



Report on Research Utilisation Consultation

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Executive Summary

In order to effectively support the utilisation of the research outputs that emerge from the Bushfire CRC Extension it was timely to review and update our approach to Research Adoption for the initial seven years of the Bushfire CRC.

Two approaches were employed to systematically understand the current situation around research utilisation. The first was a 'good practice' survey, developed to help agencies assess where they thought they were positioned in relation to research adoption. The survey was based on our current approach to research adoption with additional questions around linkage to the organisation's strategic planning, governance and resourcing and to identify barriers to uptake. The second approach involved conducting a consultative workshop where key stakeholders were invited to provide input about their experiences of research utilisation and what they saw as the key challenges (from either an agency or AFAC group perspective); to discuss the implications of the survey and to inform the future directions of the Research Utilisation strategy.

In terms of the good practice survey 148 responses were received from 15 agencies. The key findings from the analysis are:

- Some agencies have been very active in putting in place systemic approaches to reviewing Bushfire CRC research, others have no, and see this as their weakness
- Participants report that their agencies are somewhat effective in being able to disseminate Bushfire CRC research within the agency and to implement any changes needed, but less effective in being able to assess and evaluate the impact of research and to put in place monitoring processes to track those changes.
- There is satisfaction with the information provided from the Website and from Fire Notes. There is less familiarity with Events.
- The value of the Industry Impact Assessment process and how it can be managed needs to be further analysed.
- The major barriers to research utilisation include agency assessment and translation processes; evaluation of the impact of research and making a case for change and addressing these barriers in the context of too much change.

In terms of the workshop there was support for the existing processes in use for research utilisation; confirmation of the issues that were raised in the survey and identification of the following as key components of Bushfire CRC research utilisation;

- Continuing to **build relationships** through partnerships and trust,
- Building engagement through creating opportunities for **active involvement**,
- Pro-actively working with participants to **form meaning** as part of a process of translation ,
- Building of research utilisation **capacity and capability** within end user agencies,
- Collaboratively creating high quality **products** to support utilisation and finally
- Supporting the nurturing of a **responsive and learning culture** within end user agencies.

Doing so would facilitate the enhancement of internal processes within agencies to assess, evaluate, translate research, implement change and monitor and evaluate those changes. Addressing these objectives will be important so that impact can be demonstrated and for supporting agencies in particular and the industry as a whole to reap the full benefits of Bushfire CRC research.

Introduction

In order to reap the maximum benefits from our investment in the Bushfire CRC it is timely to understand the position of agencies in relation to the utilisation of the completed research, and also to understand how individual agencies and the industry as a whole can improve on its utilisation of research. There were two strategies employed to do this that formed part of a consultation process. The first was a survey and the second was participation in an invitation-only workshop. The purpose of the consultation was to :

- Assess and discuss good practice in research utilisation;
- Provide a baseline assessment of the state of research utilisation across the industry that can be reviewed longitudinally as a measure of impact;
- Ensure that a strategic approach to research utilisation by the Bushfire CRC is collectively informed by user needs.

The rest of the report will provide a synopsis of the findings of both consultation strategies.

Survey of research utilisation within agencies

The purpose of the survey was to:

- assist individual agencies to understand their current situation with regard to research utilisation;
- collectively inform further Bushfire CRC research utilisation programs; and
- provide a baseline measure on current agency uptake.

A copy of the survey used (Available on request), is divided into four sections:

Section 1: Strategies agencies have in place to benefit from Bushfire CRC research

Section 2: Perceptions of learning within agencies and the industry

Section 3: Uptake of Bushfire CRC research utilisation strategies

Section 4: Potential barriers to research utilisation

Review of the relevant literature

Previous research (e.g., Chesla, 2008; Donaldson, Rutledge and Ashley, 2004) reveals that in the past, sometimes it would take decades for research outcomes to translate into changes in practice. In the current context and for the Fire and Emergency Services industry in particular, these types of time lags between research and subsequent improvements would not be acceptable. It is also imperative to develop the capacity to systematically understand what enables and constrains research uptake and end-user adoption, something that intriguingly often goes unexamined in the research literature (Baumbusch et al., 2008; Thompson, Eastabrooks and Moore., 2008; Foxcroft, 2009). It has been argued that in industries based on evidence-based practice, the research process is in fact not complete until the impact and extent of innovation use are examined and understood (Donaldson et. al., 2004; Rogers, 2003, Hippel 2005).

These issues have also been taken up as part of a national policy agenda into enhancing Australia's capacity to innovate (Cutler, 2008). In a Review of Australia's national innovation system Cutler and his colleagues contended that innovation determines the health of the nation. They went on to suggest that serious attention was needed to create a national innovation system to meet the challenges of the future so that as a society we might enable sustainable national prosperity and wellbeing. Their conclusions were that Australia's innovation system requires renewal, refurbishment, recasting and where necessary re-imagining.

The Bushfire Co-operative Research Centre (CRC) is committed to contributing to a learning culture in the industry. Engendering a learning culture is part of its strategy to enhance and strengthen the connection between research outcomes and research adoption. This is also in alignment with Knowledge Management approach of the Australasian Fire and Emergency Services Council (AFAC) where the intent is to facilitate "*A culture that nurtures and supports knowledge creation and evidence based decision making*". Within the policies of both institutions it is acknowledged that evidence based decision making underpinned by sound research is invaluable for effective decision-making within emergency services (See also Edwards, 2009).

Strategically, the purpose of engendering a learning culture for innovation in the Fire and Emergency Services industry is to enable (following Dearing, 2009):

- Processes to accelerate the pace of adoption,
- Increases in the number of adoptions possible from research conducted,
- Enhancements in the quality of research implementation,
- Sustainability in the use of worthy innovations, and
- Demonstration of the research effectiveness at agency and industry levels.

According to the literature, key elements of in the process of innovation have been characterised as:

1. The creation or adoption of an idea or behaviour new to the organisation (Lam, 2005, p. 115). In this respect, research adoption is a process, not an event (Baumbusch at. al., 2008).
2. An attempt to carry research into practice (Fagerberg, 2005, p. 4). "*It is the creation of something qualitatively new, via processes of learning and knowledge building. It involves changing competencies and capabilities, and producing qualitatively new performance outcomes*" (Smith, 2005, p. 149).
3. Innovative learning "*can be seen as change in the knowledge bases on which capabilities rest*" (Smith, 2005, p. 151).

There has also been some useful work undertaken in a similar industry that of the health services sector. This work has concentrated on accessing perceptions into perceived barriers to organisational change and adaptation, based on research outcomes. The principal researcher of this body of work is Barbara Funk (1991). This work has been widely replicated (see for example Baernholdt and Lang, 2007; Elliot and Mihalic, 2004; Helmsley-Brown and Oplatka, 2005; LaPierre, Ritchey and Newhouse, 2004) and provides a useful template to examine indicators that have been validated in a wide variety of industries as significant barriers to research implementation. Funk and her colleagues use the "Barrier to research implementation" questionnaire to diagnose areas that can be targeted to enhance change toward evidence based work practice.

There is also research (e.g., Baumbusch et al., 2008; Paramonczyk, 2005) that suggests that to maximise the possibility of overcoming barriers to change for innovation what is needed are, in part, incremental adjustments to workplace practice brought about through an ongoing dialogue between and practitioners. Through ongoing dialogue, an understanding of what hinders research outcomes being taken up into practice can be understood by both practitioners and researchers. Described as “real-time research translation” by Baumbusch et al., (2008), such an approach requires frequent sharing of emerging research outcomes with practitioners as well as research designs capable of adjustment through the research program to take account of changes in work organisation and thus to make the research more relevant to practitioners. Such relevance enhances the possibility of research uptake and limits barriers to such uptake amongst practitioners (Paramonczyk, 2005). Investigation of these themes and their potential relevance within the Fire and Emergency Services industry is useful.

Method

The survey was first piloted with the assistance of the Director of Membership and Strategy of the NSW Rural Fire Service Following feedback from 8 participants the survey was modified and distributed to 25 agencies. Agency contacts were requested to distribute the survey using the following stratification sample:

- The most senior person in your organisation responsible for:
 - training and development
 - operations
 - community safety
 - knowledge management/innovation/research
- 5 additional persons operating at a local or regional area (i.e., not headquarters)

In all, 148 responses had been received from 15 agencies. The breakdown of responses to the survey in terms of staff roles is included in the following Table. For the purposes of coding, personnel at (i) senior management level were those in senior executive roles (Chief Fire Officer/Assistant Commissioner level); (ii) middle managers were those personnel in roles such as regional fire coordination; inspectors and superintendents; senior operational management positions and finally (iii) front line delivery included those personnel in fire fighting; community safety; training and group captain roles.

Table 1: Respondent role breakdown and median years of experience

	n	%	Median years in the agency	Median years in the industry
Senior management	14	11.9	18	23
Middle management	63	53.4	20	22
Frontline delivery	41	34.7	16	21
TOTAL respondents	118	100	18	22

The Table demonstrates that 65% of participants who answered this question (n=77) held senior or middle management positions in their agencies where it is reasonable to expect they would have an awareness of Bushfire CRC activities and be in positions where they would be involved in strategic planning and setting and implementing agendas within their own agencies. The median number of years in the industry for personnel within these roles is also included in the Table and demonstrates the high levels of experience of survey participants.

FINDING: People answering the survey were well qualified to report on the implications of Bushfire CRC activities for their agency and on the ways in which research utilisation was being conducted within their agency.

There was also good participation from a range of agencies. There were 39 responses from people working in rural fire agencies; 41 from people working in land management agencies; 21 from urban agencies and 44 from agencies that have a combined emergency management service.

Survey Analysis

Where appropriate, descriptive statistics are provided and where the statistical assumptions required for advanced analyses have been met then these analyses have also been performed.

For the purposes of ease of reading, the conclusions of any statistical analyses will be reported in the text and the details of the statistical analyses included in the Endnotes attached to this report.

Survey Results

In considering the results it is useful to keep in mind that, in general, people typically rate items on surveys such as these in a positive manner. Therefore a benchmark of 4/7 has been notionally set as a “pass” mark in terms of perceived levels of effectiveness or satisfaction, akin to a “report card” approach often used in Management communities of practice. Doing so enables a discussion of the results as feedback from the industry on perceived levels of endorsement for various practices (e.g., research utilisation strategies). From this point of view then, and where appropriate, rankings between 6 and 7 are regarded as high levels of endorsement for the item; and a ranking of 1 or 2 on an item as a low level of endorsement.

1: Strategies agencies have in place to benefit from Bushfire CRC research

The first three items assessed participant familiarity with their agency’s strategic plan; familiarity with the research outputs emerging from the Bushfire CRC and the perceived alignment between agency strategic planning and the research outputs emerging from the CRC.

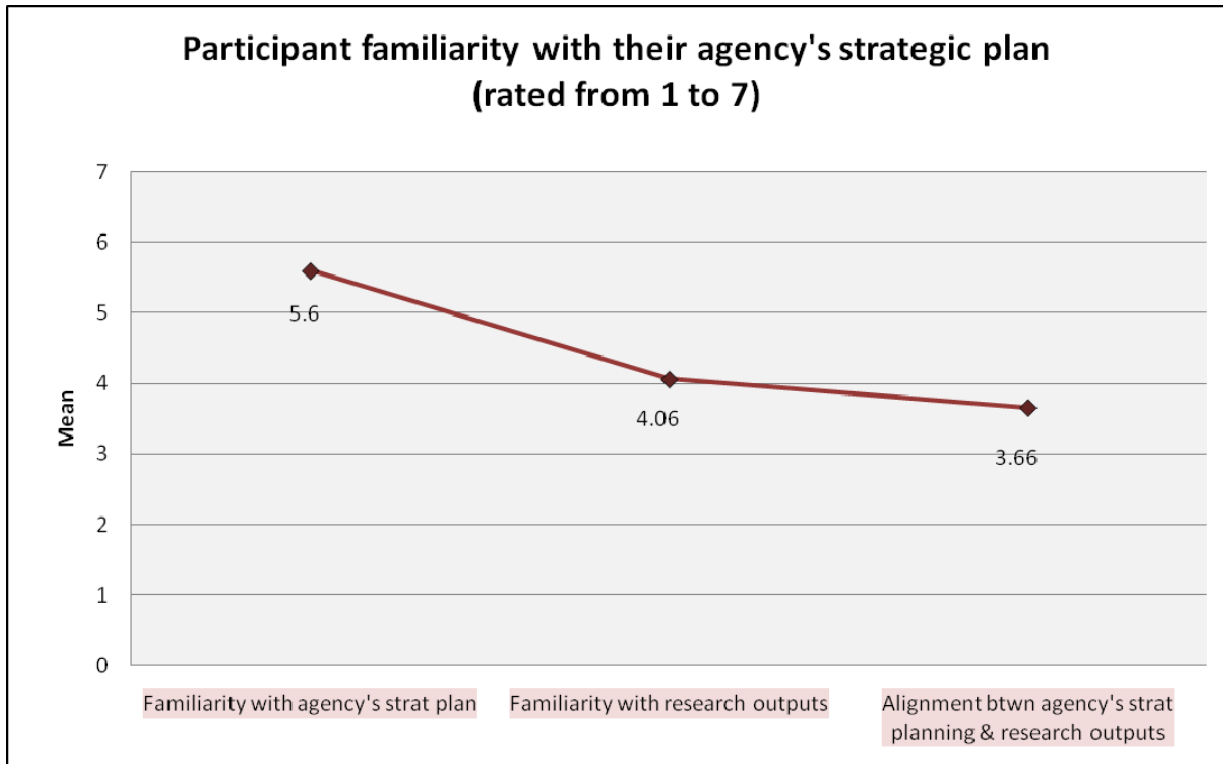


Figure 1: Participant familiarity with the strategies their agency has in place to benefit from Bushfire CRC research

While there was a high degree of familiarity with the agency’s own strategic plan (for example 62% of all respondents, or 90 people, ticked either 6 or 7 for this item), only 17% (n=21) gave a similarly high response on the degree to which there was an alignment between the agency’s strategic plan and the Bushfire CRC research outputs item. A cross-tabulation showed that those in the highest positions of responsibility for change within the agency had the highest level of familiarity with their strategic plan. However there was a drop in the assessment of the alignment between those plans and CRC outputs across all levels of personnel (i.e., senior executive level; middle management and front line staff all reported lower scores on perceptions of the alignment between the agency’s strategic planning and the CRC research outputs.

FINDING: The survey indicates that there is moderate alignment between the agency’s strategic plan and the research outputs of the CRC.

Awareness of strategies to keep up to date with Bushfire CRC research

Participants were also asked to rank their level of awareness of the strategies their agency had in place to keep up to date with Bushfire CRC research. The mean of this item was 3.8 and, as would be expected, was highest for people in senior positions (4.7), dropping to 3.8 for those in middle management positions.

Participants were also asked to outline the kinds of strategies used to keep up to date with Bushfire CRC research. Comments highlighted the proactive way in which some agencies were keeping up to date, which included, for example:

- *established a dedicated CRC adoption working group to facilitate CRC research outcome integration into agency where applicable;*
- *a communication plan to ensure all senior staff remains informed about the research conducted by the CRC. The formation of working groups to discuss and assess this research and its implications for the organization; and*
- *dedicated staff to monitor and disseminate CRC findings across all relevant personnel;*

Through to

- *I don't believe there are any.*

FINDING: some agencies have been very active in putting in place systemic approaches to reviewing Bushfire CRC research.

Perceived effectiveness of Bushfire CRC tools of research utilisation

Participants were asked to provide their perceptions on the effectiveness of their agency in terms of its processes to:

- **disseminate** the Bushfire CRC research within the agency;
- **assess and evaluate** the impact of the research in agency practice;
- **implement** any agency changes that may be needed;
- put in place **monitoring** processes to track changes; and
- **disseminate** the outcomes of any changes made as a result of Bushfire CRC research.

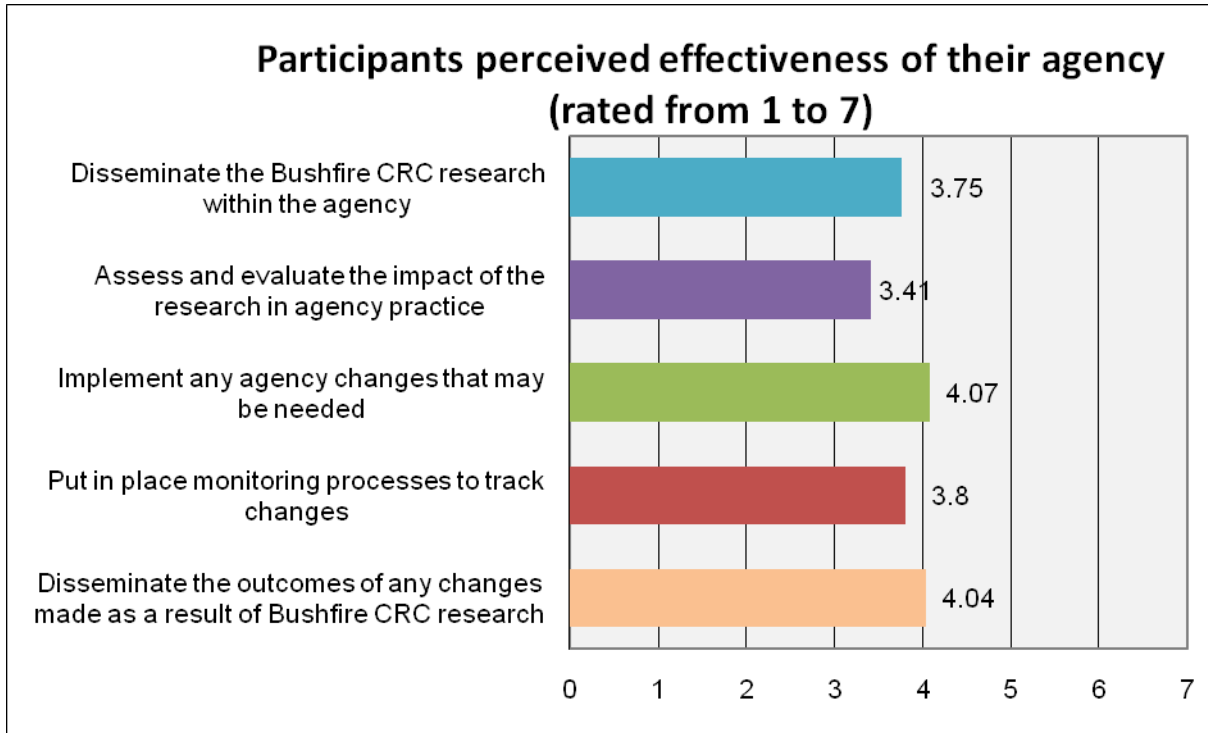


Figure 2: Participants assessment of the effectiveness of their agency's strategies to benefit from Bushfire CRC research

The Figure shows that participants assessed the strategies of dissemination and implementation within their own agencies as somewhat effective (4/7), though assessing and evaluating the impact of the research on agency practice and putting in place monitoring processes to track changes were regarded as slightly less effective. The cross-tabulation of these items for management roles is included in the following Table.

Table 2: The mean of respondents' satisfaction with the effectiveness of their agency's strategies to benefit from Bushfire CRC research

	Disseminate the Bushfire CRC research within the agency	Assess and evaluate the impact of the research in agency practice	Implement any agency changes that may be needed	Put in place monitoring processes to track changes	Disseminate the outcomes of any changes made as a result of Bushfire CRC research
Senior management	4.57	4.36	4.69	4.33	4.71
Middle management	3.78	3.71	4.00	3.24	3.65
Frontline delivery	4.41	3.67	3.77	3.23	3.47

The Table indicates that the participants in senior executive positions are more satisfied that these research transfer strategies are working well, and that those in middle management have a lower level of endorsement than those in senior positions.

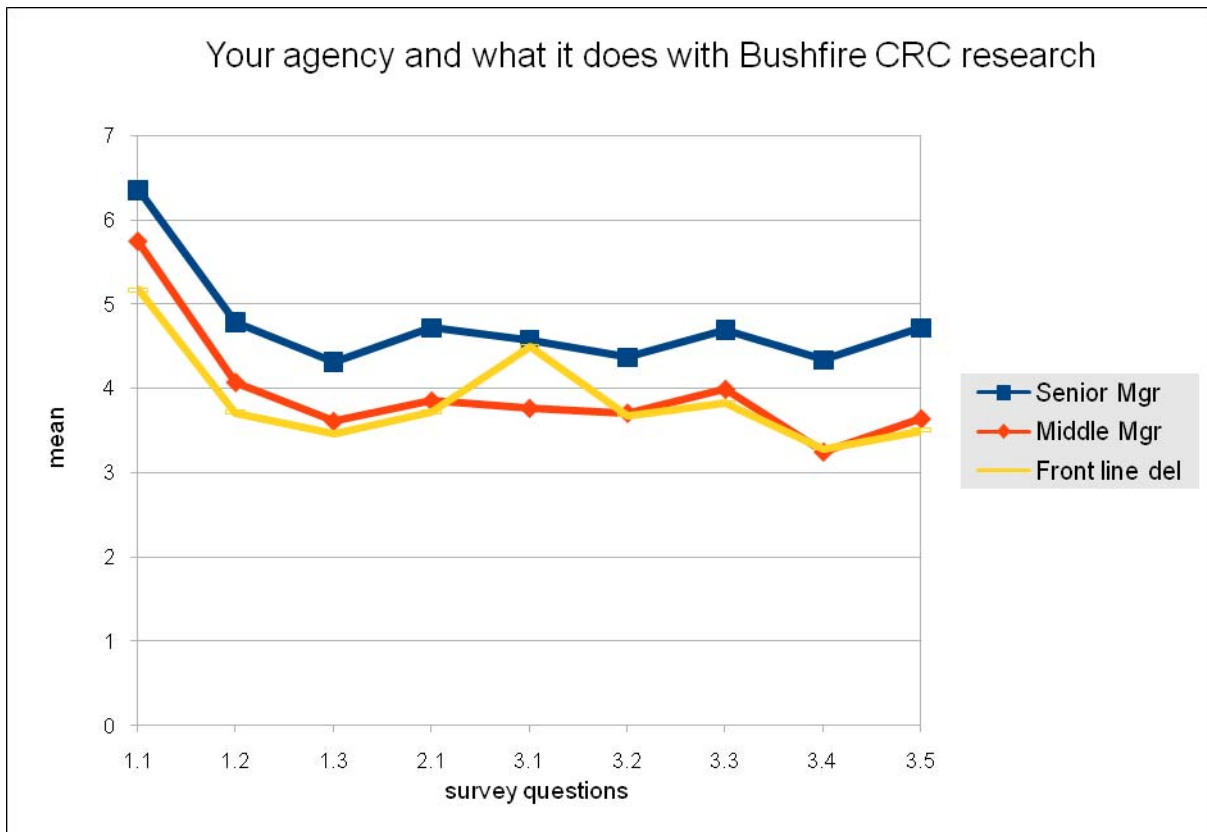


Figure 3: Your agency and what it does with Bushfire CRC research

The pattern in responses by position within the agency is illustrated in Figure 3.

FINDING: Participants report that their agencies are somewhat effective in being able to disseminate Bushfire CRC research within the agency and to implement any changes needed, but less effective in being able to assess and evaluate the impact of research and to put in place monitoring processes to track those changes.

People in senior positions are more satisfied than those in middle management that these research transfer strategies are working well.

Participants were asked to reflect on the strategies used within their own agency and to identify their respective strengths and weaknesses. Of the comments offered 83 related to strengths and 90 related to weaknesses.

Qualitative comments

The themes within both of these sections can be placed on a continuum of passive transfer through to increasing engagement in dialogue and understanding, learning and change.

Information transfer. By far the most comments related to disseminating information. Participants commented that the way they thought they shared and distributed Bushfire CRC research information was a strength.

All working papers & presentations are emailed

And

Disseminates research papers, CRC notes and papers regularly

Or

Making information available on the website

This is important because it does help to raise awareness and for the research to trickle down into agencies.

Dialogue and forums. Others pointed to the dialogue that was created within the agency through forums or presentations and this typically involved researcher engagement.

A series of workshops were held in WA where researchers were able to communicate directly with end users. These were assessed to be effective in creating awareness of the research and generated some opportunities for local participation.

Formal and informal learning. In others the theme of learning and knowledge building was evident. This involved actively translating research outcomes into training packages. For example,

Where outcomes have training implications, Training Resource Kit development processes incorporate consideration of the research,

Knowledge management. It also involved adding to intelligence within the agency through encoding research outcomes into processes of continuous improvement

The Knowledge Kiosk has been an excellent innovation and made a significant difference. FESA has also established an Operational Improvement Database (OID) which tracks the assessment and implementation of change arising from inquiries and reviews.

Another participant made the comment that the process of establishing databases that had been used for other purposes could also be used to track Bushfire CRC research outcomes. For example:

Prevention and Mitigation strategies development of databases.

And in some cases this has become institutionalised:

RFS takes on new things (if relevant). Has got a corporate research section

Still others noted that there were processes of meaning making systematically build into agency processes:

Routine meetings which can be used to drive the dissemination and provide consistent interpretation. Well skilled staff able to professionally interpret strength of CRC research

Using champions and other agents of change. There were two mentions of the use of champions to take the research further forward within the agency:

NTFRS has employed the "champions" approach for programs with significant importance

And

The presence of staff or sections of the organisation with in the service to champion change on the back of research results has a big bearing on the implementation

There were three comments relating to how agency practice had changed. These included, for example,

The research done with fire fighter fitness has encouraged my agency to introduce the FF fitness programme into this area

Weaknesses

Dissemination. A common reference in this section was to the need for more dissemination:

more dissemination of information internally throughout the entire organisation

However, another comment highlighted the over reliance on simple dissemination techniques.

Dissemination and utilisation of research outputs - in a meaningful and relevant way (i.e. not just assuming by putting fire notes on the intranet that people are reading them and using them in their planning etc Identifying how the research impacts on the organisation - what does the research actually mean for the organisation and what changes might be required - how do we do this? Promoting research outcomes

And another noted that there was too much information:

I think the weaknesses stem from the vast amounts of info being produced rather than systemic failings

Uncoordinated approach. Another theme that emerged related to agencies not being systematically focussed or coordinated in their approach to considering research outcomes and what to do with them. Comments included

Due to being very focused on day to day business and a rapidly moving org change agenda analysis and implementation of CRC learnings has been uncoordinated

And

Poor dissemination of CRC research papers. Poor links between CRC and local regional contacts

The need for meaning making. Other comments related to the need to put in place ways of better considering what the findings mean for agency practice

Not strong on implementing science outcomes into general practice or training (for example fire behaviour outcomes) understanding how research relates to the strategic outcomes of an organisation or the potential benefits

No discussion on the findings by our staff and manager

Overcoming existing practices. Another noted that the challenge internal to the agency was to change the culture of not providing evidence-based assessments in reporting

Little genuine research is done and internal documents produced are based on opinion of authors, perhaps based on their 'own research', but are rarely if ever properly referenced or peer reviewed.

And

The agency is logically focussed on non-fire hazards and risk therefore the predominant fire focus of the CRC limits applicability of large chunks of the CRC work, however, in areas of common ground such as community awareness to risk and human behaviour in the face of risk/hazards, the agency is not well positioned in that 80-90% of agency resource is response focussed

More structured approach. Others noted that the approach in the agency was haphazard, relied on individual motivations and was not systematic.

there appears to be too many people that receive information with no one taking responsibility

and

Relies too heavily on individuals and is not systemically structured into organisation's daily functions

or

Information from the CRC can at times take a long time to make its way around the state

Research takes a long time to become 'custom and practice'. Poor links between the research section and the 'training section' and service delivery sections. Slow or poor review of documents, protocols, standards, training manuals to up to date research

These comments are further contextualised and discussed in the rest of the report.

2: Perceptions of learning in within agencies and the industry

Participants were asked to rate, on a scale of 1 – 7 where 1 = low and 7 = high:

- the degree to which they believed their home agency exemplifies a learning organisation (i.e. one that learns by experience of its own members or the experience of others);
- the degree to which their home agency has really improved its learning capability (compared to five years ago);
- the degree to which the industry exemplifies a learning industry (i.e. one that learns by experience of its own members or the experience of others); and
- the degree to which the industry has significantly improved as a learning industry (compared to five years ago).

In terms of agency and industry learning, participants’ mean scores are all above 4/7 and trend in an upward direction. However, there are differences in how participants perceive their own agency growth in learning compared to the industry as a whole. Figure 4 shows that overall participants perceived that their agency has improved in its learning compared to five years ago, though only slightly. The difference between ratings for the industry does however demonstrate a statistically significant difference¹. That is, overall, participants ranked the industry higher in terms of learning “now” compared to where it was 5 years ago – and indeed more than was the case within their home agency.

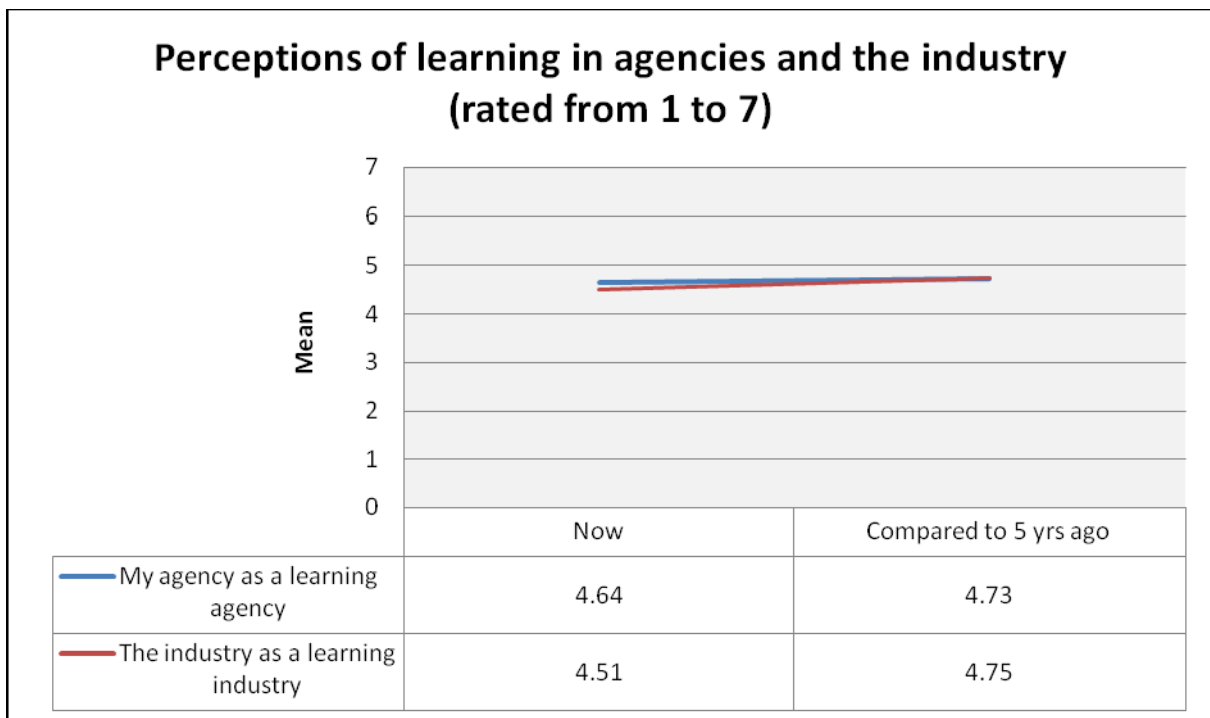


Figure 4: Mean of participants' rating from 1 to 7 of learning in their agency and the industry

FINDING: Overall, there is a perception that the industry has shifted toward becoming one based on learning. Participants however are not reporting the same level of change for their home agencies.

3: Uptake of Bushfire CRC research utilisation strategies

The next section asked participants to assess the tools and resources used by the Bushfire CRC to assist agencies to use research. These resources include the Bushfire CRC Web Site; Fire Notes; Research Publications; Events (such as seminars, presentations and workshops) and the Impact assessment process.

In considering these tools and resources participants were asked to rate:

- their level of familiarity;
- the degree to which the tool provides participants with what they want;
- whether it assists in learning new knowledge and skills;
- the degree to which it helps in understanding CRC research;
- the degree to which it helps with evaluating what needs to change in the agency’s practice; and
- the degree to which it helps develop the skills to help bring about change.

Finally participants were also asked to assess how familiar they thought others within their agency were with the tool or resource. The results are presented in the following figures.

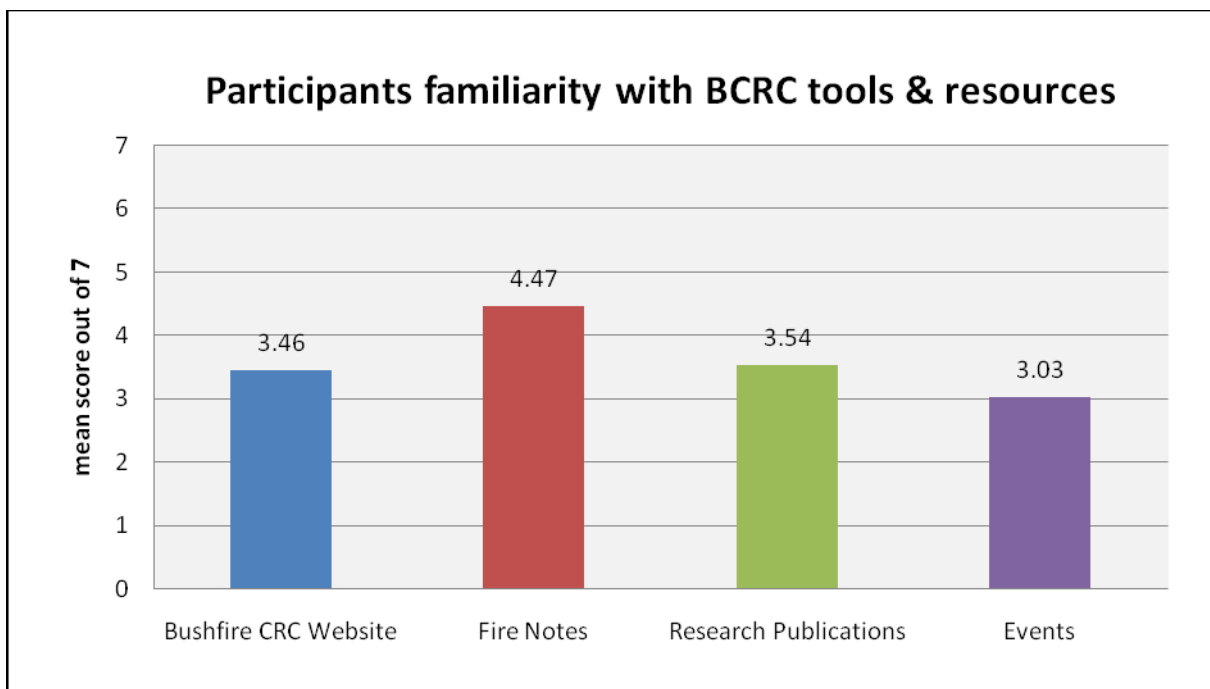


Figure 5: Participants level of familiarity with Bushfire CRC research utilisation tools and resources

It can be seen from the Figure that in terms of level of familiarity, the most successful tool the Bushfire CRC has been the Fire Notes. The research publications are next. Second last is the Bushfire CRC Web site and last is the Events.

Using the benchmark of 4/7 set earlier, familiarity with Fire Notes indicates that these are successfully permeating various agency layers (or at least the key target audiences for this survey). Given that Fire Notes are a translation and synthesis of the research publications, a lower ranking for

the publications is potentially not problematic. The lack of familiarity, however, with the CRC Website and with Events does raise some areas worthy of closer attention.

The Bushfire CRC has previously recognised the need to attend to the Website and these changes are likely to be welcomed – by people who are already using it. A key issue for the future is how to attract others working within the industry to the space. Likewise, the way in which events are targeted and advertised may need to be reviewed.

It is interesting to note that familiarity with events dropped below 3 for middle management personnel. Given the earlier indications of lower levels of perceived effectiveness for those in middle management positions, targeting middle management personnel in capacity building to support research utilisation may be a strategy for the future. The consistently lower levels of endorsement for those in middle management and front line positions compared with their seniors is evident in the following Figure and worth keeping in mind as the rest of the research utilisation tools are discussed.

A similar pattern emerges when comparing familiarity with research utilisation tools used by the CRC to support agency research utilisation. The following Figure illustrates the differences between those in senior management positions and other employees who answered the survey. In comparing research utilisation tools there were significant differencesⁱⁱ found between those in senior and middle management positions on *Helps you understand Bushfire CRC research Events* and *1. Your own level of familiarity with the Impact Assessment process*.

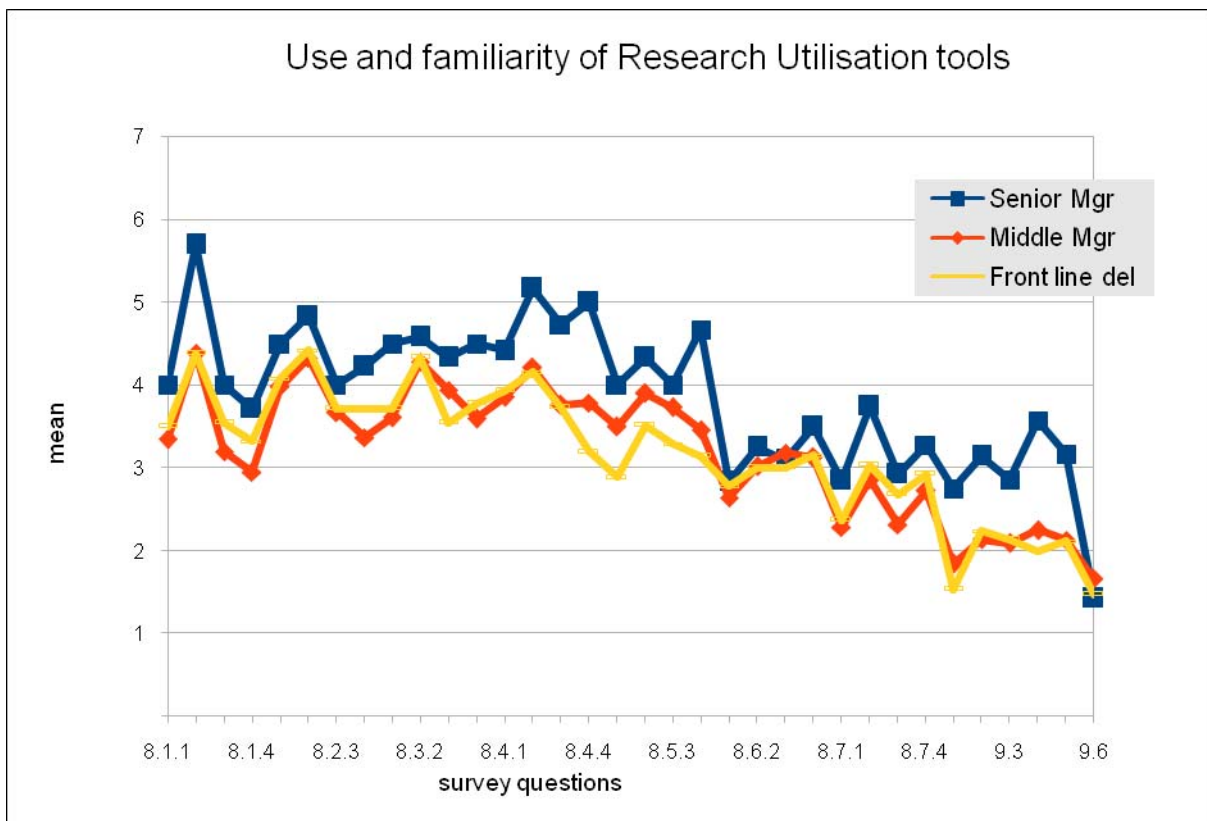


Figure 6: Use and familiarity of research utilisation tools by position in agency

Finding: There is a reasonable level of familiarity with Fire Notes. There is less familiarity with the Bushfire Website and with Events.

It is important to remember that participants were given the option to state that they could not answer all items and so it is reasonable to assume that only those participants who felt that they could comment did so. For example, in keeping with the earlier findings regarding lack of familiarity with events, 55 people or 30% stated that they could not answer the satisfaction with events item and so the mean presented here is based on those people who did.

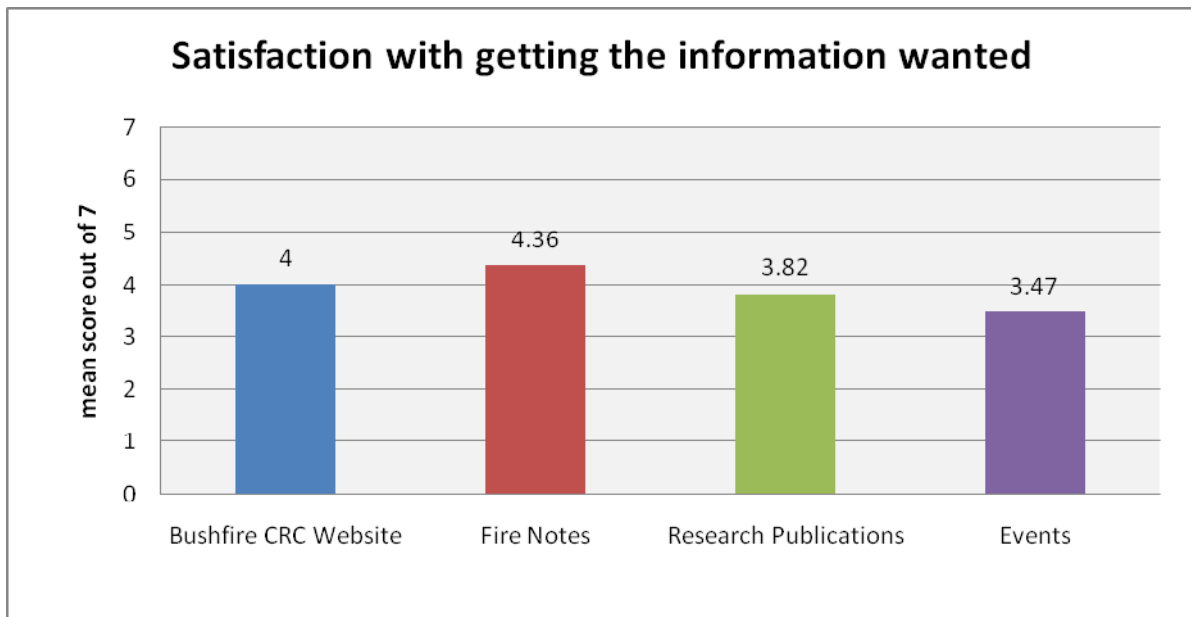


Figure 7: Participants level of satisfaction with getting the information they want from Bushfire CRC research utilisation tools and resources

The figure above shows that, in terms of levels of satisfaction with getting the information wanted, the Fire Notes again obtained the highest ranking. Those who do access the Website reported that it provided moderate endorsement for getting what they wanted (4/7). Less endorsement was provided for the Research Publications and less again for the Events. In terms of Events it is interesting to note that 40% or (36 people) ticked 1 or 2 in responding to the item.

Finding: There is satisfaction with the information provided from the Website and from Fire Notes.

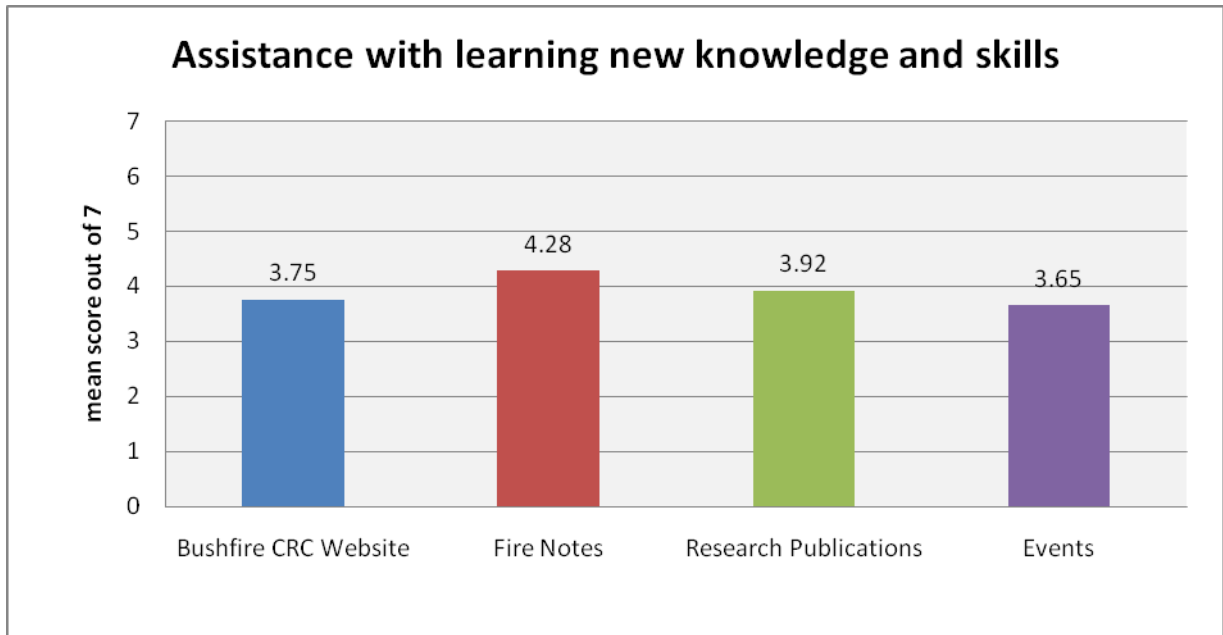


Figure 8: Participants rating of the level of assistance the Bushfire CRC research utilisation tools and resources provide in helping them acquire new knowledge and skills

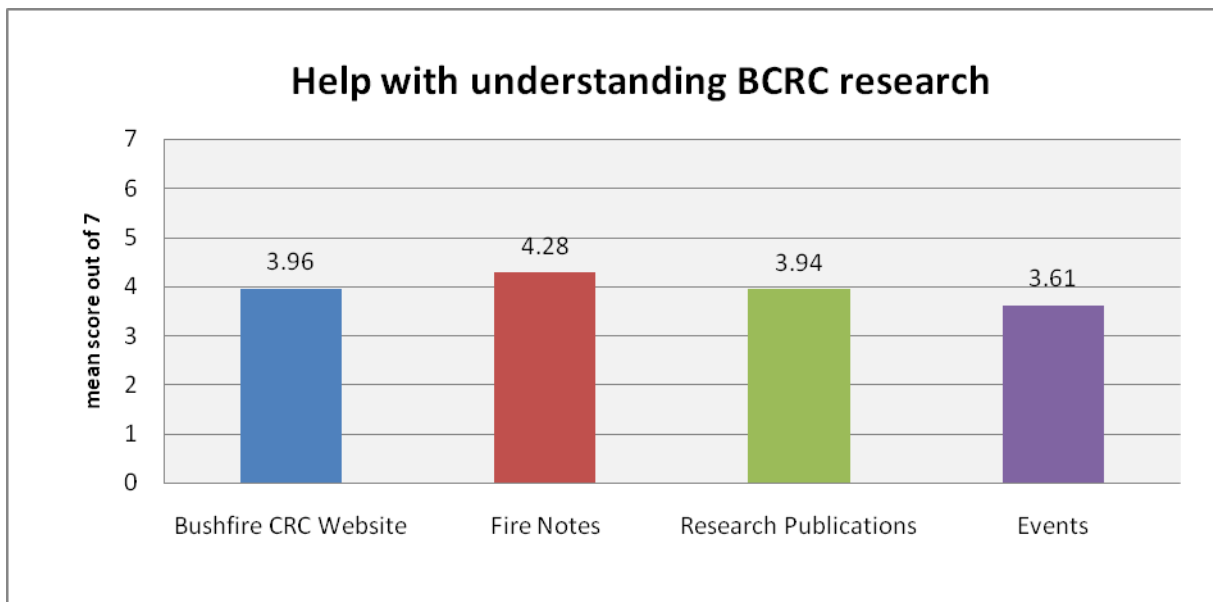


Figure 9: Participants rating of the level of help the Bushfire CRC research utilisation tools and resources provide for them to understand Bushfire CRC research

In terms of assisting participants to learn new knowledge and skills, as well as to help in understanding Bushfire CRC research, the findings in the Figures above are consistent with those previously reported.

Fire-notes are again the endorsed pathway for helping with understanding Bushfire CRC research, with the Bushfire CRC website and Research Publications following closely behind. It is interesting to note that in terms of assisting with understanding research 37% (or 34 people) ticked 1 or 2 on this item for use of Events for this purpose and 25% (or 22 people) ticked 6 and 7.

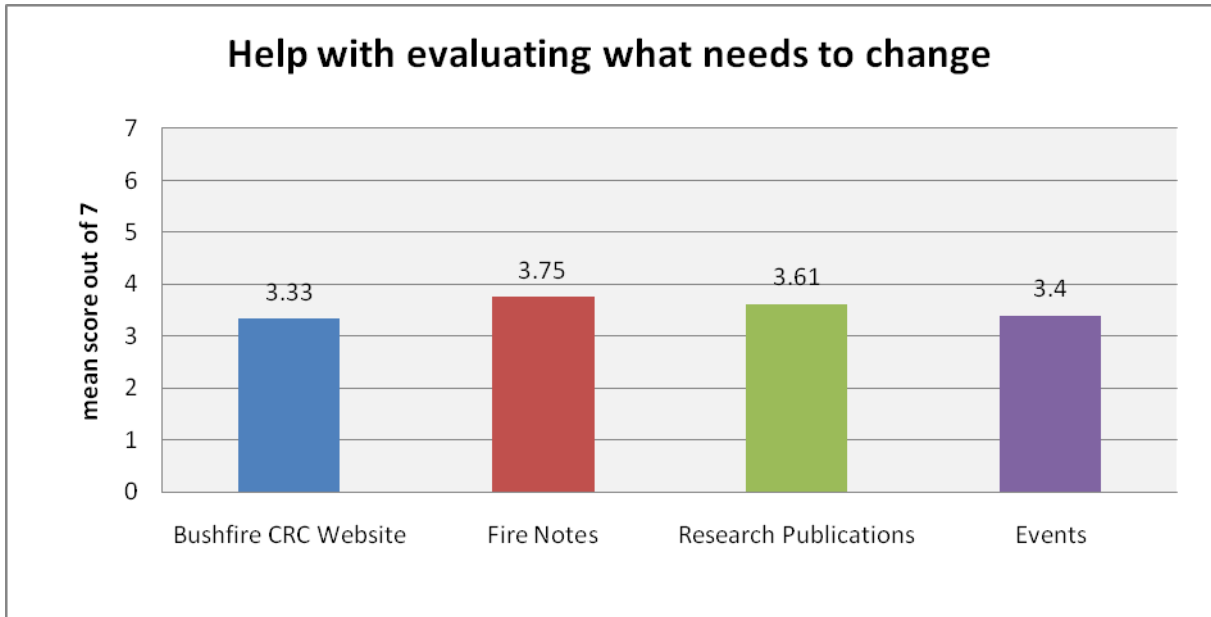


Figure 10: Participants rating of the level of help the Bushfire CRC research utilisation tools and resources provide for them to evaluate what needs to change in their agency's practice

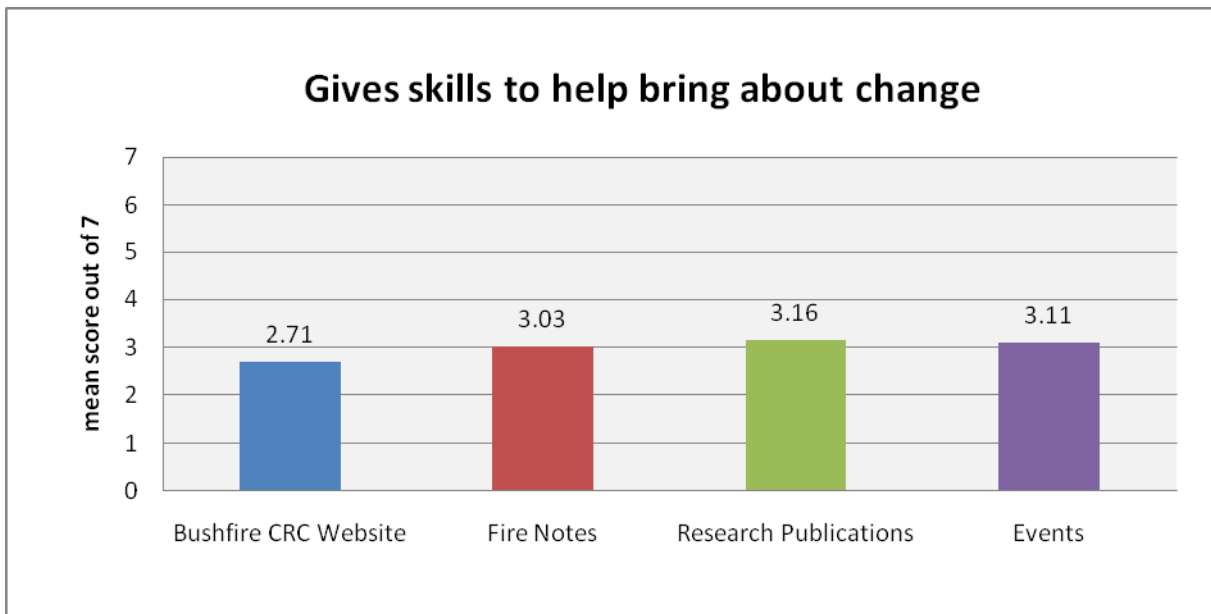


Figure 11: Participants rating of how well the Bushfire CRC research utilisation tools and resources give them the skills to help bring about change in their agency

In terms of assisting agencies to evaluate changes needed to agency practice, all tools and resources have a mean of below 4.

Issue: Perhaps this is appropriate, given that it is not the responsibility of the Bushfire CRC to provide this assistance. However, if the Research Utilisation agenda is to provide a bridge then it is reasonable to ask if agencies feel this may be an area in need of strengthening (as suggested in the next section of the survey), and if so what might be the pathways for doing so.

Similarly, in terms of developing skills to help participants bring about change, none of the existing tools receive strong endorsement. Once again a question to consider may be whether the Bushfire CRC should have some involvement, and if yes, what approach might be appropriate.

Table 3: Review of outlier responses to Events statements

Events	Score N (%)	Score N (%)
	1 & 2	6 & 7
Gives you the information you want	36 (40%)	16 (17%)
Learn new knowledge and skills	34 (37%)	22 (24%)
Understand Bushfire CRC research	34 (37%)	22 (24%)
Helps to evaluate what needs to change	31 (36%)	16 (11%)
Gives skills to help bring about change	36 (41%)	11 (7%)

Given the issues indicated in terms of Events, it is useful to consider how participants are using them. For one quarter of the people who answered the item, the Events attended helped them learn new knowledge and skills and to understand Bushfire CRC research.

Impact assessments

As noted in the survey, the Bushfire CRC has in place a process to help the industry assess the impact of research for agency practice and national policy. Participants were asked to rate:

- their own level of **familiarity** with the Impact Assessment process;
- how well the Impact Assessment process gives them the **information** they need;
- how well the Impact Assessment process assists them to **learn new knowledge/skills**;
- how **relevant** the Impact Assessment process is to help them understand CRC research;
- how well the Impact Assessment process helps them **evaluate** what needs to change in their agency's practice; and
- how **familiar they think** other people in your agency are with the Impact Assessment process.

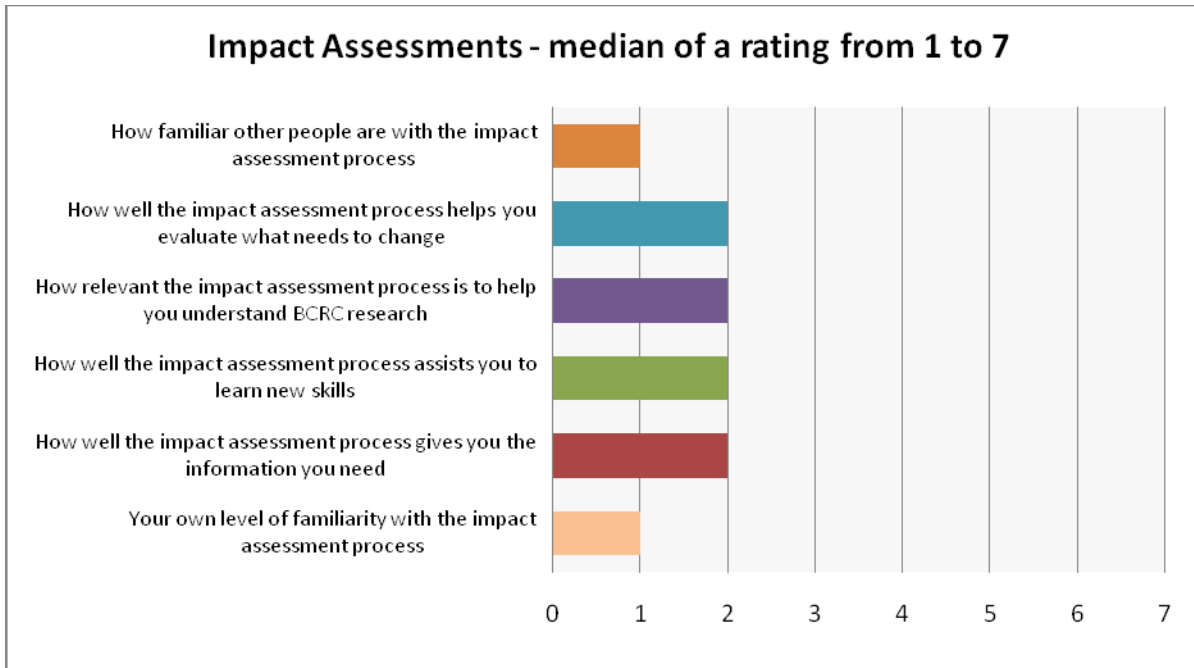


Figure 12: Median scores of participants rating out of 7 of various aspects of the Impact Assessment process

One of the first things to note about participant’s assessment of the Impact Assessment process is how few people could actually answer the item. The data presented above is based on about half the sample: 62-72 participants answered 5 of the items, the exception being the item relating to the respondents own familiarity which has 103 responses. The impact assessment process is a combination of Bushfire CRC initiated activities (like industry impact assessment workshops) as well as agency-led activities.

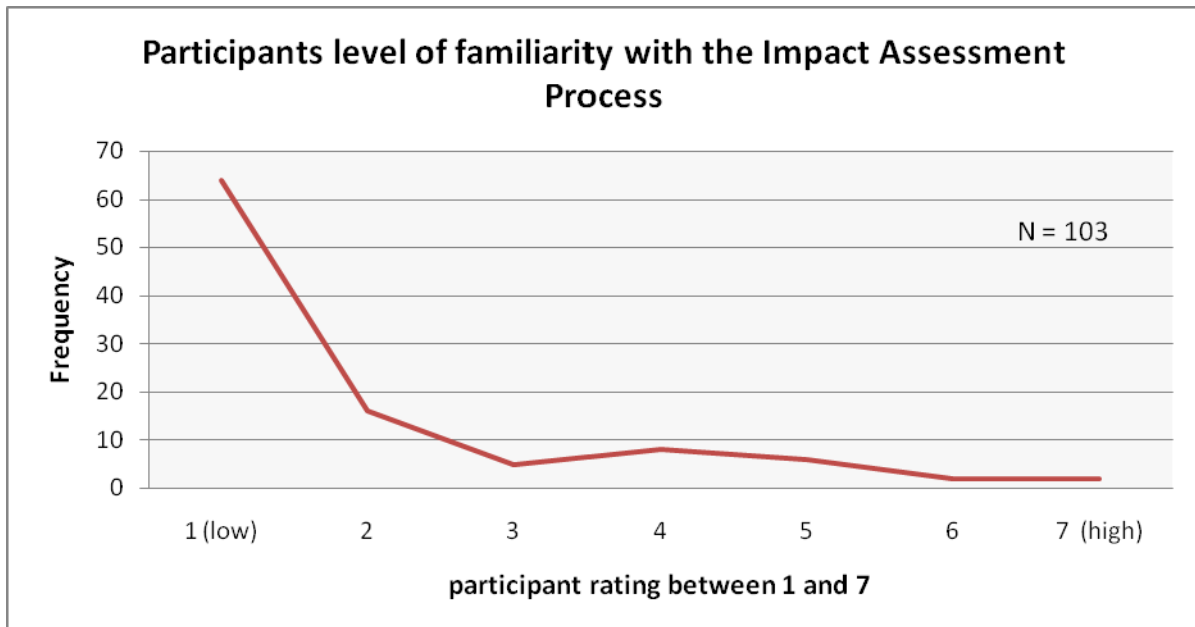


Figure 13: Histogram showing participant’s ratings of their level of familiarity with the Impact Assessment Process

The Figure above illustrates the large number of respondents who gave their familiarity with the Impact Assessment Process a very low rating of 1 (n=62; 62.1%), and the drop-off to a high rating of 6 and 7 (n=4; 3.8%).

In terms of the number of people who participated in a Bushfire CRC-initiated Impact Assessment process, as indicated by the Figure below, only 10 people said “yes” and 114 people said “no” and 23 people didn’t answer the question. This is surprising given that it seems reasonable to have expected that the people targeted in this survey would be those involved in such processes, both in terms of their own agency activities and in bushfire CRC activities.

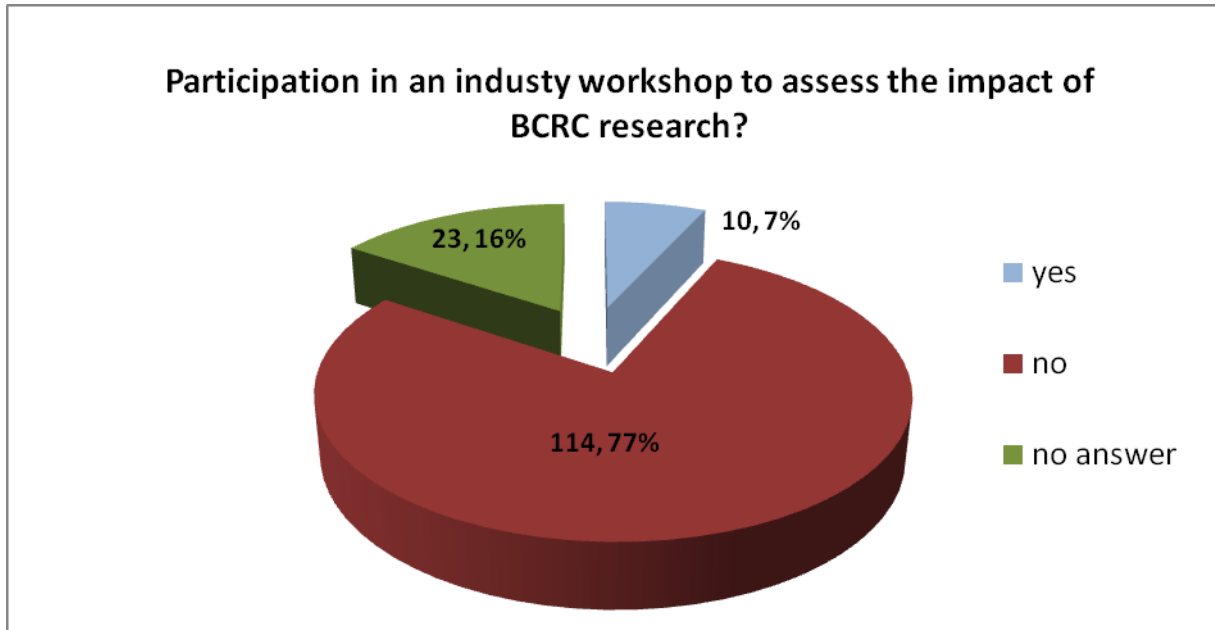


Figure 14: Percentage of 'yes' and 'no' participant responses to the question of their participation in any industry workshops to assess the impact of the Bushfire CRC research for their agency.

FINDING: The value of the Industry Impact Assessment process and how it can be managed needs to be further analysed.

Participants were asked ‘*what is needed to improve your agency's assessment of the research?*’
Three examples of responses to this question follow:

- *It needs to take an active involvement in wanting to learn the potential impacts of implementing research outcomes;*
- *Finding the "OPERATIONAL" people with an interest in the areas covered by CRC the time to be able to attend and digest such research and then be able to apply it to our own organisation in the practical sense that is required. Currently too many non-core people get the advantage of attending such courses and it only benefits themselves. The majority of these people are not the intended audience and hence the information is lost on the individual and the organisation loses out;*
- *Better structure to review applicability of research outputs to the agency, and an approved 'continuous improvement' process to integrate these into organisational planning, policy, procedures, training, operations, procurement, etc.*

4: Industry engagement

The survey also asked if participants were involved in any AFAC groups. This engagement was important given the Bushfire CRC’s reliance in the past on these groups for support with research utilisation. The means for certain questions are included in Figure 15. In the survey 25% of participants (or 36 people) were members of AFAC groups.

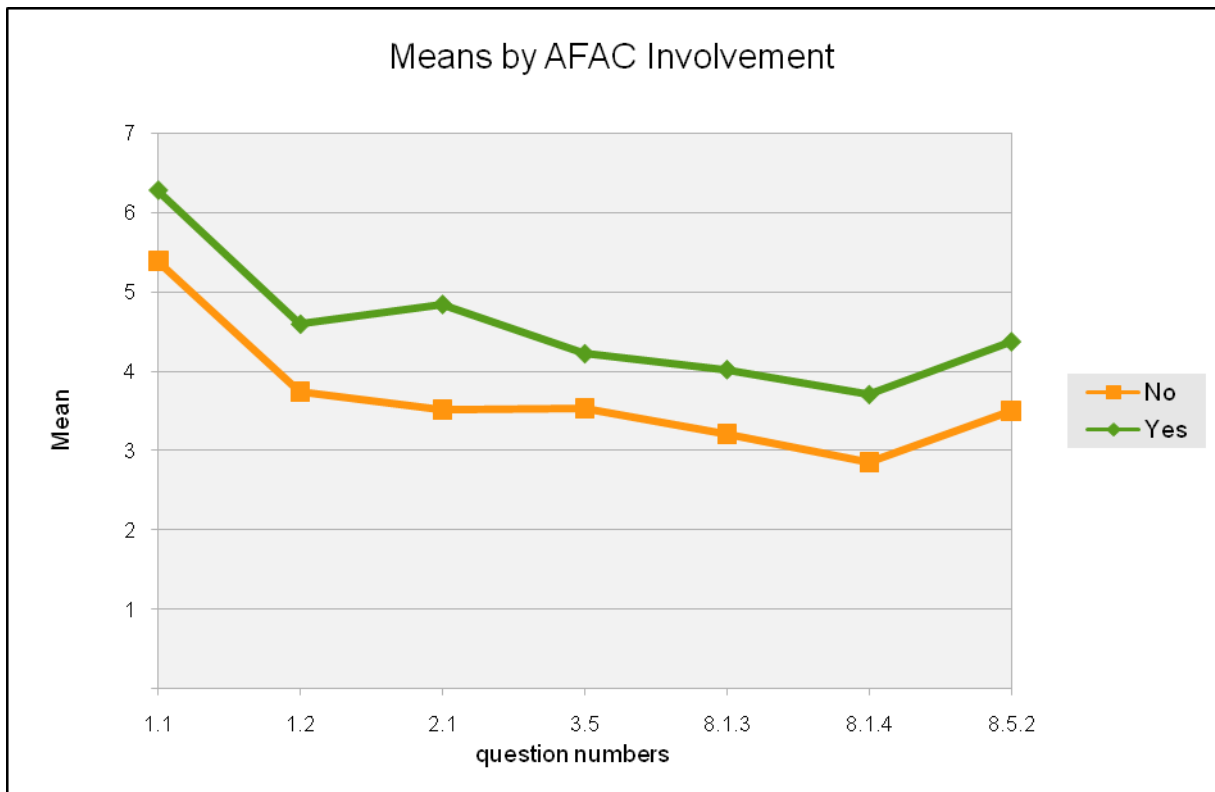


Figure 15: Mean scores by AFAC involvement

All of the responses to the questions followed the pattern indicated above. The items highlighted in the Figure are large enough to be statistically significant. The Figure shows that on key questions relating to

- familiarity with the strategies in place to keep up to date with outputs from the Bushfire CRC
- perceptions of agency effectiveness in making changes
- levels of familiarity with research utilisation processes such as research publications; events

Are all significantly lower for participants who do not participate in AFAC groupsⁱⁱⁱ. This finding is consistent with an earlier survey conducted with those participants who attended the AFAC/Bushfire CRC conference in 2009.

5. *Barriers to research utilisation*

Participants were also asked to provide an assessment of the degree to which key barriers might be impeding research utilisation. The 29 items were modified from barriers research undertaken in other domains (e.g., nursing) as well as a literature review on innovation and research adoption in service industries. The highest scoring barriers are presented in Table 4 in rank order, together with a summary of patterns by agency type responses.

Table 4: Summary of barriers items and ranking: overall and by agency type

List of Statements:	Overall	Rural	LM	Urban	EM
1. Research reports/articles are not readily available					
2. Implications for practice are not made clear					
3. The reports are not easily understandable					
4. The research is not relevant to this agency					
5. Most people in this agency don't know about the research	4th		2nd	5th	
7. In this agency research is not valued					
8. Agency personnel don't have the capacity to think strategically about what the research may mean for our business					
9. Personnel may feel that the benefits of changing practice will be minimal					
10. Personnel may be uncertain whether to believe the results of the research					
11. There is too much change happening in this agency already, we don't need more to be considered			4th		
12. People in the agency are unaware of the research				3rd	
13. It is not clear what change is needed			5th		
14. We need a change advocate within the agency to take the implications forward		3rd		4th	
15. The impacts of the research for the agency need to be better articulated	1st	2nd	1st	4th	1st
16. Research reports / articles are not published fast enough					
17. Cooperation from other stakeholders in the industry is needed for successful implementation					
18. The agency needs better linkages between the researchers & agency personnel	2nd	5th	3rd	1st	4th
19. Changes made in this agency are not evidence based					
20. The amount of research information is overwhelming					
21. Personnel don't feel capable of evaluating the quality of the research					
22. The research is hard to find					
23. The publications are hard to read					
24. The research is no longer timely (it was planned years ago)					

25. There is no real support from within the agency for the research					
26. It is not clear who is dealing with what Bushfire CRC research in our agency					
27. As an agency we don't have an effective process for translating the research for our personnel	3rd	1st			3rd
28. The agency hasn't developed the appropriate assessment strategies to consider implications of the research	5th	4th			5th
29. Personnel within the agency are not aware of the research				2nd	2nd
Total number of responses	148	39	41	21	44

Table 4 shows that there are areas of commonality and some differences in emphasis given to the barriers depending on agency type. The two items that were included in the top five rankings for all agency types were *“The impacts of the research for the agency need to be better articulated”* and *“The agency needs better linkages between the researchers & agency personnel”*. There are also areas that are specific to types of agencies. For example, Land Management agencies alone reported *“There is too much change happening in this agency already, we don't need more to be considered”* and *“It is not clear what change is needed”* in their top five rankings and urban agencies alone reported *“People in the agency are unaware of the research”* in their top five.

In addition to rankings it is possible to analyse the data in other ways.

FACTOR ANALYSIS

In order to best understand the relationships between the Barriers items and to ascertain if there are any underlying factors or patterns that can help explain the way in which participants are answering the questions, an exploratory factor analysis (or Principal Components Analysis) was conducted.

Factor analysis is useful because it looks for trends in the way participants are responding to particular items. These underlying patterns or factor groupings then provide a higher level of insight into how participants are perceiving barriers. Doing so is also valuable where groups of items appear to measure the same underlying factor because the resulting (composite) scale score tends to provide a more reliable indicator of that factor than would any single item.

The aim of factor analysis is to capture or account for most of the variability (variance) in the patterns of correlations between the items and to use the factors to reveal broader overarching patterns rather examining scores on all 29 items or describing the ranks. What factor analysis offers is an examination of the potential relationships between items and their potential importance. That is, it is also possible to identify the importance or “weight” given to the factor revealing which items are stronger or more cohesive in their pattern of variation. This can be helpful in identifying overarching areas for targeting.

With this in mind a factor analysis was conducted using Principal Components Analysis (PCA) extraction and Varimax (orthogonal) rotation, with factor loadings (weightings) above 0.30 visible, and with items sorted to reflect the relative strength of loadings per factor. As a rule of thumb, a factor analysis is regarded as robust if it explains more than 50% of the variation of the correlations.

Another measure of the robustness of the factors is the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO). Values less than 0.5 are regarded as unacceptable, values between 0.5 and 0.8 are acceptable and values of 0.80 and above are regarded as optimal.

The Factor analysis conducted on the 29 Barriers items had a KMO measure of sampling adequacy of 0.82 and revealed five factors accounting for 66% of the pattern variation in the responses thus providing a good explanation of the response patterns.

Table 5: Factor Analysis Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.401	35.245	35.245	7.401	35.245	35.245	5.471
2	2.271	10.814	46.058	2.271	10.814	46.058	3.855
3	1.743	8.300	54.359	1.743	8.300	54.359	3.371
4	1.299	6.185	60.544	1.299	6.185	60.544	3.265
5	1.192	5.676	66.220	1.192	5.676	66.220	2.929
6	.859	4.093	70.312				

The survey items and the way they are grouped into Factor components, together with the weight of that item within the factor is included in Table 6.

1 Agency Processes

The first and – by far the most) – important factor (accounting for 35% of the Factor model- see above) relates to the internal processes agencies have in place to manage research utilisation in order to make sense of the research for their agency in their own environment. The responses indicate agencies feel the need for the impacts of research to be better articulated (item #15); and clarity of who is responsible (#26). There is also an expressed need for capacity building to assist agencies to be able to both translate research for personnel (#27); to be able to better assess and evaluate the impacts for agency practice (#28); to have a designated advocate for agency change (#14- see Table 6).

2 Creating a Case for Change (Impact Uncertainty)

The second most important factor identified (accounting for 10% of the extracted Factor model) relates to making the case for change. The practical implications of the research is not always clear (#2)and the agencies don't always know whether to trust these research outcomes (#10) in the

context of their particular situation – For example, do they need to do something or are they indeed already addressing the matter appropriately? Some perceive that they do not have the opportunity to assess the possible impact of the research at a strategic level (# 8) and to determine what they need to do in response (#13- see Table 6).

3 TOO MUCH CHANGE

The third factor (and accounting for 8% of the extracted Factor model) relates to both the amount of research emerging being overwhelming (#20) in the context of other changes (#11). It also indicates a need to build capacity to assist in evaluating the research in the context of the changes experienced (#21). It could be argued that this factor provides a broader context within which the first two factors are situated. It is interesting to note that Land Management agencies were most concerned about this.

4 INDUSTRY-WIDE DEMANDS

The fourth factor (accounting for 6% of the extracted factor model) appears to relate to issues of a concern with the timeliness of producing research outcomes (#16) as well as a need for an industry wide approach to be taken to issues that are larger than one agency alone (#17). It is interesting that this item has appeared so far down in the Factor strength in terms of explaining variance in the responses, though perhaps more indicative that participants were considering their own agency needs as more important. Regardless, there is clearly some role for industry-wide approaches, particularly when it would value-add to agency change.

5 ACCESSIBILITY

The fifth and last and thus weakest Factor (accounting for only 5% of the extracted Factor model) highlights the need to make the research accessible (#22 and #1) and comprehensible to practitioners (#23). It is contended that the impact of this factor would be addressed if the more important factor of agency processes is resolved.

Table 6: Barrier Factors

	1	2	3	4	5
15. The impacts of the research for the agency need to be better articulated	.778				
27. As an agency we don't have an effective process for translating the research for our personnel	.761				
14. We need a change advocate within the agency to take the research implications forward	.750				
26. It is not clear who is dealing with what Bushfire CRC research in our agency	.740				
29. Personnel within the agency not aware of research	.717				
28. The agency hasn't developed the appropriate assessment strategies to consider implications of the research	.686				
18. The agency needs better linkages between the researchers and agency personnel	.576				
7. In this agency research is not valued	.688				
2. Implications for practice are not made clear	.678				
8. Agency personnel don't have the capacity to think strategically about what the research may mean for [us]	.632				
13. It is not clear what change is needed	.619				
10. Personnel may be uncertain whether to believe the results of the research	.522				
20. The amount of research information is overwhelming			- .900		
11. There is too much change happening in this agency already, we don't need more to be considered			- .741		
21. Personnel don't feel capable of evaluating the quality of the research			- .670		
16. Research reports/articles are not published fast enough				.783	
17. Cooperation from other stakeholders in the industry is needed for successful implementation				.746	
4. The research is not relevant to this agency				.656	
22. The research is hard to find					- .858
23. The publications are hard to read					- .699
1. Research reports/articles are not readily available					- .649

The barriers results are interesting in that they provide a insights into the challenges facing the fire and emergency services industry. In benchmarking these factors within other industries such as nursing (Baernholdt & Lang 2007; Funk, Champagne, Weise, & Tornquist 1991; Retsas 2000) and education (Hemsley-Brown, & Oplatka 2005) where similar research has been conducted, the factors representing barriers to research utilisation are different. While there is some reference to organisational capability, in the nursing industry, for example the most common factor that emerges as the most potent barrier is based on individual capability (i.e., the factors that have ended up third in importance in this study).

The workshop

A two day workshop was conducted with 12 invited agency and industry participants, selected for their experience of research utilisation and position of work responsibility within the industry. The purpose of the workshop was to:

- provide input regarding their experiences of research utilisation and what they see as the key challenges (from either an agency or AFAC group perspective);
- to discuss the implications of the good practice survey outlined above; and,
- to inform the future directions of the Research Utilisation strategy.

Participants were briefed on the existing Research Utilisation strategy, the survey as well as the Bushfire CRC research extension. Participants also received an update on relevant activities and plans of the key AFAC groups of Knowledge Management and Learning and Development. The purpose was to ensure that an integrated approach would be taken and that the research utilisation strategy developed would be cognizant of existing industry ambitions. Following this the survey findings were outlined and discussed.

Workshop participants then brainstormed what they thought Bushfire CRC research utilisation was intended to achieve and what was currently working well that should not be lost in the future.

Bushfire CRC Research Utilisation aims to achieve:

Improved service delivery to enable community safety and resilience through improved agency operations and practices. Bushfire CRC research utilisation also provides opportunities to enhance increased cooperation between agencies. Indicators that it had achieved its aims included evidence of

- Improved knowledge base for agency decision making
- Influenced national policy, agendas and strategies
- Disseminated evidence
- Value adding through knowledge creation and management and translation of research outputs into “user speak”
- Community and personnel having “helpful feelings about fire; living with the realities of fire.

This feedback clearly aligns closely with the overarching goals of the Bushfire CRC and adds strength to the current approach of the close integration of both research and research utilisation activities and their support by the Bushfire CRC communications program.

The following is a synopsis of what was identified as working well.

- The quality of the research outputs was acknowledged. This represented an “Unquestioned centre of excellence” as was demonstrated by the Victorian Bushfire Royal Commission.
- A strength was the improved awareness in the industry (ideas and ways forward are being generated). Strategies were successful – especially through Fire notes, though also including activities such as the conference focus (must keep).
- That there were targeted /focused events– including professional development – and that these had been maturing was also acknowledged and seen as a foundation for the future
- There was evidence of engagement and collaboration that can be built on. This included examples of strong engagement with senior management, researcher agency engagement (e.g., regional conferences), an emerging culture of evidenced based planning and a thirst or hunger for knowledge and practices in some agencies where they were able to translate findings into practice.

The next part of the workshop progressed through three iterations of discussion. These items were then numbered so that they may be grouped into themes. Having completed this step the themes were then revisited in order to identify activities that would achieve these themes. Finally the themes and the activities were reviewed and numbered again, this time on a continuum of responsibility (1= Bushfire CRC/AFAC responsibility and 10 Agency responsibility). For the purposes of this report the findings will be compressed and discussed within each of the six themes identified.

Relationships – partnerships and trust

A key component identified was building trusting relationships based on shared values. It was felt that these could be both formal and informal to support engagement between government, industry, community and the education sector, and indeed that these could stretch beyond Australia. Things that can be done to support building relationships, partnerships and trust include:

- Share ideas with other CRCs
- Invite people to see what ‘we’ do
- Bring people together in meaningful ways (researchers, practitioners and other interested people)
- Create a community of practice – blogs etc
- Actively engage with LEUs
- Go beyond existing stakeholders – encourage local government, planners etc
- Show people what has been achieved
- Go beyond AFAC groups – deeper and wider
- Open up RAF to whomever wants to go
- Practitioners speak on behalf of researchers – could researchers speak on behalf of practitioners?
- Cater for widening interest – include community

- Be faithful – come/go back
- Create ad hoc or systemised forums
- Profile successful partnership
- Examples of good ideas

Advancing the theme within a research utilisation context was regarded as being shared equally between BushfireCRC/AFAC and agencies.

Engagement and active involvement

It was seen as really important to create opportunities for active interpretation by the audience and it was acknowledged that there was rich content for engagement.

Things that can be done to support **engagement and active involvement** include:

- Conferences – think about how time is used. E.g. research wp, lounge, poster sessions
- Use the guidelines – train people in how to
- Consider how to have two way conversations in the different events
- Professional development in how to do this: ‘how to engage your audience 101’
- Demonstrate Good Practice/Best Practice examples
- Be brave
- Encourage and support/review AFAC groups and agencies to have engagement and active involvement within and from them
- Consistent messaging
- Allow or encourage debate
- Ideas spaces
- Governance ideas
- Case studies
- Showcasing
- Set expectations regarding engagement within projects
- Mentoring
- Regional conference advice
- ‘How to do’ sheets

Advancing the theme within a research utilisation context was regarded as something to be driven by the Bushfire CRC in collaboration with AFAC and agencies.

Forming meaning

Part of the success in engagement will be the recognition of the context of the audience and that *“what I know does not automatically translate into what you know”* through a process of passive information transmission. Providing opportunities for active forming of meaning by a variety of participants would be critical to the successful utilisation of research.

Things that can be done to support **forming meaning** include:

- Professional development around what this is
- Facilitate conversations around which meaning is formed
- Get away from the need for certainty

- Pilot and demonstrate approach
- Be explicit about this as an issue
- Ask the 'so what' question
- Discuss rather than just forward material
- Find translators
- How does/is the individual affected by this material
- Work at grass roots
- What can we do in this space
- Live examples
- Use alternatives to written communicators – I don't know if they read it
- Where has it come from – what does it mean to me?
 - [Sifting out-destination:-policy, practice, training...
Most likely to be of use to
Preliminary sorting/flags]
- Recognise process matters – think first
 - Who from; who to
- Develop feedback and evaluation process
- Centralise learning – if others have done it don't reinvent
- Embed principles in engagement
- Knowledge segmentation
- Interpretation

Advancing the theme within a research utilisation context was regarded as the responsibility of Bushfire CRC and AFAC (in order to help agencies).

Collaboratively creating products to be utilised

For findings to be utilised effectively there needed to be high quality products that were usable and relevant. Materials needed to come alive and it was thought that a key to this was an emphasis on the media-rich content. It was acknowledged that there are going to be a variety of different approaches needed to support specific needs.

Things that can be done to support **collaboratively creating products to be utilised** include:

- Video, podcast
- Interviews with researchers
- Keep the 'who' the personality
- Interview practitioners
- Use new media
- Innovative info products from other sectors (E.g. www.medpagetoday.com)
- Use latest research on ...
- Clearly articulate product requirement
- Evaluate products – identify the successful approaches
- See processes as a product
- Identify opportunities to contribute
- Identify assumptions – test assumptions
- Take risks – accept uncertainty – try different things

- Test against different learning styles
- Explore other ways
- Professionalization of the training people
- Utilise k-web
- Skype discussions
- Set up an action learning process around this

Advancing the theme within a research utilisation context was regarded the domain of the Bushfire CRC in collaboration with AFAC.

Building capacity and capability

It is really important that agencies develop the skills to understand the impact of the research and to build the capacity to translate these into improved policies, products and procedures. Mentoring and best practice guides were identified as having a key role to enable agency research utilisation practices.

Things that can be done to support **building capacity and capability** include:

- Workshops
- 'How to' guides
- Role model behaviours
- Training exercises
- Professional development program
- Share Best Practice ideas
- Ambassador-at-large
- Explain things on the ground
- Team of translator/facilitators
- Change agents/mentors from within
- Industry placements for students
- Bring others on board
- Work with Lead End Users – upskill, share Best Practice LEUs around types of organisations/ geographic areas
- Build networks people can call upon
- A pool of people who know about a particular body of knowledge
- Impact assessment skills development – assist with process at agency levels
- Build up trainers
- Skills development activities
- Translation
- Ensure people know what is available to them

Advancing the theme within a research utilisation context was regarded as a shared responsibility between the Bushfire CRC, AFAC and agencies

Building responsive cultures

A culture that embraces change, learning and risk is one that is important if there is to be change. Underpinning BUSHFIRE CRC research utilisation success is a need for agencies to be open to new ideas. This requires building responsive cultures that value learning. Indeed it was noted that a non-

responsive culture is a serious risk to research utilisation. This was important because research findings are likely to be resisted if there is a culture that is not willing to change. This also meant that it was important to take a risk that an initiative might not work, at least initially. Cultures of continuous improvement are ones that value evidenced-based decision making.

Things that can be done to support building **responsive cultures** include:

- Conduct trials – that might not always work
- Seed funding for good idea
- Try new things
- Take some risks
- Rewarding new and challenging risk taking
- The Chief Executive drives it – people take their cues from the leaders
- Work with the existing culture –find ways to change from within
- Engage with the people who make the change
- Build into individual KRAs
- Engage in planning processes →alignment
- “Walk in their shoes” – find opportunities to work in others’ jobs

Advancing the theme within a research utilisation context was regarded as the responsibility of agencies.

Conclusions

This report summarises two strategies used to consult the industry on existing and potential research utilisation practices to inform future directions. The first was a survey and the second was a workshop.

In terms of the survey, feedback was received from a cohort of contributors who were from a representative sample of agencies and who were well qualified to answer. The survey first aimed to ascertain what mechanisms agencies have in place to translate new research. Some agencies have been very active in putting in place systemic approaches to support research utilisation. However this approach does not appear to be widespread across agencies. Overall, there is a perception that the industry has shifted toward becoming one based on learning. Participants however are not reporting changes to the same degree for their home agencies.

Secondly, it was important to test the perceived effectiveness of a range of utilisation strategies currently in use to transfer knowledge to the industry. Participants provide some endorsement that their agencies are able to disseminate Bushfire CRC research within the agency and to implement any changes needed, but less endorsement in being able to assess and evaluate the impact of research and to put in place monitoring processes to track those changes. Given that the Bushfire CRC has a requirement to demonstrate impact, these lower levels of endorsement may constitute a risk for both the Bushfire CRC and for agencies. There is a reasonable level of familiarity with Fire Notes. There is less familiarity with Events. In addition the survey results suggest that the Industry Impact Assessment process needs attention and that the connection between Industry and Agency Impact assessment needs to be strengthened.

Finally, it was important to identify potential barriers to effective research utilisation in order to identify and develop enablers to support innovation and learning that is suitable for the industry. The findings indicate that there is a need to:

- facilitate the enhancement of internal processes within agencies to help them assess, evaluate, translate research, implement change and monitor and evaluate those changes;
- support AFAC in facilitating industry-wide change processes that are beyond the scope of one agency alone;
- assist agencies to contextualise the implications of change in to develop processes for prioritisation in the context of change fatigue ;
- assist agencies to develop strategies to develop a wider awareness of the CRC within those agencies;
- build capacity in the skills needed to evaluate quality of research and its implementation;
- and
- create greater accessibility to research outputs.

Ways forward were identified through a workshop consultation and include

- Building relationships through partnerships and trust
- Engagement and active involvement
- Proactively working at assisting participants to form meaning and their own interpretation
- Collaboratively creating products to be utilised
- Building capacity and capability to enable agencies to develop the skills needed
- Building responsive cultures which means facilitating change learning and risk to support innovation

These objectives need to be addressed if the Bushfire CRC is to be successful in demonstrating industry impact and supporting agencies to reap the full benefits of Bushfire CRC research.

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Endnotes

ⁱ Home agency “now” and “then” related samples t-test mean diff = .081; S.D. = .1.284; $t = .739$; Df = 134; $p = .461$

Industry “now” and “then” related samples t-test mean diff = .254; S.D. = .959; $t = 3.018$; Df = 129; $p = .003$

ⁱⁱ Analysis of Variance: Research utilisation tools by position within agency [includes Post-Hoc Bonferroni correction]

8.4.4. Helps you understand Bushfire CRC research – Events – $F(2, 85) = 3.654$ $p = 0.38$

9.1. Your own level of familiarity with the Impact Assessment process – $F(2, 93) = 3.245$ $p = .043$

ⁱⁱⁱ Analysis of Variance by AFAC group participation [includes Post-Hoc Bonferroni correction]

2.1. Your level of awareness about the strategies your agency has in place to keep up to date with Bushfire CRC research $F(1, 130) = 8.840$; $p = .004$

8.5. Helps you evaluate what needs to change in your agency's practice – website: $F(1, 130) = 8.840$; $p = .004$

Fire notes: $F(1, 100) = 6.095$; $p = .015$; Research Publications: $F(1, 97) = 4.516$; $p = .036$; Events $F(1, 87) = 4.330$; $p = .040$.