HAZARD NOTE

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CLOSING THE GAP BETWEEN RESEARCH AND PRACTICE

ABOUT THIS PROJECT

This research was conducted as part of the Bushfire and Natural Hazards CRC's *Improving decision making in complex, multi-team environments* project and is a partnership between the CRC, the University of Tasmania and the Australasian Fire and Emergency Services Authorities Council (AFAC). For this component of the project, researchers built and tested a tool to support emergency services agencies in the self-assessment of their research utilisation capability.

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SUMMARY

One of the challenges facing the emergency management sector is the gap between research and practice. Despite the considerable investment in publicly funded and commissioned research, the application of research findings to operational practice often lags. Research utilisation capability is about using research in practice to support agency decision making, drive innovation, highlight gaps and opportunities, and deliver desired results.

This project has identified activities involved in the research utilisation process that support agencies to gain maximum benefit from their investment in research. Based on this the authors have developed the Research Utilisation Maturity Matrix – a tool and guidelines to assist agencies in utilising research to support evidence-informed practice.

CONTEXT

The Research Utilisation Maturity Matrix (see Figure 2, page 4) is a self-assessment tool that describes the typical features of an evidence-informed agency at different stages or levels of maturity. The Matrix can be used to:

- indicate how well-established the necessary infrastructures are that support research utilisation within a unit or agency.
- inform which activities and behaviours can be developed to increase levels of research utilisation maturity, in order to assist agencies in getting the best value from their investment in research.

There are also guidelines that advise agency practitioners on how to use the matrix to review and develop research utilisation maturity within their team or agency.

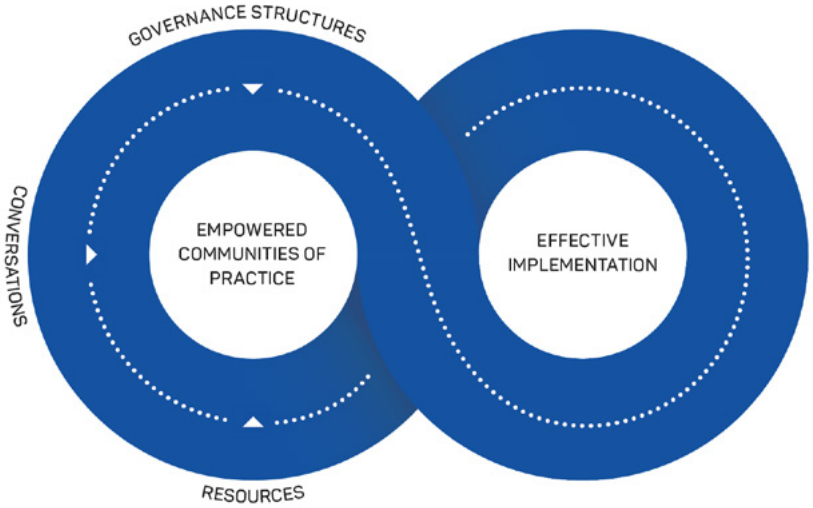

Figure 1: A MODEL TO CONCEPTUALISE HOW THE ELEMENTS OF RESEARCH IMPLEMENTATION (GOVERNANCE STRUCTURES, EMPOWERED COMMUNITIES OF PRACTICE, CONVERSATIONS, AND RESOURCES) WORK TOGETHER TO SUPPORT EFFECTIVE IMPLEMENTATION OF RESEARCH FINDINGS. THE ARROWS INDICATE DIRECTIONS OF SUPPORT, SHOWING THAT RESOURCES, CONVERSATIONS AND GOVERNMENT STRUCTURES SUPPORT EMPOWERED COMMUNITIES OF PRACTICE, WHICH THEN SUPPORT EFFECTIVE IMPLEMENTATION OF RESEARCH OUTCOMES. THESE RELATIONSHIPS ARE DYNAMIC AND ONGOING – ADAPTING AND TRANSFORMING IN WAYS TO FIT EACH ORGANISATIONAL CONTEXT.

BACKGROUND

In emergency management organisations, there is an increasing drive to use research to inform policy and practice, however decision makers face barriers to utilising and integrating research. Although using research to inform practice may sound straightforward, negotiating this in the real world is often difficult because findings are not easily or directly usable by practitioners (for example, when published in journal papers). Yet, the need to demonstrate evidence-informed practice has never been greater, and there has been increasing scrutiny on emergency management organisations to justify their actions. One way to do this is for end-user organisations to actively engage in partnerships with

researchers and their institutions, in the utilisation of research outcomes.

As part of this project, emergency services practitioners were surveyed regularly between 2010 and 2018 to assess how they were utilising research to gain maximum benefit from their investment (see Owen, Bethune & Krusel 2018). The early surveys revealed opportunities for the CRC to improve communication, engagement and collaboration, and the subsequent research utilisation strategy focused on these areas.

In parallel, there was evidence that end-user agency research literacy was also a barrier to research utilisation. Drawing on discussions of the findings from the surveys, a Research Utilisation Maturity Matrix (see Figure 2, page 4) was developed with the AFAC Knowledge Innovation and Research Utilisation Network. Building on this, the 2018 research utilisation survey provided an opportunity to empirically test some of the indicators included in the Matrix, and to test their relationships with indicators of effective research implementation. For further discussion of this research see Owen (2018), Owen et al. (2018), and Owen, Krusel and Bethune (2020).

RESEARCH ACTIVITY

The 2018 survey was completed by 190 respondents from 29 fire and emergency services agencies, land management and policy organisations across Australia and New Zealand. The survey tested two models of research utilisation: the science-push-pull model and a more relational model of knowledge building called the socially interactive organisation model (for further information see Owen, Krusel & Bethune 2020).

The latter was found to be a better fit for indicators of effective research implementation, which include conversations, empowered communities of practice, governance and resources. Figure 1 (page 1) shows a conceptual model of how these elements may work together to support the effective implementation of research.

In addition, discussions with KIRUN members informed the development of a set of indicators of effective research implementation (see Table 1, right).

In terms of considering what successful implementation would look like, the authors speculated that the level of 'maturity' to use research would impact the use of research products. For example, when maturity to use research is low, use of research products would be limited (e.g. outputs 'sit on the shelf'). If findings are implemented, they might be done so in a fragmented way – that is, tied to one-off projects and not linked to core business. However, when organisational maturity to use research is high, research outputs would be discussed and adapted, used in multiple applications, and connected to organisational or operational policy and practice. These indicators were included in the 2018 survey and can be found in Table 1.

RESEARCH FINDINGS

Table 1 shows the indicators of effective implementation that were found to be positively associated with higher levels of implementation, incorporating the indicators from the socially interactive organisational model.

Conversations and empowered communities-of-practice were found to be significant predictors of effective implementation. While there was a positive correlation between effective implementation and resources and governance, these were not significant predictors of implementation, leading the researchers to conclude that resources and governance processes are necessary but not sufficient to support research utilisation alone.

The research found that, when practitioners are engaged in conversations about things that matter to them, and when there are collective groups high in efficacy and commitment, then resources are used more skilfully and organisational structures that further enable effective research implementation are more likely to exist.

Using the Research Utilisation Maturity Matrix

The Research Utilisation Maturity Matrix (see Figure 2, page 4), which can also be found on the AFAC website, is presented as a matrix (or table), with rows representing the different enablers that influence the way an agency utilises research to support evidence-informed practice. There are eight enablers included in the Matrix and these are described in more detail in Table 2.

The four columns of the Matrix represent the levels of maturity for each enabler, from basic (the least mature) to leading (the most mature).

Basic: There are pockets of research utilisation in the agency, however these are not systematically organised. Attempts to keep up to date with research depends on individual effort.

Developing: Some systems and processes are documented, which enables research to be disseminated. There is limited evidence of analysis or impact assessment.

Established: There are systematic processes in place for reviewing research (e.g. dissemination and review, either through job responsibilities or an internal research committee).

Leading: There is evidence of using research proactively.

Table 1: Indicators positively associated with research implementation

Element	Indicator
Conversations	• There are frequent discussions of the implications of research knowledge. • Conversations about how evidence-based policy and practice informs decision making. • There is active and widespread engagement in utilisation and learning activities.
Empowered communities-of-practice	• People are empowered to transform research products to suit multiple applications. • The agency culture values research and its use. • Testing research findings includes processes that trial new practices and allows for 'safe fails'. • There is active participation in testing and prototyping research products to make them suitable for the context. • There is a focus on research being about solving problems and 'problem seeking', to proactively explore and develop solutions.
Governance	• Responsibility for using research is formally embedded in job roles. • There are structures (e.g. research committees) that review and monitor research utilisation. • Reporting processes are well established.
Resources	• Resources are available to implement and drive changes based on research findings, and to make changes part of core business. • Resources are in place for individuals to participate in professional development events.

Operational and strategic decisions are informed by assessing research and using formal research utilisation processes. These processes and systems are widely understood.
Within each box of the Matrix, there are a number of statements describing examples of organisational characteristics at each of the four levels of maturity. Practitioners are encouraged to use this matrix to self-assess their agency by reading the statements and choosing which statement (and level of maturity) best describes the characteristics of their agency for each enabler.

The Matrix comes with accompanying guidelines, advising that the statements should not be used as a precise checklist but are examples of the type of features and behaviours expected at that level. It may be that some of the level statements are relevant but not all, in which case the practitioner would need to decide which box is the closest fit for their agency.

HOW IS THE RESEARCH BEING USED?

Since 2018, members of AFAC's Knowledge Innovation Research Utilisation Network have been consulted to identify and trial the Matrix. Case studies of implementation success were also used to evaluate the matrix and the role that maturity plays in understanding the different stages in research utilisation.

In addition, guidelines on the AFAC website provide advice about how to use the Matrix, including how to get started, some ways that conversations may be facilitated and how the insights may be used to move forward.

The Matrix and guidelines help practitioners assess their unit or organisation's capability in research utilisation. A number of emergency service agencies are currently using the Matrix before they embark on commissioning research, to evaluate their organisational infrastructures to ensure they have the right processes in place to benefit from the research results.

Table 2: Enablers in the Research Utilisation Maturity Matrix

Enabler	Description
People	The degree to which people in the unit or agency are expected to have, or are supported in obtaining, the skills necessary to find, appraise and use research. The degree to which utilisation is authorised as part of core activity, embedded within job roles.
Culture	The underlying beliefs, values and behaviours of the unit/ agency that inhibit or support research utilisation. This includes how receptive (or resistant) the culture is to adopting and promoting research utilisation in its everyday practice and decision making, and the extent to which research utilisation is viewed by personnel as central to the development and improvement of future policy and practice.
Communities-of-practice (communication and engagement)	The degree to which engaging in using research is an individual or collective activity. Is it driven by passionate individuals alone or are there engaged communities-of-practice where people discuss, share insights? Are these found within the unit or agency and/or between agencies; potentially introducing utilisation insights from other sectors?
Resources and professional development	The degree of investment in resources to develop and improve the capability of all personnel to understand and enable research utilisation. This includes the extent of sufficient learning opportunities provided for personnel to develop their skills, knowledge and experience of research and utilisation.
Policies, procedures and doctrine	The presence or absence of appropriate policies, procedures and doctrine so that research is used to inform policies and practices. The processes by which policies may link using research to the agency's core business.
Structures	The presence or absence of appropriate mechanisms to capture and facilitate research utilisation, to monitor its implementation and to disseminate and promote it throughout the organisation and the wider sector.
Governance	The processes in place to monitor, implement and report on research utilisation including quality assurance for continuous improvement.
Products	The degree to which emerging research products are adopted (i.e. are these taken up across the agency or do they simply 'sit on the shelf'?).

FUTURE DIRECTIONS

The true value of the Research Utilisation Maturity Matrix is in the conversations that it fosters. It is designed to aid reflection, inform development and promote change. It can be used by individuals, in teams, or across a whole agency at a strategic level. The Matrix can be used to support structured and ongoing conversations about the level of utilisation maturity in the organisation.

In addition to this, it is useful at different stages in the development of research-informed practice, including:

- benchmarking current research utilisation capability
- identifying differences in perceptions, and building consensus across different roles, functions and teams about research utilisation
- helping units and agencies identify their own areas of strength and areas for improvement, and tracking these over time
- demonstrating characteristics of an organisation and/or team with a more developed approach to research utilisation
- encouraging peer support – matching those with something to share to those with something to learn.

The Matrix is not intended to be used for performance management or external assessment purposes.

FURTHER READING

Owen C (2018) How emergency services organisations can – and do – utilise research, *Australian Journal of Emergency Management*, 33, pp.28–33.

Owen C, Bethune L & Krusel N (2018) *Report on Research utilisation review*, Bushfire and Natural Hazards Cooperative Research Centre, available from www.afac.com.au/docs/default-source/ru/report-on-research-utilisation-review-2018.pdf

Owen C, Brooks B, Curnin S & Bearman C (2018) Enhancing learning in emergency services organisational work, *Australian Journal of Public Administration*, pp.1–14.

Owen C, Krusel N & Bethune L (2020) Implementing research to support disaster risk reduction, *Australian Journal of Emergency Management*, 35, pp.54–61.

Enablers	Basic	Developing	Established	Leading
People	Utilisation is not part of core job role. Individuals bring prior skills and find their own professional development.	Utilisation acknowledged but limited systemic understanding or support for using research for practice.	Inquiry related practices embedded in all or many job roles. A learning culture supports testing new ideas and their implications.	Open knowledge sharing and evidence used to improve, adopt, anticipate and question existing understanding and practice.
Communities-of-practice (communication and engagement)	Occurs through individuals who use their own resources and networks.	Some engagement but is not linked to organisational processes.	Active engagement in adapting products to suit context. Active exploration of issues.	Proactive testing and integration of research insights into multiple aspects of activity.
Resources	Support is limited to individuals and their influence within the organisation.	A research policy or unit exists but is not connected to core business.	Capability support provided. Technical systems in place to monitor, review and evaluate.	Support systems are resourced as part of core business. Wide sharing of learning for capability.
Policies procedures and doctrine	No systematic quality assurance, monitoring and reporting on research utilisation.	Policies, procedures and doctrine exists but with limited connection to core business. Some processes exist but are largely spasmodic and unconnected.	Policies, procedures and doctrine is codified, clearly visible and accessible.	Policies, procedures and doctrine is embedded in core business.
Structures	No structures in place supporting research utilisation.	Reactive structures are put in place when a problem emerges.	Research utilisation is strategic, planned and systematic.	Structures support risk taking and innovation.
Governance	No systematic quality assurance, monitoring and reporting on research utilisation.	Governance is project-based only.	Research utilisation is monitored and reporting is reasonably established within governance structures.	Research utilisation is monitored and reported. Governance allows for 'safe fails' and transformational change.
Products	Research products sit on the shelf. Some individuals 'know' and use the products but information disappears when people leave.	Products are one-off and tied to a specific project. Experience of use is often short-lived and organisational memory of utilisation is partial. Utilisation is not sustained (i.e. does not get built into business-as-usual).	Products are user-friendly, fit-for-purpose, easily accessible, widely known and actively incorporated into business-as-usual. Products are widely disseminated, resourced, may have a cost-benefit assessment and are likely used in multiple applications.	There is active testing and prototyping of products emerging from research outputs. Widespread knowledge and use of products. Products may be tested and transformed and there is application beyond the organisation.

▲ **Figure 2:** THE RESEARCH UTILISATION MATURITY MATRIX

END-USER STATEMENT

"The members of the Knowledge Innovation and Research Utilisation Network involved in piloting the Research Utilisation Maturity Matrix have found the tool to be beneficial to help identify the factors that may contribute to the limited utilisation of research and implementation of learnings."
Heather Stuart, Operational Improvements and Lessons Manager, NSW State Emergency Service

The Research Utilisation Maturity Matrix and guidelines can be accessed via the AFAC website.

The Bushfire and Natural Hazards CRC is a national research centre funded by the Australian Government Cooperative Research Centre Program. It was formed in 2013 for an eight-year program to undertake end-user focused research for Australia and New Zealand.

Hazard Notes are prepared from available research at the time of publication to encourage discussion and debate. The contents of *Hazard Notes* do not necessarily represent the views, policies, practises or positions of any of the individual agencies or organisations who are stakeholders of the Bushfire and Natural Hazards CRC.