bushfire CRC

REPORT ON RESEARCH UTILISATION CONSULTATION
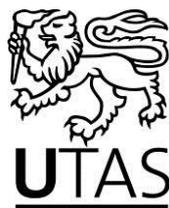
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Report on Research Utilisation Consultation

December 2012

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For the Bushfire CRC

Contents

Executive Summary

In order to effectively support the utilisation of the research outputs that emerge from the Bushfire CRC Extension it was timely to again review the approach to research utilisation for the Bushfire CRC. A survey was conducted and results compared with an earlier study conducted two years ago, in 2010. In the review reported here 94 responses from 18 agencies were received and results compared with the 2010 data.

The key findings from the analysis are:

o There was a high degree of familiarity with the agency's own strategic plan and a reasonable degree of awareness of Bushfire CRC research outputs. The alignment between the agency's strategic planning and Bushfire CRC research outputs was lower than that reported in 2010. This may be due to the current second phase of research outcomes not yet being readily apparent and to the various specialisations in some of the research being undertaken which may not be pertinent to some agencies or indeed only to parts of agency business.

o Participants reported slightly higher levels of perceived effectiveness for the way their agency's (i) disseminated research within their agency and (ii) assessed and evaluated the impact of the research for agency practice. It is interesting to note that, compared to the 2010 study there was a decline in the reporting on agency effectiveness for monitoring processes to track changes within the agency and on disseminating the outcomes of any changes based on Bushfire CRC research.

o There are improvements in terms of reported levels of satisfaction with utilising Bushfire CRC resources such as the Bushfire CRC Web Site; Fire Notes and Research Publications, when comparing the 2010 and 2012 findings. In addition reported levels of familiarity with the research had increased also along with satisfaction in using these information products to understand Bushfire CRC research.

o While there were improvements reported in using these resources to develop skills to bring about change these levels of satisfaction were lower than for the other items discussed above. It is important to note that this is not the primary function of the Bushfire CRC information resources and may indicate an area where AFAC is needed in developing capability for managing change.

o Information was also sought on involvement in collaborative opportunities to more actively engage with Bushfire CRC research and its utilisation activities, such as participation in Bushfire CRC Stakeholder Council; Research Advisory forum; AFAC Conference; and whether the survey participant was a member of an AFAC group. Active engagement resulted in increased levels of satisfaction with using the Bushfire CRC resources, increased familiarity and understanding the Bushfire CRC research.

o The study also found that perceptions about the learning culture (of the industry and of the participant's own agency) had all declined. Given the level of improvement reported with the Bushfire CRC information products and the collaborative research engagement

opportunities this finding suggests that there are some systemic impediments within agencies and the industry that need to be addressed if the industry is to maximise on its investment in the research.

- o A number of barriers to research utilisation were identified. They included
  - *"The impacts of the research for the agency need to be better articulated"*
  - "Most p*eople in the agency don't know about the research"*
  - *"We need a change advocate within the agency to take the implications forward"* and
  - "*The agency needs better linkages between the researchers & agency personnel*".
  - *"The agency has not developed the appropriate assessment strategies to consider the implications of the research."*

A Factor analysis revealed that barriers to research utilisation were underpinned by 3 main factors:

1. INTERNAL AGENCY PROCESSES. The first and – by far the most – important factor 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 to develop effective internal processes for translating the research and to clarify who within the agency is responsible for this. There are also indications of change fatigue.
2. RESEARCH – CHANGE NEXUS The second factor relates to both the amount of research emerging being perceived as overwhelming in the context of other changes (interestingly this was highest in urban agencies as well as high in land management agencies). It also indicates a need to build capacity to assist in evaluating the research in the context of the changes experienced and to providing agency personnel with the opportunities to step back and to think strategically.
3. INDUSTRY – WIDE DEMANDS The third factor appears to relate the need for an industry wide approach to be taken to issues that are larger than one agency alone. There is clearly some role for industry-wide approaches, particularly when it would value-add to agency change.

Introduction

In order to reap the maximum benefits from the investment in the Bushfire CRC it is important to systematically review the position of agencies in relation to the utilisation of the findings of completed research, and also to contribute to understanding about how individual agencies and the industry can capitalise on its utilisation of the Bushfire CRC research outcomes. A survey was conducted to:

- o Identify good practice in research utilisation;
- o Compare results with a baseline assessment conducted in 2010 assessing the state of research utilisation across the industry as a measure of research impact;
- o Ensure that a strategic approach to research utilisation by the Bushfire CRC is collectively informed by user needs.

A previous review of the literature (e.g., Dearing, 2009; Owen, 2011) suggested that systematic evaluation of research utilisation supports industry effectiveness through developing learning cultures which enable:

- 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.

It is also important to assess perceived barriers to research implementation. In line with the work of research examining perceived barriers to organisational change and adaptation (Funk, 1991; Baernholdt and Lang, 2007; Elliot and Mihalic, 2004; Helmsley-Brown and Oplatka, 2005; LaPierre, Ritchey and Newhouse, 2004), the survey also included items that were successful in the 2010 survey in identifying core themes identified as barriers to change for the industry.

Method

The 2010 survey (Owen 2011) was reviewed and modifications made based on the findings reported as well as subsequent changes in the industry. It was distributed to 28 agencies. Agency contacts were requested to distribute the survey using the following stratification sample:

- Senior management: the most senior person in your organisation responsible for the following areas:
    - o Training and development
    - o Operations
    - o Community safety
    - o Knowledge management/innovation/research

- Five persons at middle-management including operational and non-operational personnel (e.g. District Managers)

- Five persons in operational front-line service positions (e.g. volunteers, field operations personnel, community education officers, training instructors).

The purpose of this sampling method was to target personnel who could reasonably be expected to have an understanding of the strategic planning of the agency as well as some awareness and/or involvement in Bushfire CRC activities.

In all, 94 responses were received from 18 agencies. The median number of years for survey participants in the industry was 25 years and the median number of years within the agency was 16 years, thus demonstrating the level of experience of those responding. There was also good participation from a range of agencies. Of the people who answered the question, there were 26 responses from people working in rural fire agencies; 28 from people working in land management agencies; 19 from urban agencies and 14 from agencies that have an emergency management (floods or multiple hazards) 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, any statistical analyses will be reported in the text and the details of the statistical analyses included in an Endnote.

Survey Results

As discussed in the 2010 study, 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.
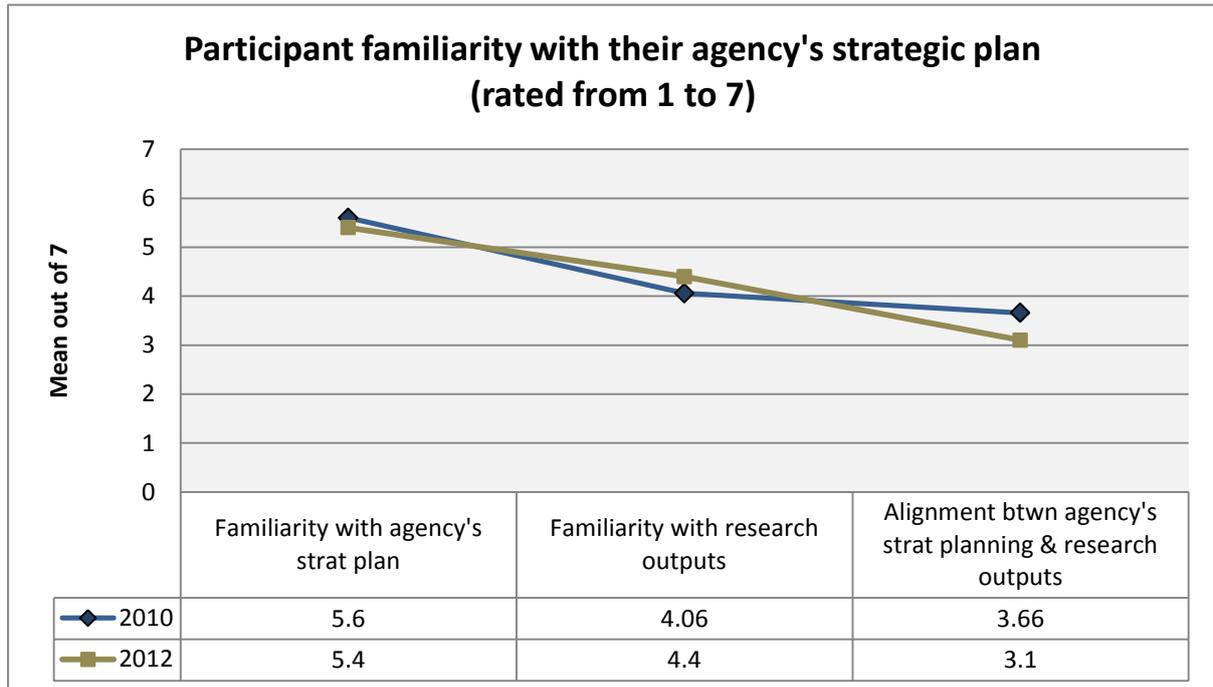
Figure 1: Participant familiarity with the strategies their agency has in place to benefit from Bushfire CRC research

While there was a high degree of familiarity with the agency's own strategic plan ($\dot{X}$ = 5.4) as well as a reasonable degree of awareness of Bushfire CRC research outputs ($\dot{X}$ = 4.4), the alignment between the agency's strategic planning and Bushfire CRC research outputs was lower ($\dot{X}$ = 3.1). This may be due to the various specialisations of Bushfire CRC research which only target particular parts of the industry and are not generally applicable to all agencies as well as to the current phase of Bushfire CRC outputs which are (for the second phase of the CRC) still under development. Conversely, it may indicate a perception that for some parts of the industry the alignment strategic planning and Bushfire CRC research outcomes is not strong.

*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 plan. There has been no change on this item between the 2010 and 2012 surveys ($\dot{X}$ = 3.8). This is intriguing given the increases reported (see below) on improvements in engagement and satisfaction with a number of research utilisation tools available. This findings below indicate that while individual agencies are more satisfied with the Bushfire CRC services, agencies may not have yet developed organisation wide strategies to track monitor and review Bushfire CRC research outcomes.

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:

- o **disseminate** the Bushfire CRC research within the agency;
- o **assess and evaluate** the impact of the research in agency practice;
- o **implement** any agency changes that may be needed;
- o put in place **monitoring** processes to track changes; and
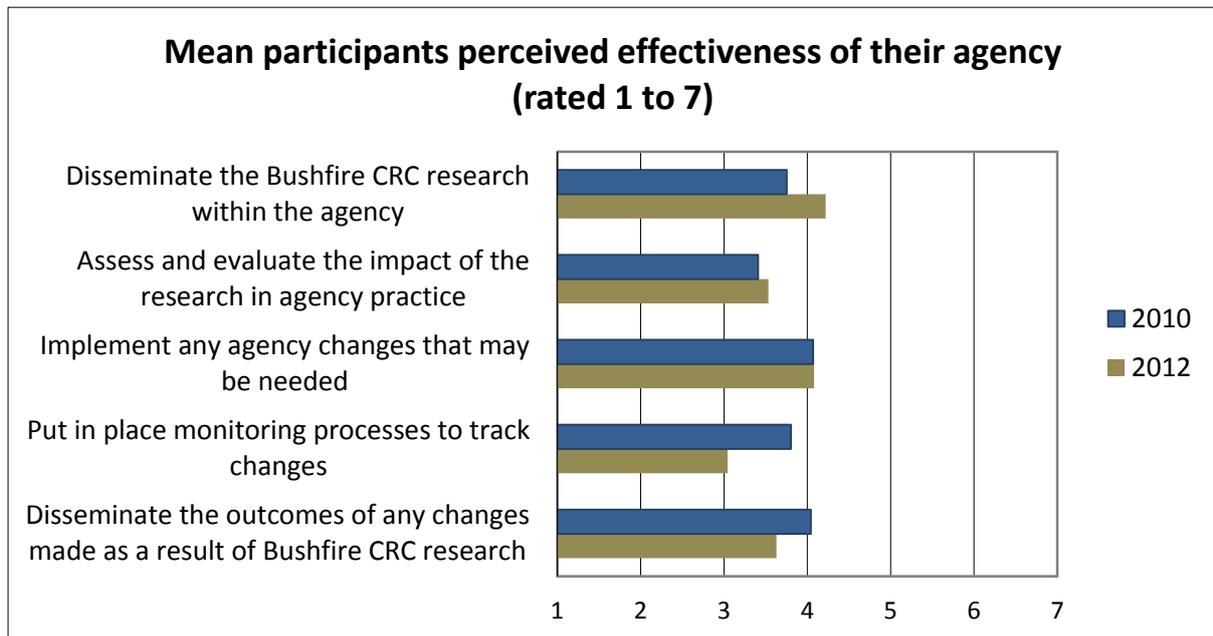
Figure 2: **Participants assessment of the effectiveness of their agency's strategies to benefit from BUSHFIRE CRC research**

The figure shows that participants reported slightly higher levels of perceived effectiveness for the way their agency's (i) disseminated research within their agency and (ii) assessed and evaluated the impact of the research for agency practice. It is interesting to note that, compared to the 2010 study, there was a decline in the reporting on agency effectiveness for monitoring processes to track changes within the agency and on disseminating the outcomes of any changes based on Bushfire CRC research.

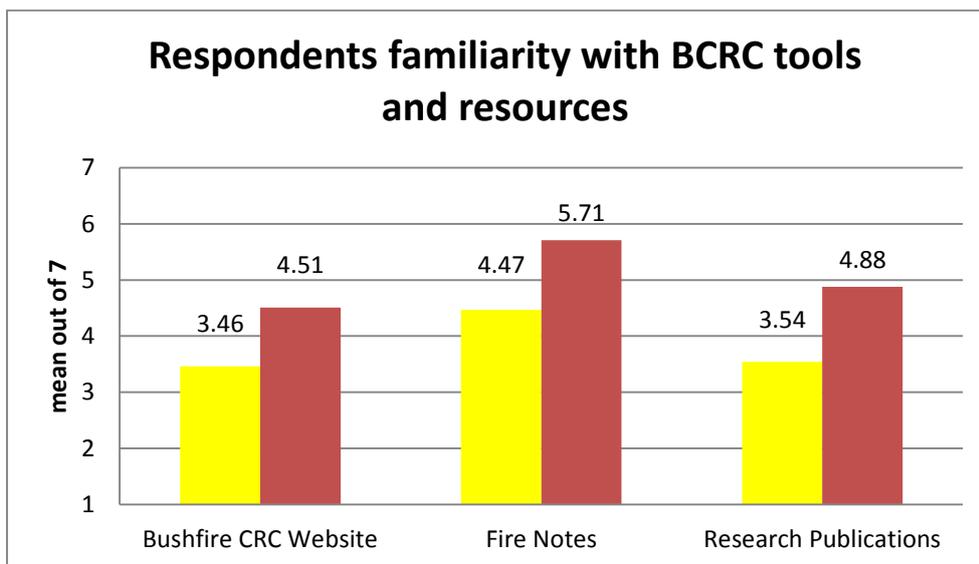## 2: Uptake of Bushfire CRC research utilisation strategies

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

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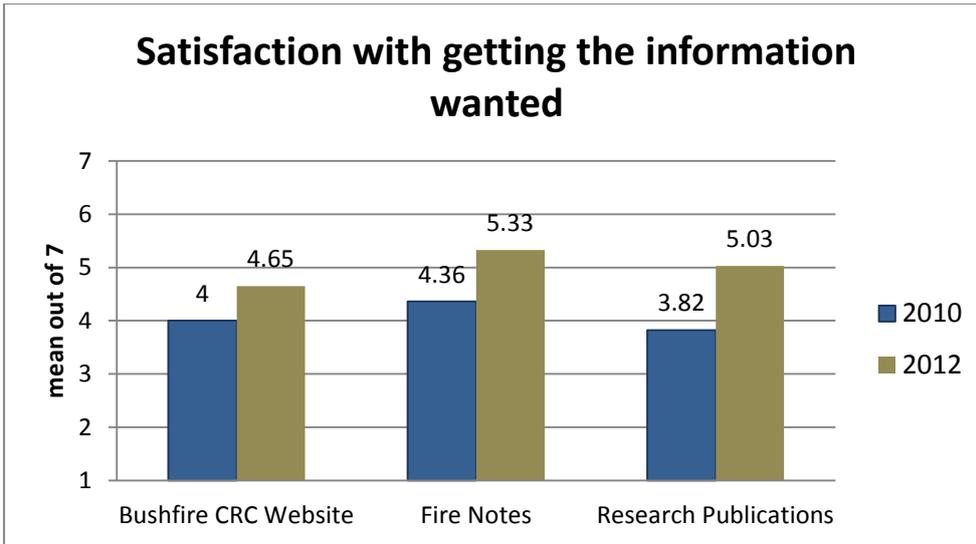o the degree to which it helps develop the skills to help bring about change.

Figures comparing the 2010 and 2012 cohorts are presented in Figure 3 to Figure 8. In summary:

• The results show an increased engagement with all Bushfire CRC utilisation tools and higher levels of satisfaction with each of them compared with 2010.
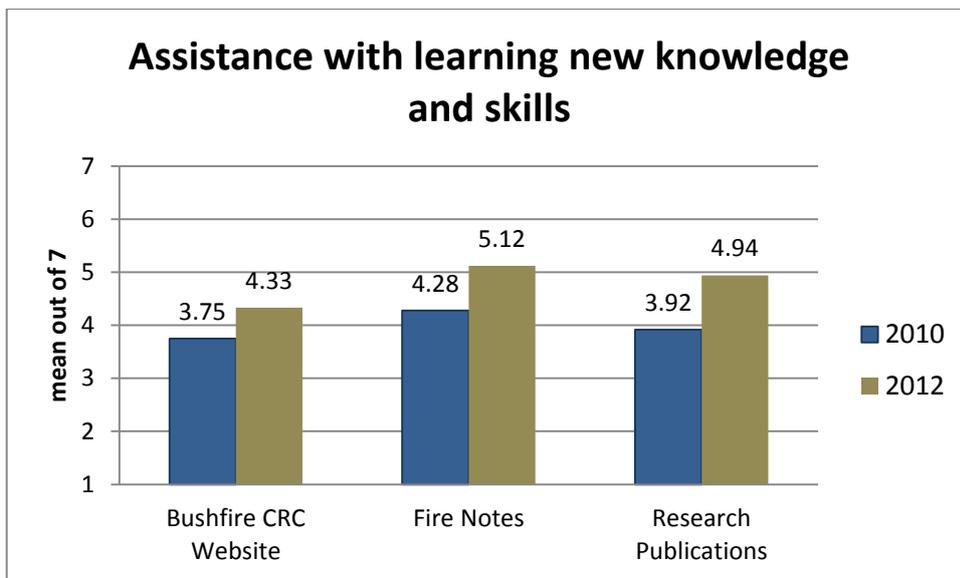
- Participants have highest familiarity with Fire Notes. Familiarity with research publications and the Bushfire CRC website have also improved since 2010 (Figure 3).

- In terms of levels of satisfaction with getting the information wanted, the Fire Notes again obtained the highest ranking, closely followed by research publications (Figure 4). The increase in satisfaction with utilising research publications compared to 2010 suggests a maturing in the industry to engage with publications.

- 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 (Figure 3) .

- Figure 7 and Figure 8 show levels of satisfaction with helping to identify what needs to change and developing the skills to bring about change. While these levels show improvements since 2010, they are lower than the other items discussed in this section. Given that changes needed are going to be driven by internal agency processes, these items perhaps indicate an area where AFAC is needed in developing capability for managing change.

Figure 3: Participants level of familiarity with Bushfire CRC research utilisation tools and resources

Satisfaction with getting the information wanted

mean out of 7

	Bushfire CRC Website	Fire Notes	Research Publications
2010	4	4.36	3.82
2012	4.65	5.33	5.03

Figure 4: Participants level of satisfaction with getting the information they want from Bushfire CRC research utilisation tools and resources

Assistance with learning new knowledge and skills

mean out of 7

	Bushfire CRC Website	Fire Notes	Research Publications
2010	3.75	4.28	3.92
2012	4.33	5.12	4.94

Figure 5: Participants rating of the level of assistance the Bushfire CRC research utilisation tools and resources provide in helping them acquire new knowledge and skills
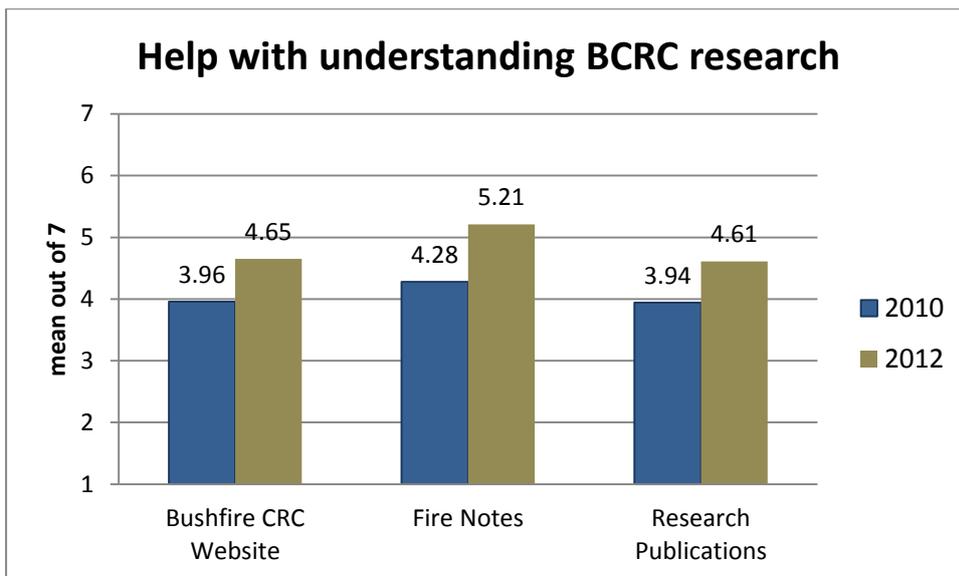
Figure 6: Participants rating of the level of help the Bushfire CRC research utilisation tools and resources provide for them to understand Bushfire CRC research
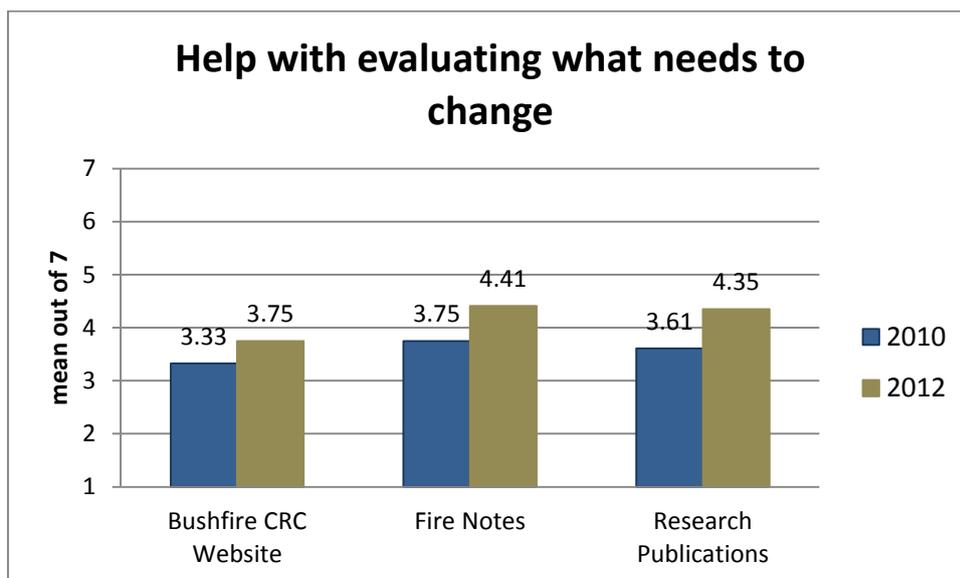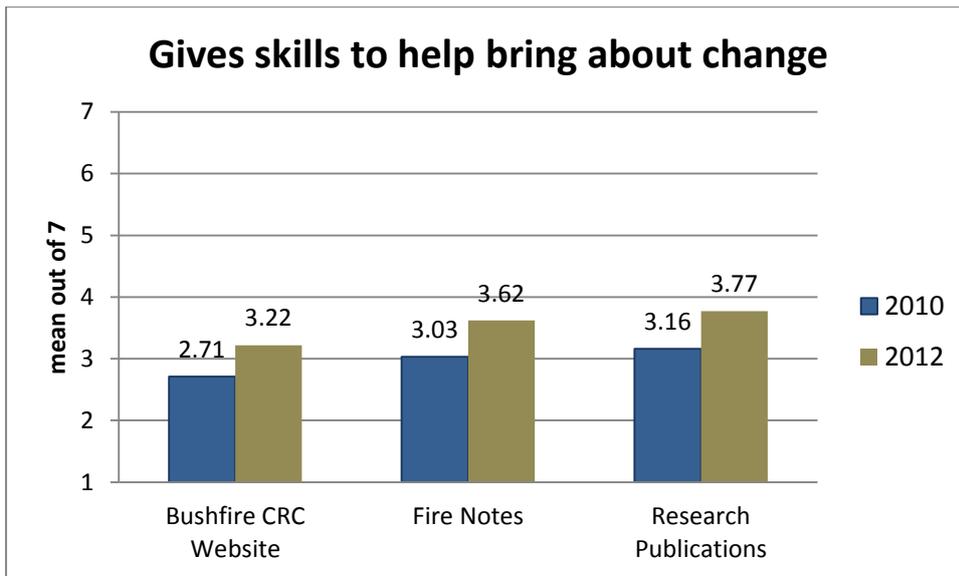

Figure 7: Participants rating of the level of help the Bushfire CRC research utilisation tools and resources provide for them to evaluate what needs to change in their agency's practice

Figure 8: 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

3 Engagement in Bushfire CRC research utilisation processes

Information was also sought on involvement in collaborative opportunities to more actively engage with Bushfire CRC research and its utilisation activities, such as participation in:
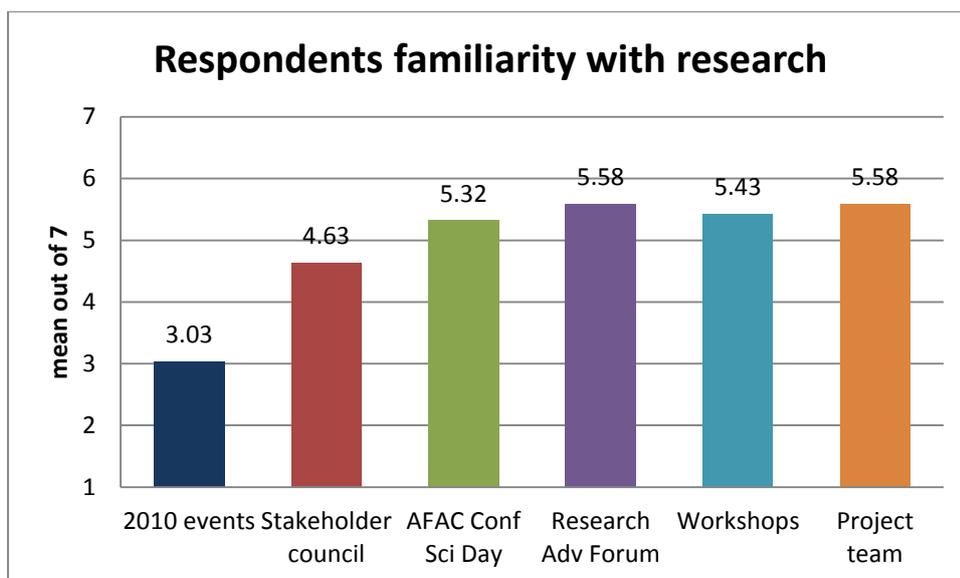
- Bushfire CRC Stakeholder Council;
- Research Advisory forum;
- AFAC Conference; and
- whether the survey participant was a member of an AFAC group.

Engagement	N
Bushfire CRC Stakeholder Council	10
Bushfire CRC Research Advisory Forum	16
Bushfire CRC/AFAC Conference	38
Member of AFAC group	21

Not surprisingly a number of participants were engaged in multiple activities however the sample of 94 included 47 (50%) participants who were engaged in at least one of the Bushfire CRC collaborative processes listed above. Participants who were engaged in each of these collaborative opportunities were also asked to report their levels of satisfaction based on the indicators discussed above. The Figures below are benchmarked against a similar item included in the 2020 survey which was more general – that for Bushfire CRC "events".

The findings are indicated in Figure 9 to Figure 14. In summary the findings indicate that:

- All Bushfire CRC engagement activities reported in 2012 are rated as performing higher than the 2010 "Bushfire CRC events" item.
- In terms of the Bushfire CRC information products -- website, Fire Notes, research publications (see Figures 3 - 8)
 - All bushfire CRC engagement activities reported higher levels of satisfaction in providing familiarity with the research than the Bushfire CRC information products- see Figure 10);
  - The workshops and involvement in a Bushfire CRC research project team reported higher levels of satisfaction for obtaining wanted information (Figure 11);
  - Engagement in the Research Advisory Council, Workshops and involvement in a research project team reported higher levels of satisfaction with helping to understand the Bushfire CRC research (Figure 12);
  - With the exception of the Bushfire CRC Stakeholder Council, all other engagement activities reported higher levels of satisfaction with helping to evaluate what needs to change (Figure 13);
  - All engagement activities reported higher levels of satisfaction with giving skills to bring about change (Figure 14).

Respondents familiarity with research

Category	mean out of 7
2010 events	3.03
Stakeholder council	4.63
AFAC Conf Sci Day	5.32
Research Adv Forum	5.58
Workshops	5.43
Project team	5.58

Figure 9: Participants rating of their familiarity with the research when engaged actively in collaborative Bushfire CRC opportunities

Satisfaction with getting the information wanted
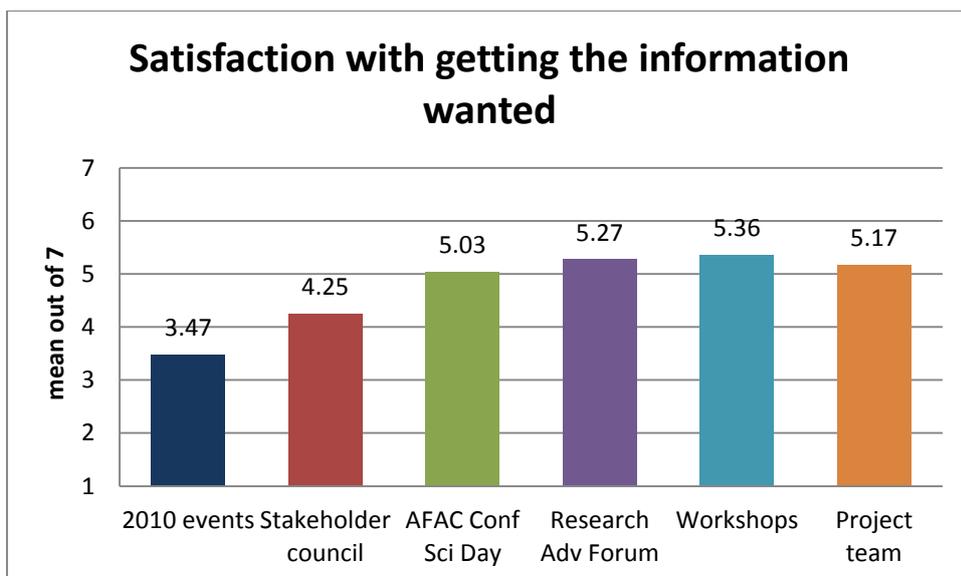
Figure 10: Participants level of satisfaction with getting the information they want research when engaged actively in collaborative Bushfire CRC opportunities

Assistance with gaining new knowledge and skills
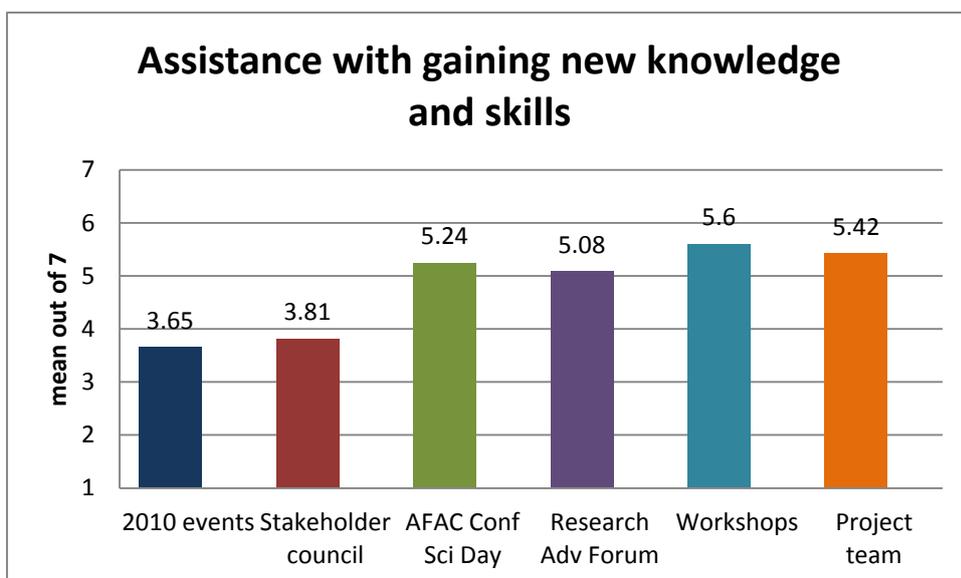
Figure 11: Participants rating of the level of assistance with learning new knowledge and skills when engaged actively in collaborative Bushfire CRC opportunities
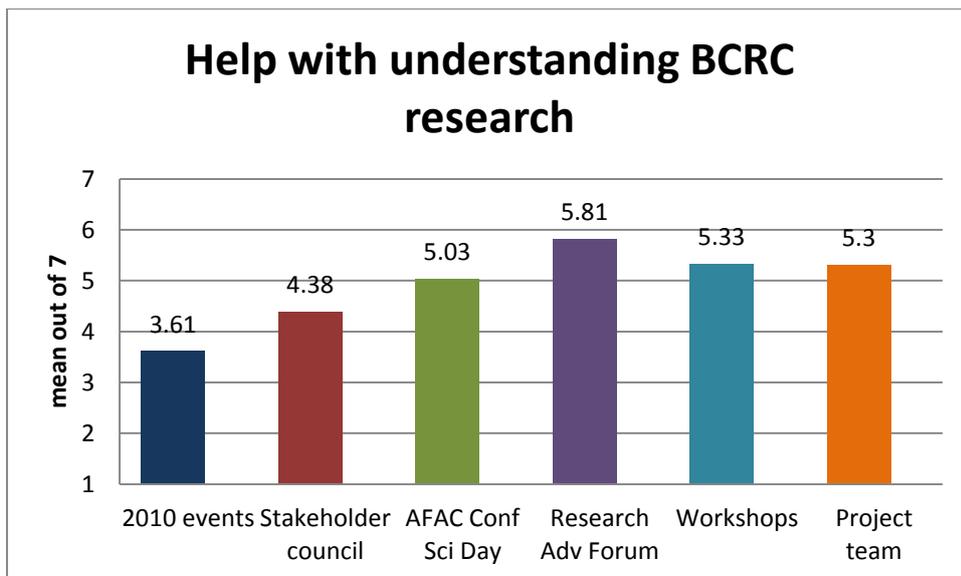
Figure 12: Participants rating their understanding of Bushfire CRC research when engaged actively in collaborative Bushfire CRC opportunities
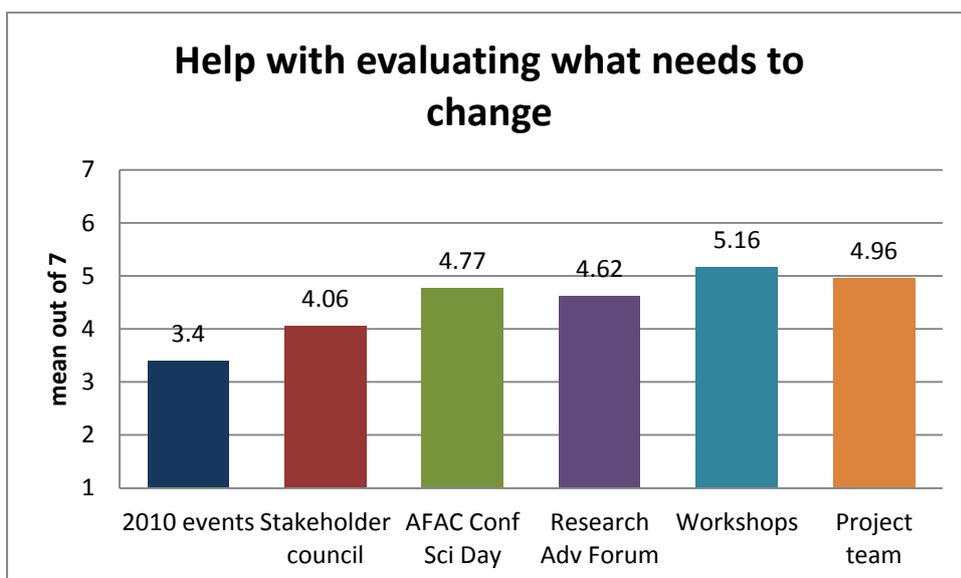
Figure 13: Participants rating of the level of help to evaluate what needs to change in their agency's practice when engaged actively in collaborative Bushfire CRC opportunities
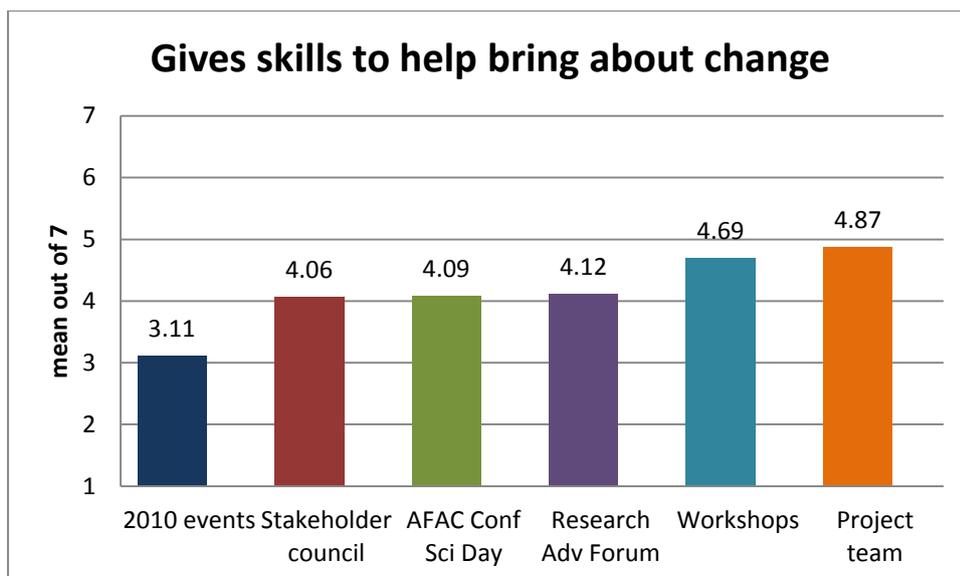
Figure 14: Participants rating of how well they are able to develop the skills to help bring about change in their agency from being engaged actively in collaborative Bushfire CRC opportunities
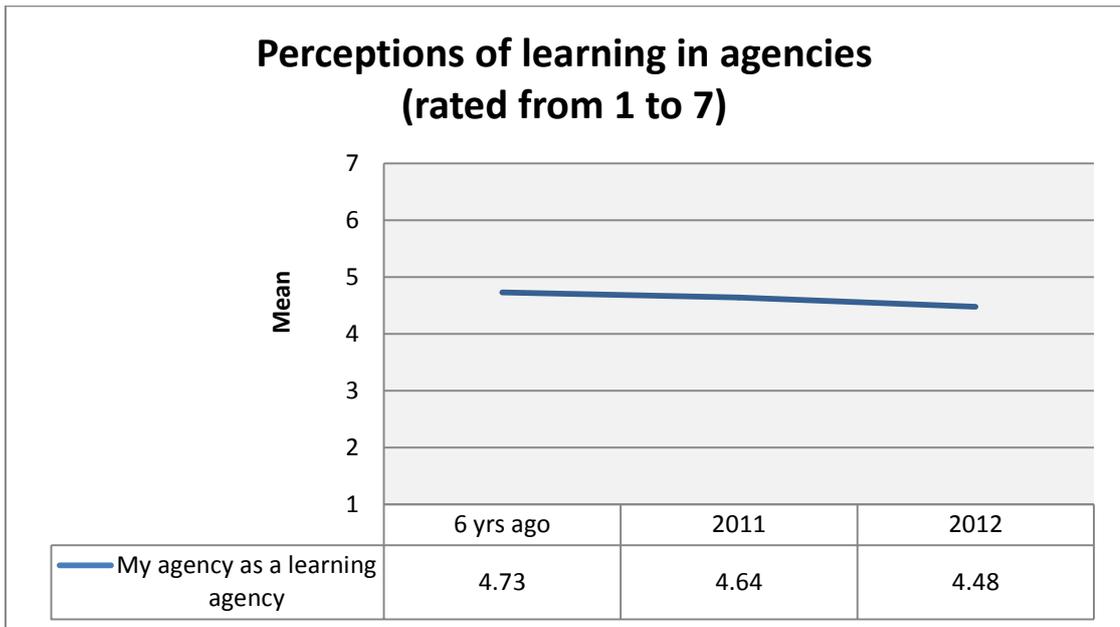
3. Industry engagement

The breakdown of participant responses between those actively engaged in Bushfire CRC research review activities and those that were not enables some other comparative analysis. A comparison was made of the questions discussed previously by those who are actively engaged in some consultation/dissemination/decision-making process compared to those who are not so actively engaged. The reason for doing so is to test the finding in the 2010 study that those who were not as actively engaged had less understanding/awareness of Bushfire CRC research.

A comparison of means for the two groups (actively engaged in Bushfire CRC collaborative research review opportunities and those not actively engaged in these activities) revealed that there were few statistically significant differences between those actively involved in Bushfire CRC engagement activities and those that were not. This suggests that there have been improvements in permeating agency staff with understanding compared with the 2010 results. The statistically significant differences between the two groups identified included

- different perceptions of the degree to which the industry represents a learning culture (i.e., people more actively engaged reported higher endorsements that the industry was one based on learning – see below)[i].
- This more actively engaged cohort reported a greater level of understanding the research using the Bushfire CRC website[ii].
- In contrast those not actively engaged had higher levels of reporting the barrier of not being clear about who is dealing with research in the agency[iii].

Perceptions of learning cultures in agencies and in the industry

In the 2012 survey there were two questions that asked participants to rank how well they thought their agency exemplified a learning organisation, where a learning organisation was defined as an agency that learns from the experience of its own members or the experience of others. In the 2010 data participants were reporting on where they thought the industry was five years ago as well as providing an assessment in 2010. A similar question was asked in relation to the fire and emergency services industry. As can be seen from Figure 15 and Figure 16 there has been a decline in perceptions of agencies as learning organisations as well as the industry in general.

Perceptions of learning in agencies (rated from 1 to 7)

	6 yrs ago	2011	2012
My agency as a learning agency	4.73	4.64	4.48

Figure 15: Mean of participants' rating from 1 to 7 of learning in their agency
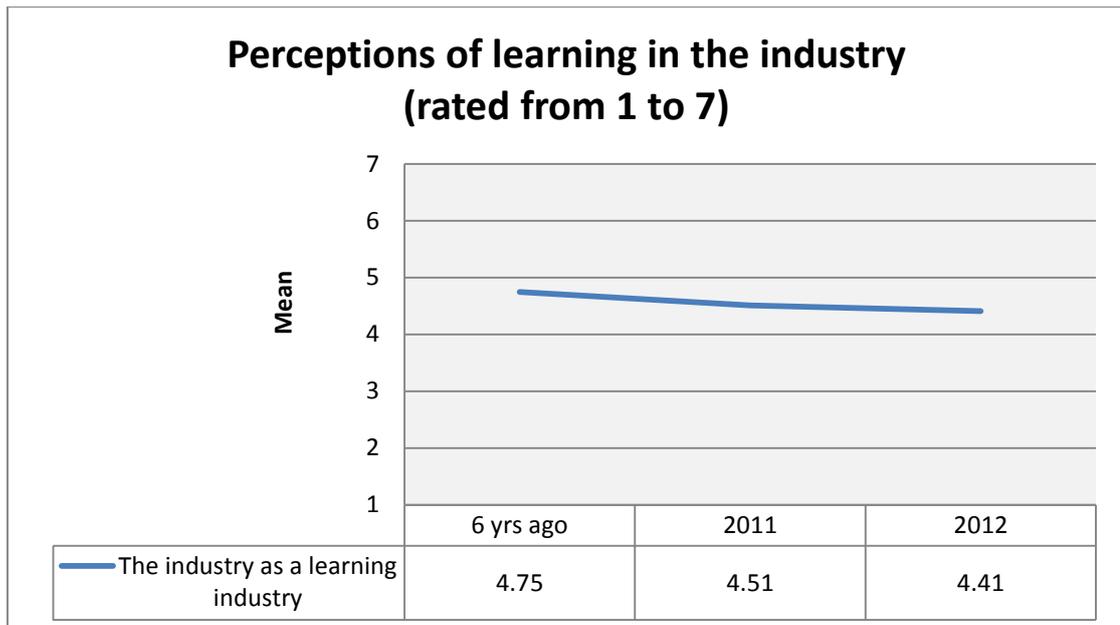
Figure 16: Mean of participants' rating from 1 to 7 of learning in the industry

Given the level of improvement reported with the Bushfire CRC information products and the collaborative research engagement opportunities this finding suggests that there are some systemic impediments within agencies and the industry that need to be addressed if the industry is to maximise on its investment in the research. The final section of the survey assessed barriers to research utilisation that have been identified in the research literature.

4. 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 15 items included in the survey were modified from barriers research undertaken in other domains (e.g., nursing) and further refined following a review of the 2010 survey. The highest scoring barriers are presented in Table 1 in rank order, together with a summary of patterns by agency type responses.

Table 1 shows that there are areas of commonality and some differences in emphasis given to the barriers depending on agency type. The Table includes the 15 items used in the 2012 study that were gleaned from the original 28 items used in 2010. Where the item was also one listed in the 2010 top five, this has been noted[1]. The items that were included in the top five rankings for all agency types in 2012 were

- "*The impacts of the research for the agency need to be better articulated*"
- "Most p*eople in the agency don't know about the research*"
- "*We need a change advocate within the agency to take the implications forward*" and
- "*The agency needs better linkages between the researchers & agency personnel*".
- "*The agency has not developed the appropriate assessment strategies to consider the implications of the research.*"

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[1] The table does not contain a comprehensive account of 2010 top 5 items for all agencies because only 15/28 items were included in 2012

Both land management agencies and urban agencies identified. "*There is too much change happening in this agency already, we don't need more to be considered*" in their top five.

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

Table 1: Summary of barriers items and ranking: overall and by agency type (Small grey = 2010 results; ***Bold italics = 2012 results***)

List of Statements:	Overall	Rural	LM	Urban	EM
2/1 Implications for practice are not made clear					
5/3. Most people in this agency don't know about the research	4th **=3rd**	**2nd**	2nd	2nd	2nd **=2nd**
8/4. Agency personnel don't have the capacity to think strategically about what the research may mean for our business					
11./5 There is too much change happening in this agency already, we don't need more to be considered			4th **3rd**	**=1st**	
13. /6 It is not clear what change is needed			5th		
14/7. We need a change advocate within the agency to take the implications forward	**2nd**	3rd **1st**	**2nd**	4th **5th**	**=2nd**
15/8. The impacts of the research for the agency need to be better articulated	1st **1st**	2nd **3rd**	1st **1st**	4th	1st **1st**
17./9 Cooperation from other stakeholders in the industry is needed for successful implementation			**5th**		
20. /10 The amount of research information is overwhelming					
21/11. Personnel don't feel capable of evaluating the quality of the research					
22/12. The research is hard to find					
23/2. The publications/reports are hard to read					
26/13. It is not clear who is dealing with what Bushfire CRC research in our agency				**4th**	
27/14. As an agency we don't have an effective process for translating the research for our personnel	3rd **5th**	1st **4th**		**3rd**	3rd **4th**
28/15. The agency hasn't developed the appropriate assessment strategies to consider implications of the research	5th **=3rd**	4th **5th**	**4th**	**=1st**	5th **5th**
Total number of responses	148	39	41	21	44

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, a factor analysis was conducted.

Factor analysis is 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. Factor analysis also offers an examination of the relationships between items and their potential importance. That is, it is also possible to identity 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 15 Barriers items had a KMO measure of sampling adequacy of 0.873 and revealed three factors accounting for 68% of the pattern variation in the responses thus providing a good explanation of the response patterns.

Table 2: Factor Analysis Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	6.849	48.921	48.921	6.849	48.921
2	1.531	10.938	59.859	1.531	10.938
3	1.112	7.944	67.803	1.112	7.944
4	.857	6.119	73.922		

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 3.

1   Agency Processes

The first and – by far the most) – important factor (accounting for 49% 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 to develop effective internal processes for translating the research and to clarify who within the agency is responsible for this. There are also indications of change fatigue.

3   RESEARCH - CHANGE NEXUS

The second factor (and accounting for 11% of the extracted Factor model) relates to both the amount of research emerging being overwhelming in the context of other changes. It also indicates a need to build capacity to assist in evaluating the research in the context of the changes experienced and to providing agency personnel with the opportunities to step back and to think strategically.

4   INDUSTRY-WIDE DEMANDS

The third factor (accounting for 8% of the extracted factor model) appears to relate the need for an industry wide approach to be taken to issues that are larger than one agency alone. There is clearly some role for industry-wide approaches, particularly when it would value-add to agency change.

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.

Table 3: Barrier Factors NEW

Rotated Component Matrix[a]

	Component		
	1	2	3
13. It is not clear who is dealing with what Bushfire CRC research in our agency	.842		
14.14 As an agency we don't have an effective process for translating the research for our personnel	.812		
14.15 The agency hasn't developed the appropriate assessment strategies to consider the implications of t	.799		
14.3 Most people in this agency don't know about the research	.675		
14.6 It is not clear what change is needed;	.659		
14.5 There is too much change happening in this agency already, we don't need more to be considered	.612		
14.4 Agency personnel don't have the capacity to think strategically about what the research may mean for	.590		
14.8 The impacts of the research for the agency need to be better articulated	.561		
14.10 The amount of research information is overwhelming;		.816	
14.2 The reports are hard to read;		.763	
14. Personnel don't feel capable of evaluating the quality of the research		.752	
14.1 Implications for practice are not made clear		.692	
14.9 We ;need cooperation from other stakeholders in the industry for successful implementation			.875
14.7 We need a change advocate within the agency to take the research implications forward			.770

Conclusions

This report discusses findings based on a survey used to consult the industry on existing and potential research utilisation practices to inform future directions. The review canvassed perceptions of research utilisation products as well as on the experiences of those actively engaged in collaborative research review opportunities.

Feedback was received from a cohort of contributors who were from a representative sample of agencies and who were well qualified to answer. There was a high degree of familiarity with the agency's own strategic plan and a reasonable degree of awareness of Bushfire CRC research outputs. The alignment between the agency's strategic planning and Bushfire CRC research outputs was lower than that reported in 2010.

There have been strong improvements in terms of reported levels of satisfaction with utilising Bushfire CRC resources such as include the Bushfire CRC Web Site; Fire Notes and Research

Publications, compared to the 2010 results. In addition reported levels of familiarity with the research had increased also along with satisfaction in using these information products to understand Bushfire CRC research. In addition the survey sought to assess the effectiveness of engagement in Bushfire research review opportunities (e.g., involvement in the AFAC conference, Research Advisory Forum, Stakeholder Council) and the findings were positive.

The study also found that perceptions about the learning culture (of the industry and of the participant's own agency) had all declined. Given the level of improvement reported with the Bushfire CRC information products and the collaborative research engagement opportunities this finding suggests that there are some systemic impediments within agencies and the industry that need to be addressed if the industry is to maximise on its investment in the research. A number of barriers were reported and a Factor Analysis revealed that barriers to research utilisation were underpinned by three factors: (i) Internal agency processes, indicating agencies need to develop more effective internal processes for translating the research; (ii) a need to enhance the research-change nexus in a context of considerable change fatigue and (iii) a need for, in targeted areas, an industry-wide (rather than agency-specific approach).

These factors need to be addressed if the industry and involved agencies are to reap the full benefits of Bushfire CRC research.

References

Baernholdt, M, Lang, N.M (2007) Government chief nursing officers' perceptions of barriers to using research on staffing, International Nursing Review, Vol 54 pp. 49-55.

Dearing, J. (2009), Applying Diffusion of Innovation Theory to Intervention Development, *Research on Social Work Practice*, Vol. 19, No. 5, 503-518

Elliot, D., Mihalic, S. (2004). Issues in disseminating and replicating effective prevention programs. *Prev Sci, 4*(1), 47-53.

Funk SG, Champagne MT, Weise RA, Tornquist EM (1991), Barriers to using research findings: the clinicians perspective, Applied nursing Research, Vol 4 pp 90-95.

Hemsley-Brown, J., Oplatka, I. (2005), Bridging the research-practice gap: barriers and facilitators to research use among school principals from England and Israel, International Journal of Public Sector Management, Vol 18(5) pp. 424 – 446.

LaPierre, E, Ritchey, K &Newhouse, R 2004, 'Barriers to research use in the PACU'. *Journal of PeriAnaesthia Nursing*, vol.19, no.2 pp. 78-83.

Owen, C. (2011) Report on research utilisation consultation, prepared for the *Bushfire Co-operative Research Centre,* Melbourne.

Retsas, A.(2000) Barriers to using research evidence in nursing practice, Journal of Advanced Nursing, vol 31 (3) pp 599-606.

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[i] Analysis of Variance between groups ($F_{(1, 82)} = 4.03$, $p < .05$ $\omega = .22$
[ii] Analysis of Variance between groups ($F_{(1, 63)} = 4.12$, $p < .05$ $\omega = .25$

[iii] Analysis of Variance between groups ($F_{(1, 77)} = 5.08$, $p < .05$ $\omega = .25$