution of research to policy (Table 2). The relative ease or difficulty of measuring such contributions is not discussed.

Use	Contribution	Sub-categories	Potential Indicators of Contribution
strumental	Advancing knowledge (Information provision)	 informing aggregating compiling 'signalling' disseminating providing 	 availability of different types of knowledge in accessible formats for different audiences reach: in terms of the breadth of communication cost-effectiveness of communication methods in reaching all the intended audiences efficiently publications, research reports, conferences, media outputs, formal meetings
<u> </u>	Capacity building (Knowledge translation)	 translating discussing knowledge and ideas with 	 credibility of the knowledge to all audiences (i.e. marginalized groups are not excluded) responsiveness to audience needs for information inclusiveness in terms of the types of knowledge translated

Table 2: Possible research contributions across a knowledge continuum (adapted from Shaxson et al. 2012)

		users	and the different audiences reached
		 training 	 openness and transparency of interaction
		 seminars 	 uptake of knowledge and impact on the final decisions
		 stimulating new research 	 development of research skills and overall research capacity
			 secondments between research institutes and government
			 mutual understanding of the problem frames
		bridgingmatching	 active involvement of all stakeholders in setting the agenda for the issue and its knowledge needs
eptual	Policy and	 connecting convening	 length of interaction: beginning to implement longer-term systems and processes based on shared criteria and systems
ouc	decision-	 linking 	 responsiveness to policy and research needs
о Ф	making	boundary	 honest-brokering of policy options
(Knowled	(Knowledge brokering)	spanning	 contributions to policy debates
tica		• networking	co-design of management approaches or assessment tools
Polit			 balance in relationships: the ability to understand policy and their contextual political processes
			 impact on /reduction of cost and benefits of various policy options
		 negotiating 	indicative development of specific organizational functions
		 capacity building collaborating 	 an enabling environment for knowledge use is actively provided, bringing in all needed resources to enable change
		managing	 changes in 'hardware' and 'orgware'
stemic	Sectoral benefits	relationships and processes	 individual and organizational capacity-building; such that research utilisation and co-production of knowledge is routine
Sys	and change)		 self-sustaining systems for knowledge co-production
			 qualitative improvements in policy objectives
			 improved ecological and human health
			 changes in public knowledge/debates
			 strategies, actions and ideas that are new to the sector
			end to a stalemate
All	Public Value		• to be explored

Evaluate the program

Hovland (2007) suggests that an annual or biennial evaluation is useful for this kind of strategic level assessment. Involving most of the program's researchers and policy practitioners, these strategic evaluations should ideally contribute to future research planning, as well as enabling co-learning amongst all parties (*ibid*). She argues a choice of annual or biennial evaluation guided by several factors, including the MERI framework, the agreed evaluation purpose, and budget.

She also suggests that an 'Appreciative Inquiry' workshop could usefully provide the construct for such a workshop. This kind of workshop would include all programme staff and involve evaluating the Program Logic and the MERI framework itself. Preparations would involve aggregation of MERI results provided by projects (depending on the agreed method), and publishing and distributing a collection of case studies from the projects that finished in that year, 'or at the very least making sure that the end-of-year evaluation report is short, reader-friendly, and available on the web' (*ibid*).

Evaluate the vitality of the research-policy interface

The use of research in policy processes is more a complex social process (Lemay and Sa 2012) than a technical process, because it involves knowledge translation and brokering (Ward *et al.* 2009). While describing a process and program to better support the research-policy interface is beyond the scope of this paper, it is obvious that the research-policy environment; the systems, processes and relationships that influence the exchange of and dialogue surrounding research findings, has a significant influence on the contributions of research to policy. Consequently, any MERI framework should seek to understand what factors the actors in the research-policy system feel enable or constrain these important interactions *and* the contribution of research to policy.

Importantly, most of the consultation feedback was concerned with this issue and, the institutional context into which research is communicated, shared, and considered. In short, there may be exceptional relationships and dialogue between researcher and individual policy practitioners, but the institutional context of policy making (departmental processes, Ministerial directions, budgets, changing personnel, windows of opportunity, etc) have a significant influence on the translation of research findings into policy and practice. Consequently, the principle of evaluating the research-policy environment is not only concerned with evaluating interchanges between a research project or program and any one policy practitioner or the commissioning policy team, Division or even Department.

Evaluating the research-policy environment requires an evaluation of the institutional environment – the systems, processes and even cultural environments within government departments and their broader sectors that enable the exploration, discussion and uptake of research across the array of potential policy uses. This returns us to a key part of Denham's (2014 pers comm.) diagram (Figure 5), which highlights the need to consider the research-policy environment in a range of contexts.

Figure 6: The research-policy environment



Evaluate the 'Public Value' of research investments

Despite the chief argument for the public funding of research being public values, such as improvement in the quality of life, evaluation of publicly funded science in achieving these 'public values' is rarely articulated. More often, evaluations are dominated by economic or cost-benefit assessments. This may be because 'assessing the impacts of a given research endeavour on non-scientific, non-economic goals - "public values"- that often are the core public rationale for the endeavour (Bozeman and Sarewitz 2011) are more challenging. Yet given that public policy investments in research (and indeed, policies themselves) are argued to address public values, any evaluation of the contributions of research to policy should consider evaluation of the public value of those research investments.

Arguably, the objectives of the *Code of Practice for Bushfire Management on Public Land* (2012) set out the two key Public Values for the BSS:

- minimising the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment, where human life is afforded priority over all other considerations
- maintaining or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products

It is proposed that FFRG explore the applicability of a Public Value Mapping method for use within this MERI framework.

Use multiple methods

As equally as important as 'what to evaluate' principles, are principles of 'how'. It is evident that to capture a range of indicators of contributions and at several agreed evaluation points, a range of data collection and analyses methods is required. Mixed methods are already consistent across many evaluations, with most involving case studies, in-depth interviews and documentary analysis, which are sometimes used in conjunction with more quantitative methods such as surveys (Boaz *et al.* 2008).

A mixed-method approach that includes both quantitative and qualitative data, and that enables a comprehensive and flexible approach, would reflect the ways that researchers produce their findings and that policymakers use research, and help to identify actions that the organisation could take to improve research effectiveness (Garrett and Islam, 1998). Use of multiple methods would enable triangulation of data, increasing the credibility and validity of findings.

Involve internal and external (independent) review

When considering the range of actors involved: researchers, research institutes, the commissioning organisations, the different actors therein, and the potential roles and influences each of these actors can have upon research contributions to policy, enabling research to contribute to policy is as much a social process as it is a technical or political one. Therefore, involvement of the range of contributors within the research-policy system is essential if a MERI framework is serving to not only understand what contributions research made to policy and public values, but how the research-policy environment influences such processes.

Participatory monitoring and evaluation (PM&E) are one approach that enables a joint effort or partnership of two or more stakeholders to monitor and evaluate, systematically, one or more research activities (Vernooy *et al.*, 2003; Trochim *et al.*, 2008). Collective involvement of both researchers and 'end-users' would help build understanding between the different contributors of their own and others' aspirations, perspectives and challenges. End-users are important participants in verifying and auditing claims of impact made by researchers, and vice versa.

Equally, some review that is external or independent to the program management will be important in meeting the value criteria of transparency, accountability and repeatability of an evaluation. This is because 'while stories or narratives can be based on research evidence, they can also be largely anecdotal and highly subjective, and can stray dangerously close to the line between evaluation and promotion' (Boaz *et al.* 2008).

Reporting principles

The reporting component of any MERI framework can play a particularly useful and therefore important role. There is the obvious need for simple, easy to use reporting processes that represent low transaction costs. This could be enabled through projects documenting various impacts or contributions, with guidance on how to capture relevant information such that it can be incorporated into a case study, impact pathway, or narrative for the program MERI. It can also provide for a triangulation and pooling of data for evaluation of the overall research program.

However, reporting can play a particularly important role in the co-learning potential of using a MERI framework. There are a range of dialogue, social-learning based methods for collecting, presenting and consulting on findings beyond the production of hard-copy reports. Discussion of findings will be particularly important for improving processes, research and policy uptake thereof.

Finally, serious consideration should be given to utilising existing reporting processes, and for more immediate feedback and learning through the monitoring component of the MERI.

Improvement (learning) principles

As discussed earlier, a crucial part of any evaluation of research contributions to policy is to learn – not just about the research and its impacts, but about the systems, processes and practices that enable or constrain those contributions. Therefore, consideration should be given to assessing research, process and political influences, as well as the Program Logic and the MERI itself.

One stakeholder questioned the relationship between learning and use of a Program Logic. However, the literature highlights both that a Program Logic is an idealised presentation of a program's goals, objectives, process and tools, but that it provides a basis/outline of what it is that the MERI is aiming to evaluate.

Regular review of the Program Logic based on the experiences of both researchers and policymakers would allow program responsiveness to contextual changes and lessons. This could be part of the strategic program review, wherein the assumptions underlying the program logic and the logic itself could be reviewed, with subsequent modifications integrated. Moreover, a culture of open reflection, constructive criticism and a willingness to see mistakes as lessons rather than failure is essential.

Sum	mary of Considerations	Comment
	Advocacy	Demonstrate benefits of supporting research; enhance understanding of research and its processes among policymakers, communities, and researchers
Purpose	Analysis	Contribution to evidentiary basis for policy; understand how and why research is effective and how it can be better supported
	Accountability	Evidence efficient & effective use of funds, policy accountability
	Learning	Inform research strategy, knowledge translation, knowledge-based risk assessment, and governance
	Credible and acceptable with academics and users	Without this, data may be limited & potentially unreliable
	Encompassing a range of economic, social, policy, & environmental benefits	Relates to FFRG's two core policy objectives, including processes surrounding development and implementation of strategies to achieve these
Value	Robust and adaptable to apply to all disciplines	Framework may have to be adapted to allow for different disciplines or policy issues (yet unknown)
criteria	Practicable not generate an excessive workload	Without there may be poor data collection at best, resistance to use at worst
	Can capture evidence of public value	This is a long-term, involved goal
	Complementary to other evaluation processes	For ease of adoption, avoids repetition/ reinvention of wheels
	Periodic not just end of project or program	Provides quality check and 'health' of the policy- science environment
	Evaluate at agreed milestones	Standard project planning
Monitoring	Decide on annual or biennial strategic evaluation	Absolute bare minimum
	Allow for long timeframes	Unavoidable; many projects occur over extended periods
	Define a Program Logic	Standard project planning & good practice
	Evaluate a range of potential 'impacts'	Production of knowledge does not in & of itself inform policy
Evaluation	Include evaluation of 'Public Value'	This is a long-term, involved goal
	Evaluate contribution rather than attribution	Production of knowledge does not in & of itself inform policy. Sometimes it is the relationships that contribute to policy Long-term, non-linear relationship between policy & research contribution

Table 3: Summary of key framework considerations

	Use mixed methods	Essential for capturing range of contributions	
	Involve internal & external (independent) review	Aspirational goal. FFRG could start with internal process	
	Monitor and evaluate the vitality of the research-policy environment	Essential to enabling the sharing, brokering and translation of information and knowledge	
Reporting	Utilise existing processes wherever possible	At a minimum, essential to address accountability	
	Review and revise Program Logic		
	Review and revise research- policy environment/system		
Improveme nt for learning	Revise and review conceptual model of how system functions	Essential to enabling improvement	
	Revise and review research investment processes		
	Review and revise Bushfire Science Strategies		

Evaluation of frameworks and tools

After identifying key considerations for a framework aimed at evaluating the impact of research on policy, the Scoping and Options Paper also examined several frameworks and tools used by other organisations that may address those considerations and provide FFRG with a practical approach to evaluating the impact of its research investments on policy. This section briefly outlines those frameworks and tools. The first section describes an identified commonality of structure between the evaluation approaches. The second section describes five evaluation frameworks and assesses them against the MERI framework principles discussed in the preceding section. The final section discusses some assessment tools that might be incorporated into a MERI framework because they address one or more of the above principles.

Common framework structure

Most MERI frameworks share a common structure, and this includes frameworks aimed at evaluating the impact of research on policy. Overall, the existing evaluation frameworks seek to first understand or document the research program or project's intent, and then to evaluate to what degree that Program attained its goal, *how* research contributed to policy processes and outcomes, and importantly, what enabled or constrained that contribution (the research-policy environment). Frameworks typically either track forward from a research project or programme to look at its impacts on policy or track back from policy to identify research use in the policy development process (Boaz etc). Many share a similar structure (Figure 7, adapted from Shaw and Bell 2010).

Figure 7: A generic evaluation process for research investments



Existing evaluation frameworks

'Each method has its own characteristics and advantages. While different methods can appeal to different target groups, none is complete, and none offers unambiguous or certain results' (*ibid*). Therefore, it was perhaps unsurprising that few reviews considered the same frameworks or model. In addition, 'while there is much in the literature about the advantages and disadvantages of different approaches, there is very little about their effectiveness (in terms of capturing impact) or costs' (Boaz 2008). This suggests that whichever model FFRG chooses, it will have to do so on an exploratory basis.

This section briefly describes five existing frameworks including comments upon how each might address the MERI principles outlined above. More detail regarding this can be found in the Scoping and Options Paper. The frameworks considered were:

- ERiC: Evaluating Research in Context from the Netherlands
- Irish EPA framework and the UK Research Excellence Framework ⁴
- The Payback Framework from Brunel University, UK
- RAPID Outcome Mapping Assessment (ROMA) from the UK Overseas Development Institute.

The review was unable to find a framework currently used by a fire or emergency management agency that is specifically aimed at assessing the impact of its research investments. Most of the fire agency frameworks found focused on evaluating the impact of policy and practice on outcomes and were typically cost-benefit analyses.

ERiC

ERiC seeks to measure quality and relevance against the program intent and incorporates stakeholder views in the benchmarking process, with findings intended to guide improvement and future development of a programme. A mix of qualitative and quantitative data is used, combining self-evaluation, performance indicators and stakeholder analysis. It uses workshops, case studies and quantitative measurements.

ERiC appears to address the key MERI framework principles. Pilot studies indicate high stakeholder support, "particularly from the arts and social sciences who believe an assessment of this type will meet their needs better than traditional approaches" Grant *et al.* (2010). A major workshop is pivotal to this model and suggests that ERiC may be most useful as a strategic review method, rather than as an ongoing MERI framework.

The Irish EPA and UK REF approach

These models seek to assess research quality and impact, with the UK model also assessing the *vitality* of the research environment. They use documentary analysis, citation analysis, interviews and/or questionnaires, as well as context statements for each project. The UK REF also uses case studies submitted by research institutes that are reviewed by experts.

These models do not currently meet all the identified principles. Moreover, the impact categories are generic and subjective, and may be too 'high level' to grant any real insights for learning and improvement. Shaw and Bell (2010) also suggest that the rating of impacts by expert panels can be subjective and that indicators could become the sole focus of attention, rather than learning.

⁴ Both have drawn from Australia's unreleased RQF and are related to the approach in Australia's current ERA

The Payback Framework

The Payback Framework (originally developed by Buxton and Hanney 1994;1996) utilises a Logic Model (akin to a Program Logic) and an approach called 'multi-dimensional categorisation of impacts.' The Logic Model describes target impacts through the research process and the stages at which each category of impact was or could be realized. Case studies, interviews and workshops are used to identify factors such as policymaker involvement in the research, outputs and outcomes, and contributions to research. The second component uses five adaptable categories, which allows for use of several data collection techniques, but is typically collected and triangulated through document reviews, surveys and case studies involving interviews with researchers and stakeholders.

This framework meets all the principles because it can incorporate methods such as narratives and case studies that can allow a more complex and nuanced picture of the research-policy interface. Care needs to be taken that the Logic Model does not imply linearity and is recognised as an incomplete approximation of research-policy interactions. However, with enough collective discussion, they are pragmatically good enough to inform an evaluation (Anderson *et al.*2011).

The multi-dimensional categorisation of impacts risks double-counting and the approach can be costly and resource-intensive. Boaz *et al.* (2008) suggest this framework assumes outputs have equal impact, does not measure non-utilisation, and does not fully explain/account for complex research-policy interface. Overall, this framework will need significant work to tailor it to specific circumstances (Guthrie *et al.*2013).

ROMA

The Research and Policy in Development (RAPID) Outcome Mapping Assessment (ROMA) is a multimethod approach that tracks forwards from research and backwards from policy. It uses participatory evaluative techniques (Boaz *et al.*, 2008), which means its findings are dependent on the contribution and perceptions of change of the identified key actors (*ibid*). It involves triangulation and integration of data collected using outcome mapping, episode studies, case studies and the most significant change method. Results are then interpreted through the Overseas Development Institute's (ODI) Context-Evidence- Links framework, which considers the process and influences from the perspectives of political context, role and use of evidence, role of linkages, and effect of the external environment.

ROMA appears to meet all the principles. However, Boaz *et al.* (2008) suggest the ROMA model is costly and time-intensive and does not capture the economic impacts of a programme. They also suggest that the outcome mapping component does not evaluate value for money, observed behavioural change posits a link between cause and effect which may be impossible to demonstrate, and captures elements of policy implementation but not 'paper' policy. Also, that episode studies can over-emphasise political factors and under-emphasise the role of research, and risk actors 're-writing' history.

Table 4: Comparison of the frameworks against the considerations

Criterion Framework	Considers research impact across a continuum*	Assess contribution	Provide for regular monitor	Research- policy environ't	Allow internal & external evaluation	Allows mixed methods approach	Adaptable?
ERIC	Qual and quant data. Incorporates researcher and end- user/stakeholder input	Ø	 ✓ Could incorporate a regular 'check in' with people 	☑ Uses Productive Interactions approach	☑ Repeatable	Ø	Somewhat (computer- based calculations of REPP may be difficult to replicate)
Irish EPA & UK REF	Case studies allow incorporation of researcher & end-user/ stakeholder input	No Seeks only attribution of impact	Only with high transaction costs for all involved	Possibly, through case studies	Repeatable, but judgements not necessarily transparent. Does not provide for dialogue	☑ interpretation depends on composition of 'expert panel'	No
Payback	Allows for qual & quant data. Incorporates researcher & stakeholder input	V	 ☑ Could be adapted to enable 	 ☑ Through case studies. Could incorporate 'Productive Interactions' 	☑ Can use triangulation of findings (stakeholder: research)	V	Y
ROMA	✓ As above	\checkmark	?	\checkmark	\checkmark	\checkmark	\checkmark

* Info provision, knowledge translation, knowledge brokering, & innovation & change

Additional evaluation tools

Several 'stand-alone' evaluation tools were found that focus on one aspect of the research-policy process but that could be incorporated into an existing framework. However, they will not in and of themselves meet all the MERI requirements.

Public value mapping (PVM)

PVM is a framework with which to evaluate the contribution of academic knowledge in bringing about public goods, to achieve the public value results for which the research receives funding. It is a relatively new approach to evaluating the contributions of research to policy, and as such will need testing and refinement. Several published and peer-reviewed case studies exist that may be of assistance (*cf.* Meyer, 2011; Slade, 2011), alongside guidance from the work of others exploring the subject, such as Bozeman and Sarewitz (2003; 2005; 2011).

UK's ESRC's 'light touch, reflective practice'

This approach is a simple set of reflective questions that a team or individual can ask of themselves at any point. It is therefore a potentially useful method for learning, because the questions simply seek to explore what is currently working and what is not, etc. It therefore provides a quick, 'light touch' monitoring method that could inform monitoring data collection.

Productive Interactions (PI) (part of ERiC)

This method defines PIs as 'exchanges between researchers and stakeholders in which knowledge is produced and valued that is both scientifically robust and socially relevant. The method categorises impacts as direct, indirect or financial. To evaluate the 'social impact' of research beyond the relationships among researchers and end users would be quite a mammoth task and well beyond the

scope of FFRG's project, which is concerned with policy impact (which in turn has public value). Therefore, for FFRG's purposes PI could be used to assess *the vitality* of FFRG's research environment. However, Guthrie *et al.* (2013) caution that the tool does not produce comparison between institutions, so it is not appropriate for allocation and could be challenging to use for accountability.

Episode studies (part of ROMA)

'Episode studies' are a method that focuses on a clear policy change and tracks back to see if it can assess what impact research had among the variety of issues that led to the policy change. They could focus on a single episode or comparative episodes. The authors argue that tracking backwards gives a more realistic view of the broad range of factors – other than research – that influence policy. Critiques suggest that ES can over-emphasise political factors and under-emphasise the role of research, and risk actors 're-writing' history (Boaz *et al. 2008*). This tool might be of best use in combination with other methods to triangulate data and verify findings.

Comparing the evaluation tools

Criterion Tool	Can consider research impact across a continuu	Assess 'contributi on' to those impacts	Provide for ongoing / regular monitori ng	Research -policy environm ent	Allow internal & externa I evaluati	Allows mixed metho ds approa ch	Is adaptab Ie?
	m*				on		
Public value mapping	Broadly, but is specifically targeted at an important issue untouched by the other frameworks		Could do but would be resource intensive. If clear from outset what information & evidence would be sought, this information could be collected as the research progresses			Yes, can review a range of data & information	The authors claim yes
UK ESRC's "light touch, reflectiv e practice"	Broadly – provides a 'rapid' assessment					Yes, but is primarily qualitative	V
Producti ve Interacti ons	V		Only if utilised on a regular basis. There may be potential	This is its primary focus	Could be 'verified' by external evaluators	Yes, but is primarily qualitative	can be incorporated into a broader framework
Episode Studies			Only in guiding the kinds of measures that might inform future case studies	Likely to be captured in its typically case study approach	V		V

Table 5: Complementary Evaluation Tools

* Info provision, knowledge translation, knowledge brokering, & innovation & change

MERI framework options considered

Option 1. Off the shelf: A direct copy of an existing framework

The first option was for FFRG to adopt an existing framework as it is. However, while the ERiC, Payback and RAPID outcome mapping frameworks appear to provide the most comprehensive picture of research impact on policy, they would each require adaptation to make them directly relevant to FFRG's situation. Consequently, there does not appear to be a framework that could immediately be 'pulled off the shelf' and adopted and tested by FFRG.

Option 2. Adaptation of an existing framework

The second option was for FFRG to consider adapting either the Payback or ERiC framework. Each provides a means of first establishing the intent or 'Program Logic' of a research program and project, and then a range of evaluation tools by which attainment of that logic might be measured. They both enable assessment of different kinds of contributions, and importantly, both could incorporate a tool or approach to assess the 'vitality' of the research environment; the systems and relationships that influence potential contributions. However, both would require significant adaptation to be suitable for FFRG's purposes.

Option 3. A framework amalgam that is fit-for-purpose

The third option was for FFRG to create its own evaluation framework that draws on the principles, considerations and approaches outlined above. That framework could be an amalgamation of various components, tools and methods from the Payback, ERiC and ROMA frameworks.

Following the review and consultation, this is the preferred option.

A proposed MERI framework

Consultation on the Scoping and Options Paper identified that the preferred option is for FFRG to develop its own framework based on amalgam of existing frameworks and tools. The overall feedback on the Scoping and Options Paper was positive, with the main identified 'gap' being a need to improve focus on evaluating the institutional (policy) context within which research must operate. It is here that policy practitioners will provide greater insights than their researcher colleagues.

It is also clear from the literature and reviews of existing evaluation frameworks that FFRG will need to undertake further work to understand the likely transaction costs of any selected MERI framework. It will therefore need to treat its initial forays into this type of evaluation as an experiment.

The literature also suggests that initial development and testing of any framework will represent some initial burden to FFRG and research institutes. However, as the practice of MERI evolves, that burden is likely to decrease with subsequent iterations (Grant *et al.* 2010). Co-development between researchers and policymakers will be essential to ensure the concerns of relevant stakeholders are incorporated. Whether these concerns are addressed (or not) can form part of the evaluation. Therefore, the following is presented as a discussion starting point, and the basis for further development and trial of a framework.

Component	Purpose	Framework component or evaluation tool
Program Logic	Document or plan the program's intent/ Program Logic. This 'logic' may be revised as the program evolves and through MERI results	Program Logic This should clearly articulate the MERI's purpose, principles and the research contributions of interest.
Monitoring	To establish at the outset what will be monitored, when, and how	Observational data from relevant meetings, such as Steering Committee, research institute and FFRG meetings
		"Light touch reflective practice"
	The bulk of the MERI used to explore:	Interviews and surveys of researchers, FFRG personnel and other relevant stakeholders
Evaluation of impacts or contributions	 various contributions of the research investment to policy/ the research impacts of interest (Not all projects will provide all impacts) factors that enabled or constrained the research, and/or its contribution to policy or policy outcomes 	Case studies (developed through interviews and focus groups) depicting contributions across the knowledge/impact continuum. Participants might also be provided an intranet site in which they might note key events, interactions, etc that occur during the research project, such that it might more easily be compiled during the case study write up. The Episode Studies tool might be useful here.
	Enables FFRG to evidence:	
	 stated public values 	Quantification of knowledge production – publications, reports, training seminars, etc
	 policy development (advocacy and analysis) 	

Table 6: Possible framework for FFRG's MERI of its research investments

	 achievement of outcomes (analysis and accountability) delivering value for money (accountability) 	Public Value Mapping a framework with which to evaluate the contribution of academic knowledge in bringing about public goods, to achieve the public value results for which the research receives funding
Evaluation of research- policy environment	Identify enabling and constraining factors in the research-policy environment/context	Productive Interactions – a measure of 'exchanges between researchers and stakeholders in which knowledge is produced and valued that is both scientifically robust and socially relevant'. Captures direct, indirect and merely financial interactions
Reporting & Improvement for learning	Provides feedback and revises strategic direction by building on enablers and addressing barriers Enable FFRG to maintain and exhibit its commitment to adaptive management	 End of year 'Appreciative Inquiry' workshop Formal program report Financial reporting Monitoring as described above

A Program Logic 'maps' the thinking or rationale behind the program, and helps stakeholders understand the purpose and aim of a research program, as well as the (assumed) requisite actions, relationships, and materials. It is important however, to recognise that any program logic is a theoretical and guiding construct; one that is very likely to change throughout its implementation. It is crucial that the MERI program logic be developed with all key stakeholders. The table below depicts key components that will require consideration in the development of this program logic.

Table 7: Possible structure for a Program Logic for FFRG's research investment best developed with stakeholders rather than provided

	Assumptions	Potential Indicator/s
Goal		
The purpose/objectives of this MERI are to		
•		
Intermediate outcomes	Assumptions	Potential Indicators

Assumptions	Potential Indicators
	Assumptions

Next steps

After reviewing and consulting on a potential MERI framework for its BSS research investments, FFRG will develop materials that will support a trial of the proposed MERI within fire and emergency management.

This Discussion Paper will provide the platform for developing the next phases of the project where the MERI package will be developed, tested and refined. This will likely involve articulation and development of methods and tools for implementing the MERI, and a guide to selecting tool combinations based on level/scale of evaluation (i.e. program or project level). This MERI 'toolkit' will then be tested for rigor and acceptability with key stakeholders, such that the framework and tools can be adapted to refine the framework and its implementation.

Appendices

Appendix 1: Consultation and responses

Table 8: Consultation overview

Feedback/comments	How considered/response
Science contributes to <u>practice/management (</u> not just policy) and sets a cultural standard	While the point about practice/management was within the commentary around the continuum of knowledge 'impacts' (see section X), it was clearly not explicit enough. This has been made more explicit in the Discussion Paper.
	The concept of science setting a cultural standard is debatable. It is a form of cultural standard, but it is not the only affecting policy, practice or culture. A range of science and policy research highlights that culture equally drives science. This issue is addressed in section 3.2.1 Foundations
There may be opportunities to look at the qualifications (PhD+) and standards of scientific practice of DELWP staff (and so drive these up)	There may be, but care would be needed to not imply that a person requires a PhD to understand science/research. This issue also raises the question of ability for different scientific disciplines to appreciate/understand one another. In many ways, this would defeat the purpose of policy-orientated research. Moreover, if the purpose is sharing knowledge, then the issue is in communication and dialogue.
The framework should have at its core the policy and management processes - social processes, decision making phases, problem orientation, adaptive management cycle etc	Policy processes are variable, idealised concepts. Recognition of the social nature of the interface between research and policy was included in the Scoping and Options paper. However, this comment suggests that perhaps this was not explicit enough. The point may also relate to issues identified by another commentator that the
	institutional context with which research must interface is equally crucial. This point has been expanded and made more explicit
	Problem orientation - section X talks about the need to clarify the problem orientation (framing), this should be a key question in the MERI at project and program level
	Adaptive mgt cycle - the 'I' for improvement is considered to address the question of adaptive management, which is arguably more than a cycle.
A few well-chosen methods that collect high quality data are preferable to some of the potential 'light touch' options. Feedback has a place, particularly in collating the story, but also tends to be polarised and biased.	This issue is identified/covered in the Scoping and paper
	Moreover, feedback can be triangulated to avoid 'bias' – so long as the methods used are sound social science techniques and are used by appropriately skilled people. It is a very common qualitative method
The three main aspects of impact failure are not assessed, and this should be the primary focus of an evaluation framework: Did we ask the right questions to address a policy need? Were they answered properly? Was there a barrier to using the research outcomes and outputs in a management or policy context?	The preferred MERI has been adapted to be explicit about how it will capture these questions.
	This comment highlights that the issue of scale of evaluation needs to be explicit – program vs project level.
	The Discussion Paper and the MERI have been revised to be explicit that you would not use the entirety of these methods to assess a project, but collectively you would to assess a program.
	Moreover, FFRG is directly addressing this issue through development of its knowledge-translation plan

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