



THE ROLE OF THE LEAD END-USER

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Bushfire Cooperative Research Centre



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Research Report on

The Role of the Lead End-User

1 MANAGEMENT COMMENT

by Dr Noreen Krusel

Research Utilisation Manager Bushfire CRC

22 October 2013

Executive Summary

The Lead End User (LEU) role was introduced into the research management of the Bushfire CRC in 2010. This research on the Lead End User (LEU) role was commissioned to learn from the experience of the LEUs and to find out if the conduct of role matched the functions described in the role statement.

The research found that:

- The LEUs were a successful innovation;
- Research leaders highly valued the LEUs' industry knowledge, industry contacts, intellectual challenge and contribution and support;
- Industry respondents valued the LEUs' role in matching research outputs to user requirements and the translation/interpretation and communication of the research into 'industry speak'; and
- The LEUs themselves are now a cohort of 'research savvy' people within the industry.

The key issues identified were;

- Incomplete appreciation of the role, including time commitment by the LEU themselves and
- Lack of acknowledgment of and support for the role.

Improved support for this role will assist in the successful conduct of the important functions performed. The current Bushfire CRC LEUs need to be supported and involved in utilisation efforts which will continue well after the research program winds down in June 2014.

Introduction

The Bushfire CRC's research management structure (See attachment 1) was created in 2010 when the 2010-2013 research program was established. The Lead End Users are depicted as User representatives in the diagram.

The role statement for the Lead End User (Attachment 2) clearly identified five functions:

- Act as a link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities;
- Act as a representative of end-users in the national context;
- Assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects;
- Facilitate ongoing links between researchers and all end users; and
- Provide guidance and support in matching research outputs to user requirements.

This review of the Lead End User (LEU) role instigated by the Research Utilisation Manager had the underlying objective of learning from the experience of the LEU to find out if the role matched the functions of the role statement. The reason this is seen to be important in the context of research utilisation is that the role of the LEU has been touted as an innovation that will have benefit for utilisation. In addition, as the research program draws to a close and utilisation ramps up, it is timely to ascertain how the role or its functions could evolve.

The full report, conducted by an independent researcher with peripheral knowledge of the Bushfire CRC is attached and recommended to readers.

Findings and Comment

The Stated Functions of the LEU Role

Overall the LEU appears to have been a positive initiative. Notably it was more valued by the research leaders than other end users. There are challenges faced by LEUs in working within their industry context and these should be considered as the shift to utilisation will require even more networking and liaison with industry personnel. Each of the functions documented in the Role Statement are now briefly considered.

Awareness of the LEU role

One third of the 9 LEUs completely disregarded the Role Statement; the other six used it for guidance. This may be appropriate if the role is not critical, and if the role needs to be highly flexible and interpreted as the need arises. However this report has found the role to be valued by both end users and researchers and the conduct of the outlined functions as significant. It is suggested that some formality around acknowledging and fulfilling the role should be considered.

Function - Act as a link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities

People were generally positive that this function had been fulfilled although there were ranging views about the value of this. In performing this function LEUs were often asked to present on the research. There was view that researchers were better positioned to talk about the research than the LEU, even though the LEU has industry standing and credibility. This bears consideration – the idea that the LEU takes some ownership and leadership of the research by talking about it at AFAC meetings or other fora has merit as not only will this enhance advocacy it will also result in communication in ‘industry language’. On the other hand, they are not the expert and it could be unfair to both the LEU and the researchers. Given the contrasting views it is suggested that this aspect of the function be performed with sensitivity and that the appropriate person present depending on the audience, the confidence and the communications skills of both parties. It should also not be avoided because it is uncomfortable or difficult, and indeed could be treated as a development opportunity. Often it may be that this function is performed in by both the LEU and the researcher.

An unclear ‘fit’ to AFAC Groups was reported as a barrier to fulfilling this function. This challenge can be overcome through cross-linking activity between groups and highlights the need to work across and between existing groups or to create new networks or teams where needed. Such activity will require resources additional to the ‘standard’ support and indeed should be available through the Bushfire CRC research utilisation portfolio.

Function - Act as a representative of end-users in the national context

LEUs generally thought they performed this function (weighted average of 3.77. of a possible range of 0 for ‘not at all’ to 5 for ‘totally’) and many opportunities to do so were cited. The key barrier was around the time to do this. Developing and maintaining networks is often not a visible activity with clear measurable outcomes, but the value should not be overlooked and time for this really must be accommodated and afforded to those performing this role. As the shift to utilisation becomes stronger, resources to support LEUs could be made available.

Function - Assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects

Performance of this function was both highly valued and largely achieved with one clear exception. Researchers in particular valued this activity more than the LEUs respectively (weighted averages of 3.96 and 3.77). The practical challenges of workload pressures on LEUs and the tyranny of distance need to be considered in future. Comment was made that distance between researchers and the LEU created additional challenges and this was not necessarily a desirable situation. Travel requirements should be factored into this

role. Research start-up is a particularly important time for this function as projects could suffer delays if field sites and research subjects are not identified and accessed when required.

Function - Facilitate links between researchers and all end users are established and maintained

This function was largely fulfilled and again researchers rated this more highly than the LEUs themselves (weighted averages of 3.92 and 3.50 respectively).. This function is aimed at ensuring linkages endure beyond project start-up. The research revealed some question as to the value of this function. It is contended that the function has value as longer term connections, for researchers working within the industry, and for end users working with researchers is desirable. The short-term nature of project-funded research is not desirable, a sustained capacity is. Long term benefits include; familiarity with language, trust, appreciation of different performance measures and drives, and confidence in operating within evidence-based practice. Numerous opportunities to perform this function were cited and should be shared to sustain this capacity.

Function - Provide guidance and support in matching research outputs to user requirements

Again, this function was fulfilled, with a stronger positive perception by researchers than by LEUs (weighted averages of 3.95 and 3.66 respectively). The guidance and support offered by LEUs was valued by researchers.

Time demands

The actual conduct of the LEU appeared to have fluctuating time demands depending on the research demands. This ranged from almost daily through to three-six monthly. The utilisation demands are not yet apparent and should be monitored over the next couple of years. The information from this reports suggests that time demands could be anticipated depending on individual research plans.

The 'model' LEU

The attributes of the LEU that were found to be most valuable were grouped into four themes by the researcher:

- Authority/Status/Influencer/Advocate
- Connector/Facilitator
- Intellectual Contributor/Translator
- Supporter

These could be included into the associated role statement which could be re-worded to reflect these attributes for the selection of LEUs.

In conjunction with the five functional areas which were clearly validated, these attributes could be made available to the research program though a range of ways from a single LEU through to a team of people.

An 'ideal' LEU was suggested based on this research:

- ✓ A senior person in the organisation who remains accountable to others;
- ✓ Willingness to put time into others and provide feedback; pick up factual errors and ideas that are important;
- ✓ A focus on research agenda that is not too narrow ;
- ✓ Keen interest or personal interest and an ability to value the work of others;
- ✓ Communication skills;
- ✓ Time management skills;
- ✓ Wide personal networks (preferably intra- and interstate) and desire to continue networking; and
- ✓ Supportive, active and encouraging.

Broader Context

A survey of a broader industry base was conducted to provide contextual reality. The survey was sent to industry and research people (not interviewed by the researcher) who the Bushfire CRC considered should have some appreciation of the LEU role as they were recipients of regular communication from the Bushfire CRC.

The survey revealed:

- Awareness of the Role statement was very low suggesting full appreciation of the intent could have been low and expectations quite varied;
- Perception of the linkages between researchers and AFAC Groups was moderately strong (weighted average 3.57);
- Perception of acting in the national context was moderate (weighted average 3.36);
- Gaining access to agencies and ongoing linkages was tested in terms of expectations (need) and actual achievement of this function. The need was rated highly (weighted average 4.32) but the perception of achievement was lower (weighted average 3.52) although still positive;
- A breakdown of perceptions by respondent ‘type’ found that AFAC Managers and AFAC Group members were somewhat more critical but still positive overall;
- A number of people not formally ‘designated’ as such considered themselves to be LEUs; and
- There was strong appreciation of the need for LEUs to provide guidance and support in matching research outputs to user requirements (weighted average 4.26) but a lower perception that this actually occurred (weighted average 3.36).

Overall Comment

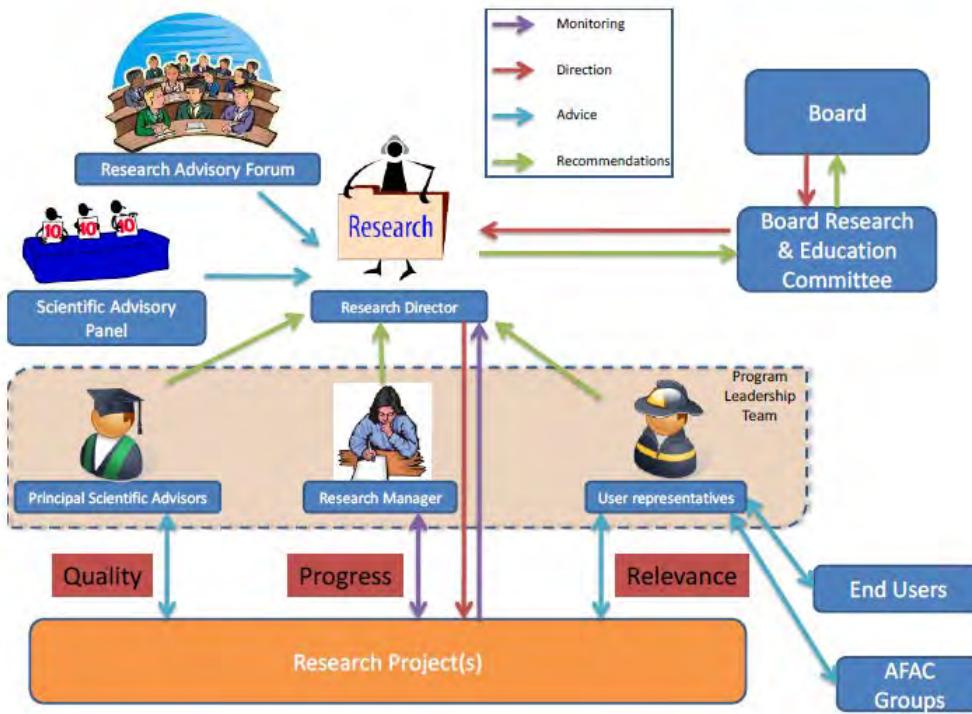
The research shows that the functions performed by the LEU role were greatly appreciated and valued, especially by researchers. Of the many challenges, operating within the national industry context appeared greater than working with the researchers. Some attributes for the role were identified and a ‘model’ LEU was proposed.

Additional benefits from the LEU initiative include a cohort of industry people conversant with research and an enhanced industry capacity to engage productively with research. This ‘spinoff’ benefit could be enhanced in future by devolving some of the functions of the LEU to broaden the participation (and hence development) base.

There was a recurrent underlying theme that the role was not properly acknowledged, resourced supported or rewarded. Given the strong appreciation of the role and its functions, this situation can be addressed in future. Indeed building on this pioneering program of LEUs would provide considerable benefits to future research programs as well as enhance industry’s capability to participate effectively.

For the Bushfire CRC, the functions of the LEU role will not cease until utilisation is facilitated – this will extend beyond the life of the current Bushfire CRC but can be accommodated by an ongoing research utilisation program. Ongoing participation of the LEUs will be valuable for the existing research but also in a mentoring capacity for other end user leaders.

Attachment 1: Research Management



Attachment 2

Lead End-User Representatives

There will be a Lead End-User Representative for each cluster of research projects. Clusters may be formed from within a theme or cut across a number of themes. It is expected that there will be up-to 12 Lead End-User Representatives at this level.

The role of the Lead End-User Representative will be to:

- Act the link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities.
- Act as a representative of the end-users in national context
- Assist researchers in:
 - gaining access into agencies and
 - ensuring ongoing support in establishing their research projects;
- Facilitate links between researchers and all end users are established and maintained;
- Provide guidance and support in matching research outputs to user requirements, (conducted together with the Principal Scientific Advisors and the Research Director)

Lead End-User Representatives must have recognised knowledge and understanding of the subject matter and of the user needs in the nominated area and a demonstrated ability to engage with industry representatives at both senior and operational levels.

Nominations for the role of Lead End-User Representative must be supported by the line manager and CEO of the home agency. It is expected that the time commitment for the role of Lead End-User Representative average 10% or approximately 2 days per month, which is expected to be an in-kind contribution from end user agencies.

This role is different from the end-user leader role in the current CRC in that the focus is on a cluster of projects rather than a program. This means there will be more Lead End-User Representatives, providing greater opportunity for a wider cross-section of involvement from our partners.

2 REPORT: THE ROLE OF THE LEAD END-USER

Contracted By: Dr. Noreen Krusel, Bushfire CRC Utilisation Manager

Contracted Researcher: Lindsay Pamment BPsySc (Hons)

2.1 EXECUTIVE SUMMARY

The role of the Lead End-User (LEU) is unique to the Bushfire CRC organisational framework. This research has been contracted to determine; levels of awareness around the LEU role description and whether behaviour was guided or shaped by the proposed role functions, to examine what activities are typically undertaken by those performing the LEU role and what others expect of them, and to bring to light any facilitating factors and barriers in order to assist in improving this role. It is important to note that this research does not seek to make recommendations, but rather to provide a 'lay of the land' and highlight the benefits and issues that have been raised by industry participants.

The Interviews

All 13 Lead End-Users were invited to participate in semi-structured telephone interviews, and nine participated. Research Leaders were invited for interview as these people work most closely with the Lead End-User, and eleven participated in interviews.

The following five areas comprise the Lead End-User Role Statement, and these were evaluated by asking whether there was an awareness of the role statement, to what extent the activity was achieved, and to seek facilitating factors and barriers for each statement. As the range of responses for facilitating factors and barriers were often very broad the appropriate page numbers are provided for reference rather than attempting to summarise these heterogeneous sections. Initial awareness of the role statement and the extent to which each role activity was achieved are outlined here:

Of the nine Lead End-Users interviewed, only one person stated that they were unaware of the role statement and a further two stated that while they were aware of the statement they had not actually read it. The other six Lead End-Users had read the role statement and had tended to use it as a very general guide rather than as a defined role description.

Role Descriptions:

- **Act as a link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities**

In general this activity was thought to be achieved either 'Mostly' or 'Somewhat' by the majority of Lead End-Users and Research Leaders. For Facilitating factors see (pp. 10-11) and Barriers (p. 11).

- **Act as a representative of end-users in national context**

Only Lead End-Users were asked whether they acted as a representative of end-users in a national context, and the bulk of responses indicated this was 'Mostly' to 'Somewhat' achieved. For Facilitating factors see (p. 12) and Barriers (pp. 12-13).

- **Assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects**
Lead End-Users tended to rate this as 'Mostly' achieved, in contrast with most Research Leaders who rated this activity as 'Totally' achieved, and fewer as 'Mostly' achieved. It is surmised that this discrepancy may arise from Research Leaders being assisted in overcoming a part of their work that can be particularly time consuming and frustrating. For Facilitating factors see (pp. 14-15) and Barriers (p. 15).
- **Facilitate links between researchers and all end users are established and maintained**
Research Leaders were the only group to rate that the activity was 'Totally' achieved, with slightly fewer rating it as 'Mostly' achieved. Lead End-Users were more inclined to view the activity as 'Mostly' to 'Somewhat' achieved. Some stated this role as less valuable though others found it to be highly valuable. For Facilitating factors see (pp. 16-17) and Barriers (p.17).
- **Provide guidance and support in matching research outputs to user requirements**
The majority of Research Leaders responded that the guidance and support they received in this area was 'Totally' to 'Mostly', while Lead End-Users mainly rated their performance as 'Mostly' achieved to 'Somewhat' achieved. For Facilitating factors see (p.18) and Barriers (pp. 18-19).

To understand the broader circumstances of Lead End-User utilisation, these sections were then detailed:

- **Issues around time commitments, frequency of contact and ratio of time with research leaders and other end-users**
After some initial discussion and acknowledgement around the varying circumstances each LEU brings to the position, time commitment is considered. This is clearly related to factors such as the number of projects undertaken, distance, and flexibility of home agency. While 2 days per month may be appropriate for one or two projects within the same university, many other scenarios appear to require more time allocation or a different working arrangement.
Frequency of contact seems to closely mirror the natural ebb and flow of research work; with some periods reflecting a flurry of activity, countered by quieter periods where comparatively little contact was required. During busy periods contact may be up to 3-4 times per week by either phone or email. During the slower periods, some reports stated that contact was required every 2-3 weeks, and others had periods without contact for 5-6 weeks.
Of the nine LEUs, five reported that they spent more time with researchers, two stated that they spent more time with other end-users, and two said it was a '50/50' split between the two.
- **Primarily, what was the LEU's most useful function?**
Four themes were identified:
Authority/Status/Influence/Advocate
Connector/Facilitator
Intellectual Contributor/Translator
Support
- **Was the LEU helpful for any other matters or did they perform other functions?**
Assisting research students, becoming a collaborative part of a research team, and testing the water for future research ideas. General discussion outside of the specific research project may have been helpful to gain; political insights, an insider's view of the broader industry perspective, or greater insight into movements of individuals within the fire industry.
- **Did researchers go elsewhere for support? Did LEUs foresee any other functional needs?**
A number of responses centred around connecting with others and alternative needs for dissemination.

- **Anything else? Other comments raised...**

A summary of 'ideal' features and personal characteristics of a Lead End-User were compiled from comments made during interviews. Organisational and structural ideas that may assist in future were also raised for consideration.

- **How could such needs be met? Suggestions for improvement...**

A variety of suggestions were made. Some related to LEU selection and organisational considerations around supporting LEUs. Others were around limiting the number of projects each LEU is allocated (to a maximum of two projects per LEU), but having multiple LEUs for each project. Travel and financial support were also identified as needing consideration.

- **Is the LEU role a good way to achieve these functions?**

Despite any limitations and barriers, there is very strong consensus that having a Lead End-User is an excellent solution to the difficulties that are otherwise faced in connecting researchers and end-users.

2.2 THE SURVEY

The broader industry sectors were then invited to participate (n=283) in an online survey via a Survey Monkey email link. The survey was designed to closely follow the questions posed to the interviewees while maintaining as much brevity as possible, thus allowing the survey to be completed within a few minutes. Of the 133 responses received, 83 were eligible and included for analysis. The survey covered:

- **Participant's occupation within industry**

Other End-User (in AFAC group), Other End-User (NOT in AFAC), AFAC Managers, Bushfire CRC Project Leader (Researcher), Bushfire CRC Project Researcher, Lead End-User, a group of misidentified LEUs and "Other" comprising CRC staff/students, an AFAC member (not currently attending), an ex-LEU, and an 'Unspecified' - "A number of the above"

- **Awareness of the LEU role**

These occupational categories were then divided into those who were aware that the LEU role existed, and those who did not. Only those who were aware were retained for analysis. This consisted of 83 people comprising: Other End-User (in AFAC group) 30, Other End-User (NOT in AFAC) 7, AFAC Managers 4, Bushfire CRC Project Leader (Researcher) 5, Bushfire CRC Project Researcher 11, Other 13, Lead End-User 1, Misidentified LEUs 12. *The Misidentified LEU group were unable to be verified for awareness of role but were still retained.

- **Awareness of Role Statement**

Of the 83 survey participants seventy-two (87%) were either not aware, or had not accessed the role statement. Only 11 people (13%) had actually read the statement.

- **The Role Statement functions** (as previously outlined above) were again addressed with those who were surveyed. In these analyses a weighted average was used to represent an overall group perspective. Barriers to these processes were surveyed for all role statement functions, whereas Facilitating factors were only collected for the first two.

- **Act as a link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities**

Of the 83 respondents, 86% reported that they felt the LEU acted as a link between researchers and AFAC groups 'totally, 'mostly' or 'somewhat' of the time. Seventy-four percent of these fell in the 'mostly' and 'somewhat' categories. No person reported that LEU's do not ever perform this activity. For Facilitating factors see (p. 28) and Barriers (pp. 28-29).

- **Act as a representative of end-users in national context**

The majority of respondents across industry (79%) indicated that they believed the LEU acted as a representative of end-users in a national context ‘mostly’ or ‘somewhat’. Only five percent reported that they believe this activity is achieved ‘totally’, and similarly, those who believe this activity is achieved ‘little’ or ‘not at all’ comprised only nine percent of the sample. For Facilitating factors see (p. 29-30) and Barriers (p. 30).

- **Assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects / Facilitate links between researchers and all end users are established and maintained.**

For the purposes of the survey the above two roles were collapsed. Respondents were initially asked to what extent there was a ‘need’ for Lead End-Users to facilitate links between researchers and end-users to serve as a general baseline response. They were then asked to what extent LEUs ‘do’ facilitate *establishment* of these links, and then to what extent an LEU *maintains* these links. The extent to which Industry perceives the *need* for Lead End-Users to facilitate links between researchers and end-users is provided by the weighted average 4.32, indicating that is ‘mostly’ required. The extent to which Industry perceive that the activity is *actually* achieved is very similar across the *establishment* of links and *maintenance* of those links; as indicated by the weighted averages of 3.49 and 3.56 respectively, denoting that the activity is perceived as lying between ‘somewhat’ and ‘mostly’ achieved. For Barriers see (p. 32-33).

- **Provide guidance and support in matching research outputs to user requirements**

Again, this was divided into a question around the need, and a question around the extent to which the activity was actually undertaken. Ninety-seven percent of people rated the *need* for this activity within the three uppermost categories; ‘totally’, ‘mostly’ and ‘somewhat’. The bulk of these responses (67%) rated that the activity is actually *provided* ‘mostly’ or ‘somewhat’. For Barriers see (p. 33).

- **General questions around Lead End-User utilisation**

- **Engagement with LEU**

The key discrepancy worth noting here is the presence of daily, weekly, and monthly contacts stated by 33% of respondents during the peak periods and eight percent of respondents during slower periods. Otherwise, during the *peak times* 52% of respondents stated that contact occurs at monthly, quarterly or six-monthly intervals, and for a further 27% contact occurs less than once a year or not at all. During the *slower times*, 46% of respondents report that contact is required at quarterly or six-monthly intervals, and for 40% of respondents the time contact is reported as less than once a year or not at all.

- **To your knowledge, have Lead End-Users been approached for other matters (outside the context of the role description detailed in previous questions)?**

The vast majority (54) responded ‘not to my knowledge’, either chose ‘not applicable’, a further eight did not answer and one person responded ‘no’. The survey selection response was based on the most common responses from the LEU and Research Leader interviews; (1) supporting research students, (2) in an ‘unofficial’ capacity as LEU for project other than own, (3) industry perspective and problem solving other work, and (4) informally for political or industry information. All four areas were considered to be *at least* ‘quite useful’, ranging through to ‘extremely useful’ in three of these areas.

- **Was access to another industry resource (other than Lead End-User) required for additional support?**

Clearly Lead End-Users are not able to fulfil this role in isolation, and cannot be all things to everyone. Pre-established relationships within industry are highly recognised as being necessary adjuncts to an LEU, and AFAC and the Bushfire CRC office are also seen as assistive. A few people also acknowledged the help of other Lead End-Users.

- **Is the Lead End-User role a useful part of the CRC Framework?**

Seventy one responses were received regarding the usefulness of the LEU role within the Bushfire CRC framework and 12 responses were missing data. Just over three quarters of those responding (78%) report that they consider the position to be useful, while seven percent indicated that in their view, the position is not useful.

- **Further Suggestions**

A few additional suggestions were made by respondents around a range of issues and are offered for consideration. These include better promotion of and access to LEUs, delegation of tasks where necessary, and transparency around LEU selection procedures.

2.3 CONCLUSION AND RESEARCHER REFLECTIONS

In conclusion, the role of the Lead End-User seems to have been a very successful venture for the Bushfire CRC, and appears to have been particularly helpful overall in linking researchers with end-users, thus facilitating research on a wide variety of levels. It was in fact commonplace for Research Leaders to express enormous amounts of gratitude toward Lead End-Users during the interviews, as their assistance in helping to move research off the ground was considered by most as invaluable. This role also appears to have created a league of end-users who feel they are more ‘research and science-savvy’ than they were prior to undertaking the role, and thus gratitude toward researchers was also conveyed by many Lead End-Users. Several researcher reflections are included for consideration, however these are not recommendations and are not intended to be taken as such.

Acknowledgements

It has been a great pleasure to be involved in the work assessing the role of the Lead End-User and I am very grateful to all of the Lead End-Users and Research Leaders who took time to discuss their opinions and issues with me. I would also like to thank all those in industry who took the time to fill in the online survey which enabled this research to gain a far broader perspective than would have otherwise been possible.

I am very grateful to Dr. Noreen Krusel for the opportunity to conduct this work and for her practical assistance along the way, and I would also like to thank Lyndsey Wright for her input on survey measures and also for providing me with the kind commendation which allowed me to be considered for this employment. I wish the Bushfire CRC and associated industry partners all the best in moving forward toward the new iteration of the Bushfire and Natural Hazards CRC and hope that this work has provided some helpful information to assist in this process.

3 INTRODUCTION

This research sought to investigate the role of the Lead End-User (LEU) within the broader Bushfire CRC structure. Given the impending cessation of the current Bushfire CRC and subsequent commencement of the new Bushfire and Natural Hazards CRC, it seemed an appropriate juncture in which to evaluate this role in an independent and systematic way.

Following a call for expression of interest, Lead End-Users were selected based on expertise, industry connection and geography. They perform their role in addition to their usual employment within an agency. Performing this role is currently an agreed ‘in-kind’ contribution to the Bushfire CRC. The Lead End-User role originated during a previous iteration of the Bushfire CRC, however the actual role description per se was developed around three years ago at the commencement of the current Bushfire CRC. This research has been contracted independently, to provide a profile of the Lead End-User role as it stands today. The aim of the research was to evaluate how closely the reality of the role matched the initial role description, to describe the role, and where possible, provide some examples of helpful initiatives and activities performed within the role, and reveal any current concerns. The Lead End-User role description is reproduced below:

Lead End-User Representatives

There will be a Lead End-User Representative for each cluster of research projects. Clusters may be formed from within a theme or cut across a number of themes. It is expected that there will be up-to 12 Lead End-User Representatives at this level.

The role of the Lead End-User Representative will be to:

- Act the link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities.
- Act as a representative of the end-users in national context
- Assist researchers in:
 - gaining access into agencies and
 - ensuring ongoing support in establishing their research projects;
- Facilitate links between researchers and all end users are established and maintained;
- Provide guidance and support in matching research outputs to user requirements, (conducted together with the Principal Scientific Advisors and the Research Director)

Lead End-User Representatives must have recognised knowledge and understanding of the subject matter and of the user needs in the nominated area and a demonstrated ability to engage with industry representatives at both senior and operational levels.

Nominations for the role of Lead End-User Representative must be supported by the line manager and CEO of the home agency. It is expected that the time commitment for the role of Lead End-User Representative average 10% or approximately 2 days per month, which is expected to be an in-kind contribution from end user agencies.

This role is different from the end-user leader role in the current CRC in that the focus is on a cluster of projects rather than a program. This means there will be more Lead End-User Representatives, providing greater opportunity for a wider cross-section of involvement from our partners.

A mixed-methods research approach was adopted in which both quantitative and qualitative information was collected and analysed. This was undertaken to enable people in industry to offer their perspective in response to open-ended questions, while also allowing respondents to reflect the magnitude of their response through nominating a point on a 5-point scale. The role of the Lead End-User was considered through two routes; by conducting semi-structured telephone interviews and through implementation of an online survey. Telephone interviews were conducted with people performing the Lead End-User role and those Research Leaders in most direct contact with them. Research Leaders are defined here as those responsible for the day-to-day management of the Bushfire CRC research projects. The online survey was employed as a means to reach the broader fire agency sector, including AFAC management and associated groups. The online survey was developed to closely match the questions of the interview.

This report outlines the Protocols and Processes, Method, Sample Characteristics and Results for the interviews and online survey and reports findings for each below, respectively.

4 METHODOLOGY

4.1 INTERVIEW PROTOCOL AND PROCESS

In order to answer the question “has the LEU role operated as outlined in the role statement?” semi-structured interviews were developed around the Lead End-User role description. These were predominantly open-ended questions investigating each role descriptor and further questions sought information around time usage and usage of the Lead-End User outside the role description. Respondents were also asked to provide an indication of the degree to which that particular role activity had been achieved, or performed, by the Lead End-User (for Lead End-User and Research Leader interview questions, *see Appendix 1, and 2, respectively*).

The interviews were anonymous and of approximately 30 minutes duration each. Participants were initially contacted in an invitation email, which detailed the purpose of the research and introduced the contacted researcher. A further email was then sent seeking expressions of interest from Lead End Users and Research Leaders to participate in the telephone interview. Once contact by participants was received and an interview time arranged, a confirmation email was then sent with a “Consent & Information Form” attached. The email requested that participants either sign and return the attached consent, or reply to the email stating 1) that they consented to the telephone interview, and 2) whether they consented to be audiotaped (*see Appendix 3 (email), and 4 (Consent and Information Statement)*). The audio tapes are confidential and for access by the researcher only.

4.2 METHOD OF SELECTION FOR INTERVIEWS

Potential participants were selected by the Bushfire CRC Utilisation Manager, Dr. Noreen Krusel, in consultation with the CRC Research Manager, Lyndsey Wright. All Lead End-Users were contacted and invited to participate in the telephone interview. Research Leaders were selected to represent a cross-section of the projects managed by the Bushfire CRC, and after initial respondents were interviewed, a further round of Research Leaders were offered interviews in an effort to balance non-response rates, as several individuals had indicated that they were on leave for the duration of data collection by way of ‘out-of-office’ auto-reply.

4.3 INTERVIEW DATA ANALYSIS

Quantitative interview data was statistically analysed using Statistical Package for the Social Sciences software v22.0.0 and Microsoft Excel (2013). Quantitative data was collected to gauge the extent to which Role

Statement activities were achieved with a rating of 5 denoting ‘totally’, 4 ‘mostly’, 3 ‘somewhat’, 2 ‘little’ and 1 representing ‘not at all’. Each participant’s response was counted only once (e.g. ‘Somewhat’), unless an interviewee gave a response which covered two descriptors (e.g. “Somewhat to Little”), in which case 0.5 of a response was awarded to each category.

4.4 INTERVIEW SAMPLE CHARACTERISTICS

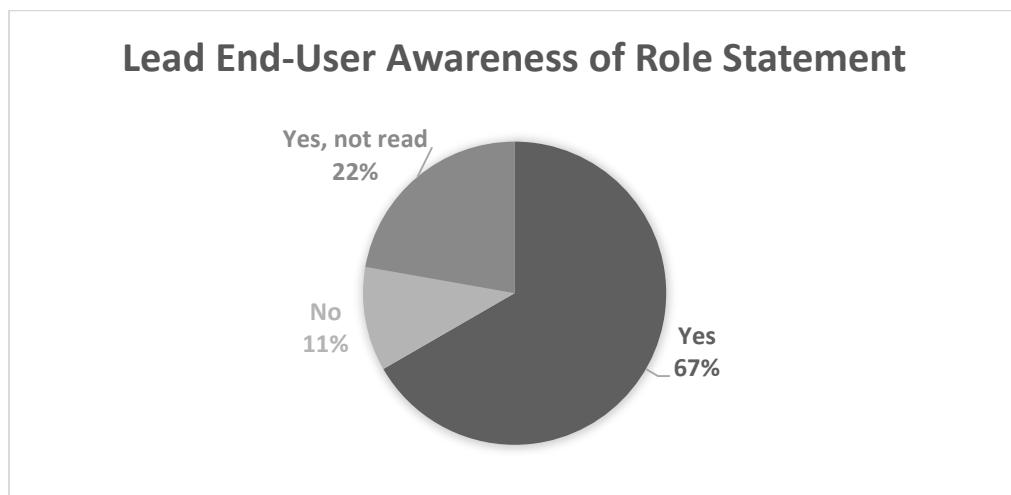
Initially 34 people were approached by email; 13 Lead End-Users and 21 Research Leaders. Twenty-one people consented to interview and all but one also consented to be audio-taped. The interviews comprised nine Lead End-Users and twelve Research Leaders.

4.5 INTERVIEW RESEARCH FINDINGS

4.5.1 Role Statement

The results of the interviews are provided and discussed below. Only Lead End-Users were initially asked if they were aware of the Role Statement for their position.

Figure 1: Lead End-Users’ Awareness of the Role Statement



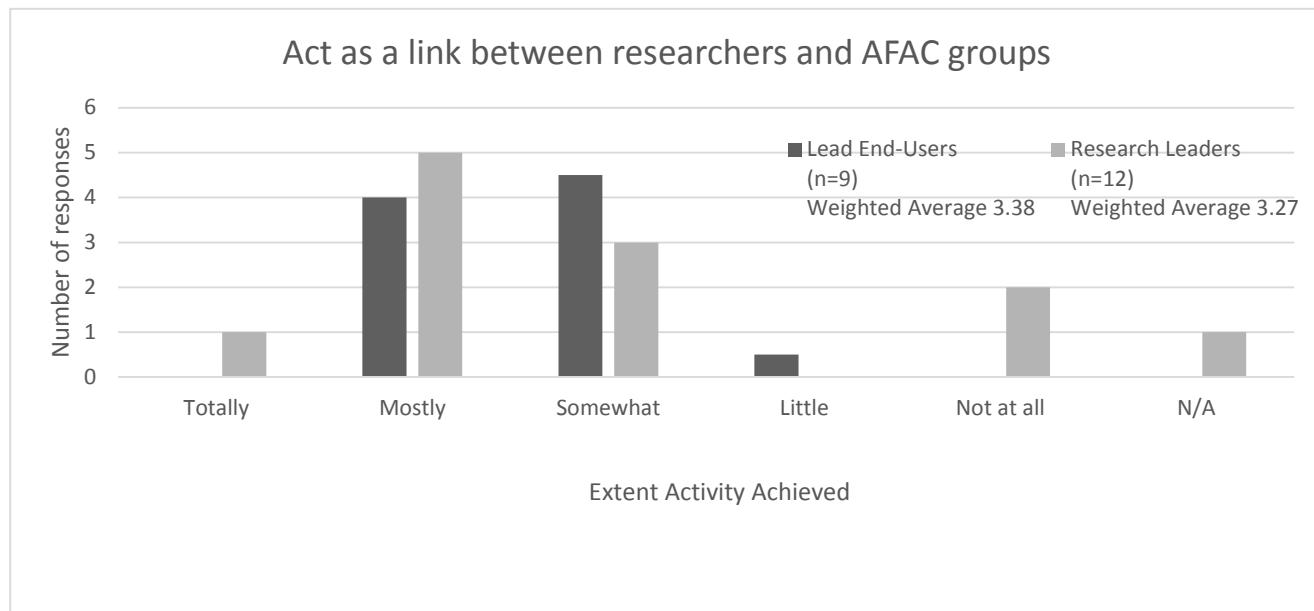
Of the nine Lead End-Users interviewed, only one person stated that they were unaware of the role statement and a further two stated that while they were aware of the statement they had not actually read it. The other six Lead End-Users had read the role statement and had tended to use it as a very general guide rather than as a defined role description.

The results around each Role Statement are now detailed below. For each statement the extent to which Lead End-Users and Research Leaders thought the activity was achieved is briefly discussed, then comments around Facilitators and Barriers are addressed. It is also important to note when interpreting the following charts that groups were slightly uneven, as indicated in the legend.

4.5.2 LINKING WITH AFAC

Figure 2. Act as a link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities.

Respondent 15: "A very laudable aim. Worth establishing as one of the prime end actions of Lead End-Users. Not probably as easy as it sounds."



Recalling the scale (5 'totally', 4 'mostly', 3 'somewhat', 2 'little' and 1 'not at all'), the weighted averages indicate that in general this activity was thought to be achieved 'Mostly' to 'Somewhat' by the majority of Lead End-Users and Research Leaders. Lead End-Users have performed this role function to varying degrees based on need, and while it was really quite successful in many cases, some barriers and issues did emerge and these are further outlined below.

Facilitation: Linking with AFAC

Lead End-Users have presented at AFAC group meetings and conferences to convey project ideas and report progress. Some LEUs have prominent AFAC subgroup networks, are involved in a number of fora and sit on a number of AFAC groups. The conversations and formal discussion sessions on progress, and support for projects is generally seen to be very valuable.

Respondent 21: Quite a lot put into operationalising the research and sharing outcomes.

Links with AFAC members have also been useful for gauging decision milestones along the way, for example, validation by AFAC subgroup of a design simulation. Association with AFAC is seen as helpful to researchers in order for them to gain an understanding of end user needs across (national) jurisdictions.

AFAC group contacts are also used by several people for data collection and information (e.g. existing policies). One LEU delegated to another person to facilitate interaction with AFAC groups. Presentation to AFAC groups has been reported as inconsistent:

Respondent 13: In relation to one research area the link with AFAC has been significant... on agenda at almost every group. Other two - have been there but probably not as great. Have presented at AFAC but not as frequently.

In terms of research delivery by a Lead End-User at AFAC meetings, this activity seems to induce some polarized views. Many Research Leaders and Lead End-Users value this as a platform in which research will be heard and noticed in a way that might not otherwise be the case. There is an emphasis and perspective here that LEUs are people who are known and respected in industry, so when *they* present, industry is perhaps more inclined to listen. In this way, the research and the end-users are perceived as uniting, and “speaking as one”. However, there is not total consensus around this issue, and there is also the perception that it is a ‘waste’ of the LEU’s time as it is something that researchers are capable and experienced at performing themselves.

Sometimes linking with AFAC has been a primary role, and sometimes useful just for sharing ideas. The following account shows how Lead End-Users help by

Respondent 20: linking with the right people, not just in AFAC but other agencies around Australia.... They know all the people and can organise meetings much easier than I can... instead of having to go through the front door, through their secretaries etc... the person has told their secretary to organise a meeting with this person on this day at this particular time, where if I have to go through the front door and deal directly with their secretaries there might be something competing on at that particular time or my priority might not be considered as high as others; so having that link where there is someone who knows the people well, in senior management roles, has been priceless.

Barriers: Linking with AFAC

One individual needed to organise linking researchers to AFAC through others, and found this difficult. Not all projects fit neatly with the AFAC subgroups, and indeed projects often have application outside AFAC groups. In particular, projects that are more generic or theoretical are not necessarily a good fit and this may require some consideration in future. Creating a new steering committee has assisted in one reported case.

Communication of complex scientific concepts can also be challenging for LEUs, however any such comments were stated more as an appreciation or observation as opposed to overt criticism.

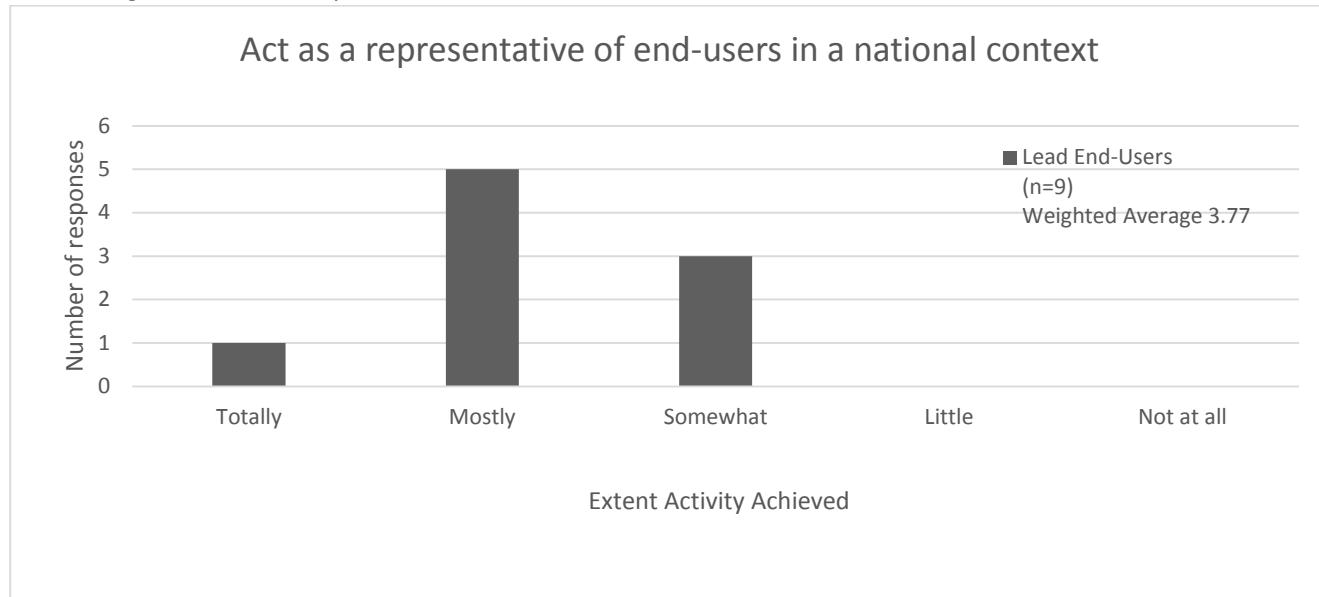
Another issue raised is that the research may seem a good fit with AFAC groups, but there was a problem with stretching across too many groups. A further interviewee reported that they didn’t need the LEU to link to AFAC specifically, and several people reported that other avenues outside AFAC are also required.

Time constraints were the most frequently cited issue. Sometimes this was in relation to the brief viewing at AFAC meetings (stated as being about 15 minutes) and the time constraints on senior LEUs was mentioned. One respondent also suggested the possibility that lack of familiarity with the Bushfire CRC across industry in general could be an unforeseen barrier for LEUs, and may contribute to undermining their role profile. If there are people working in the bushfire industry who are really not familiar with the Bushfire CRC, perhaps they are also unlikely to be familiar with the LEU role.

Distance to AFAC meetings was also an issue for some LEUs, for when projects are based interstate it can be costly and time consuming to travel.

4.5.3 NATIONAL REPRESENTATION OF END-USERS

Figure 3. Act as a representative of end-users in national context



Only Lead End-Users were asked whether they acted as a representative of end-users in a national context, and the bulk of responses indicated this was ‘Mostly’ to ‘Somewhat’ achieved. Activities that assisted with performing this role function and associated barriers are discussed below.

Facilitation: National Representation of End-Users

In response to this question, LEUs state that they have fulfilled this role by presenting vignettes at conferences and Research Advisory Fora as well as holding formal workshops. Some LEUs have assisted at a national level by writing national position papers and circulating emails (on progress and seeking input) then relayed feedback back to researchers. Teleconferences (in which slides and docs can be shared with phone contact) were noted as not ideal, but helpful to assist when distance was an issue. However face-to-face meetings are clearly preferred.

LEUs reported to have accessed their broad span of working groups beyond AFAC, and some have known people in other agencies for years, so know who to phone or email as required. Presentations have also been given at conferences at an international level as well. As evidence of national presence, one interviewee noted that they are often seen by other organisations across the country as the ‘go to’ person for research and have fielded phone calls from other fire and emergency services across the country asking whether a particular researcher/project is covering a specific topic;

Respondent 15: ... it shows the detail as to who are the end users is being promulgated across the country, so that those people obviously know who to call... I've been happy to pass on those comments or those queries to the researchers that I negotiate with, and they've been happy to take that information or that request from me as well.

Barriers: National Representation of End-Users

Some LEUs have admittedly found it “difficult to keep up”, or have had “limited capacity to do this”. A number have found that engagement with others has not been easy for a variety of reasons;

Respondent 5: connecting people was hard

Respondent 15: making required effort to contact people in other places... I could have done a lot more... but get tied up in day-to-day business in own organisation

Respondent 13: I don't feel like I have given the role as much as I'd like to due to other demands and requirements

Some interviewees noted particular aspects of LEUs that are helpful;

Respondent 2: personalities are important... a real interest in research and how it is applied locally and nationally

Respondent 3: known in industry, have the contacts and doors to get into, access networks.

Distance was again raised:

Respondent 3: need to be able to have freedom around travel where possible

From a political perspective, one interviewee noted issues around trust and sharing information were an obstacle

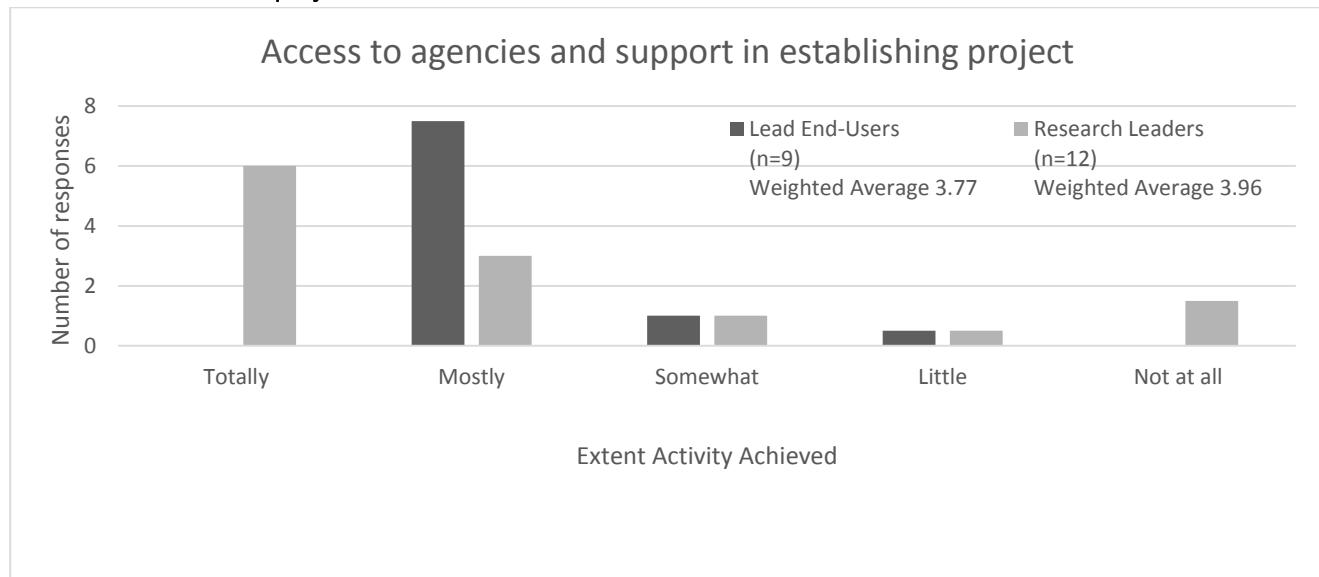
Respondent 21: everyone has their own turf and wants to play the game their way...

Additionally, the resources available at a state level (i.e. resources, capacity, staff and skills) may also impact on how easy, or how ready agencies are to engage.

There has also been mention of lack of interest in research that isn't novel and issues arising when schedules run behind at conferences.

4.5.4 SUPPORTING RESEARCH ESTABLISHMENT

Figure 4. Assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects



Two issues are immediately evident from the chart above. Firstly, the majority of both Research Leaders and Lead End-Users rated the extent to which this role activity was achieved as being at the higher end of the likert scale, therefore reflecting the general sense that this activity was successful. Secondly, it is interesting to note the discrepancy between perception of Research Leaders and Lead End-Users. While Lead End-Users tended to rate their ability to provide researchers with access to agencies and support in establishing their research projects as 'Mostly' achieved, most Research Leaders rated this activity as 'Totally' achieved, and only a few as 'Mostly' achieved. These rating appear to reflect relief from frustrations faced by researchers when initially establishing research projects, in which gaining access to agencies and participants can be a time consuming and laborious task. Despite the perception of Lead End-Users that they could perhaps be doing more, the relative ease with which these essential research activities are attained with the assistance of Lead End-Users appears to have influenced Research Leaders to indicate that they are more than satisfied with the outcome.

The ability of a Lead End-User to open doors and facilitate access to the right people for the job is clearly evident, clearly important and clearly valued by the vast majority of interviewees. There were three people who stated that this role activity was not really necessary for their circumstances; on two occasions this was due to the extent of the researcher's own contacts and consideration of the LEU's time, and in another case this was due to a personal belief held by the Lead End User (see quote Respondent 6 below). One person also voiced strong disappointment around lack of support in this area.

Facilitation: Supporting Research Establishment

Support in facilitating access to agencies was generally done one of three ways; by the LEU calling or emailing an appropriate contact to directly facilitate a meeting themselves, or informally, by the LEU phoning or emailing ahead to prepare the contact person for contact by a researcher, and indirectly, whereby the LEU provided the details of appropriate contacts to a researcher for them to make the a connection without further facilitation. In this way, a major part of the role of the LEU is that of a connector. Contact was generally made within their own agency, with another agency (intra- or inter-state) both within and beyond bushfire agencies, in order to facilitate project requirements, provide 'in kind' access to facilities such as meeting rooms, source appropriate field locations, provide information on recent events or locate another person necessary for assistance in establishing the project. This included, but was not limited to sourcing other researchers for technical input, fellow directors, providing access to firefighters for voluntary participation in simulations, and connecting with other industry workers to participate in surveys. Endorsement by a Lead End-User was also regarded as highly valuable by some researchers, as they felt that research was better received by industry when it came from someone familiar and with greater industry standing.

A selection of quotes is provided below to exemplify the points made above, and to provide some further insight into other aspects:

Respondent 1: On request, LEU set up advisory group of senior people in agencies who assisted in choosing location for surveys

Respondent 9: Having LEU stand up at research forums, conferences. To be providing the industry face to why this is important

Respondent 12: Has helped to access different end-users and their perspectives

However, to the contrary, there was a Lead End-User who did not consider facilitation in this area to be necessary or effective use of their time in this role:

Respondent 6: Left them to do this themselves, researchers need to chart their own projects

And one researcher summed up his/her situation in this way:

*Respondent 10: I know most people in agency and get information readily from own networks.
He's in [another state]... Not sure of relevance he could have been anyhow.*

The level of assistance provided in this area was wide ranging, as some researchers required only some assistance in this area, others required significantly more support, and it is also clear that some researchers do not require this kind of assistance from a Lead End-User at all. It is also important to consider that some Lead End-Users were very busy indeed; involved across multiple projects (up to four at a time) in conjunction with their day-to-day role, therefore the personal characteristics of the Lead End-User become important and the level of 'fit' between researcher and LEU is also a very important consideration. Some further quotes are provided below to provide the reader with a sense of what is experienced by researchers who do require this kind of facilitation and how receiving this facilitation impacts on their research:

Respondent 14: Absolutely fantastic. Instrumental. LEU facilitated immediate access to agencies that would have taken weeks or months otherwise, worked extremely well

Respondent 3: Networks are important e.g. If researchers met any blockages, then talk to LEU to facilitate assistance

Barriers: Supporting Research Establishment

As previously suggested, the characteristics and match of LEU to researcher are important to consider in order to facilitate smooth interactions and meet the needs of the research. LEUs generally hold a high profile within the fire sector, they are well known and highly regarded individuals. Despite this, some LEUs appear to naturally cope better under highly stressful environments in which they are 'spread thin' (low resources/high demand on time), whereas others tend to feel the pressure more and, 'when something has to give' it understandably tends to be the LEU role rather than their paid work. These are both potential barriers that were raised by both LEUs and researchers alike, and it was certainly suggested that as far as undertaking multiple research projects goes, less is more.

Some other issues were raised, pertaining to a wide range of areas such as industry perception of the value of research, disengagement, and agency motives and agendas. Distance was also considered a significant barrier by some LEUs and researchers, particularly when the LEU is located in a different state from where the research is being conducted. One suggestion offered as a remedy for this particular issue that has been regarded as successful in another project was to have two LEUs across the one project.

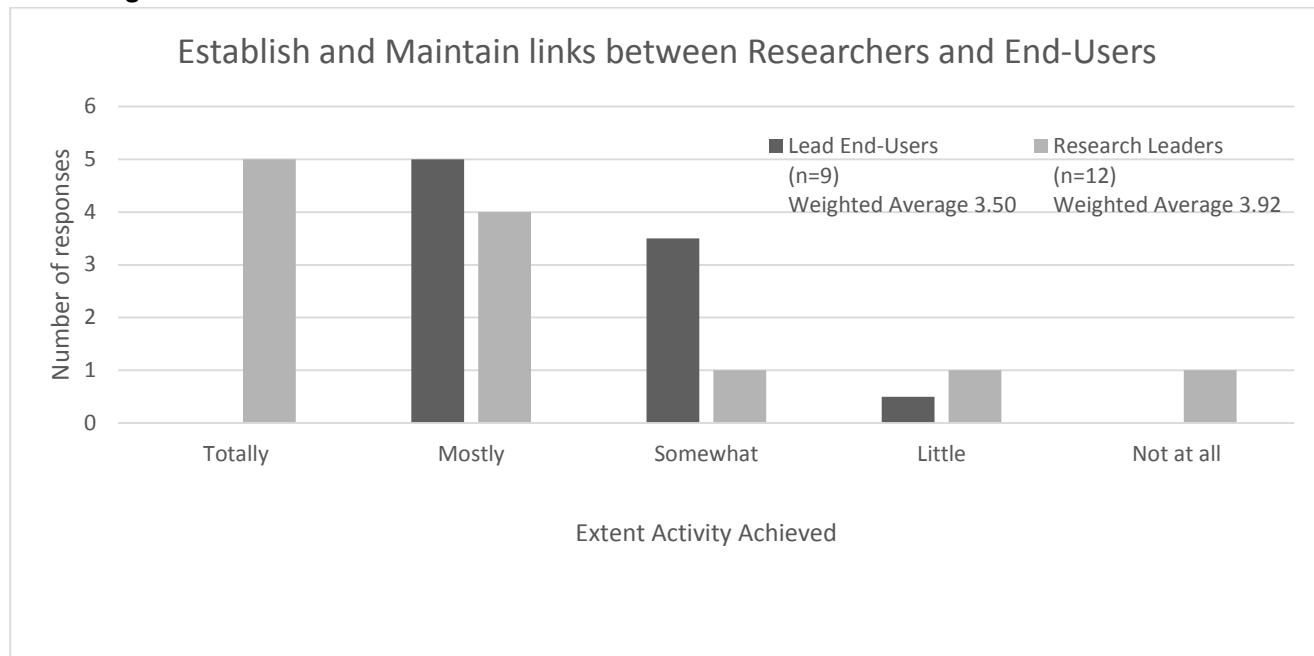
Some of the aforementioned issues are illustrated below:

Respondent 16: If you want projects to get up quickly, it's critical that there's a known, established relationship or working in same jurisdiction or both

Respondent 13: Communication and way agencies engage in research. Research isn't seen as core business...Difficulty in getting traction to get people to commit to doing things in line management areas.

4.5.5 LINKING RESEARCHERS AND END-USERS

Figure 5. Facilitate links between researchers and all end users are established and maintained



For this role activity, on the whole Research Leaders rated the extent to which the activity was achieved more highly than Lead End-Users. Research Leaders were again the only group to rate that the activity was 'Totally' achieved, with slightly fewer rating it as 'Mostly' achieved. Lead End-Users were more inclined to view the activity as 'Mostly' to 'Somewhat' achieved. Dialogue with interviewees revealed that three people found that this was not really a necessary part of the LEU role, and one other was unsure of how successful it was. Many people did find this to be a very important role, though the amount of time the activity can consume can be a barrier. This particular aspect of the role may therefore need to be given some additional consideration in order to strategize processes to assist with overcoming such barriers.

Facilitation: Linking Researchers and End-Users

While many of the activities undertaken were fairly standard activities that would commonly be employed under such circumstances, some were also more innovative or resourceful. A list of activities is provided below showing the broad range of activities undertaken:

- Provide access to sites across states, promoting ease of access
- Presenting at Research Advisory Forums, connecting researchers and End-Users at CRC events and stakeholder meetings
- Advising researchers of who to speak with
- Organising meetings (face-to-face and Skype) every 3 months
- Drafting an email and sending through the Lead End-User

Respondent 11: Relationship building (not management) large part of the role

Respondent 7: outcomes not suitable for fire-note so published as a report, non-refereed longer piece of work

Respondent 8: Lead End-User talks up our project to end users.

Respondent 11: Did need to facilitate links due to change of staff - so introducing someone new for the research work to link them in with the end users was a constant job.

Establishing and maintaining links is helpful for a variety of general reasons, and some more specific:

Respondent 3: Keep research foremost in end user mind... keep reminding people - otherwise research gets forgotten or doubled-up

Respondent 6: find commonalities between researchers - connect them directly

Barriers: Linking Researchers and End-Users

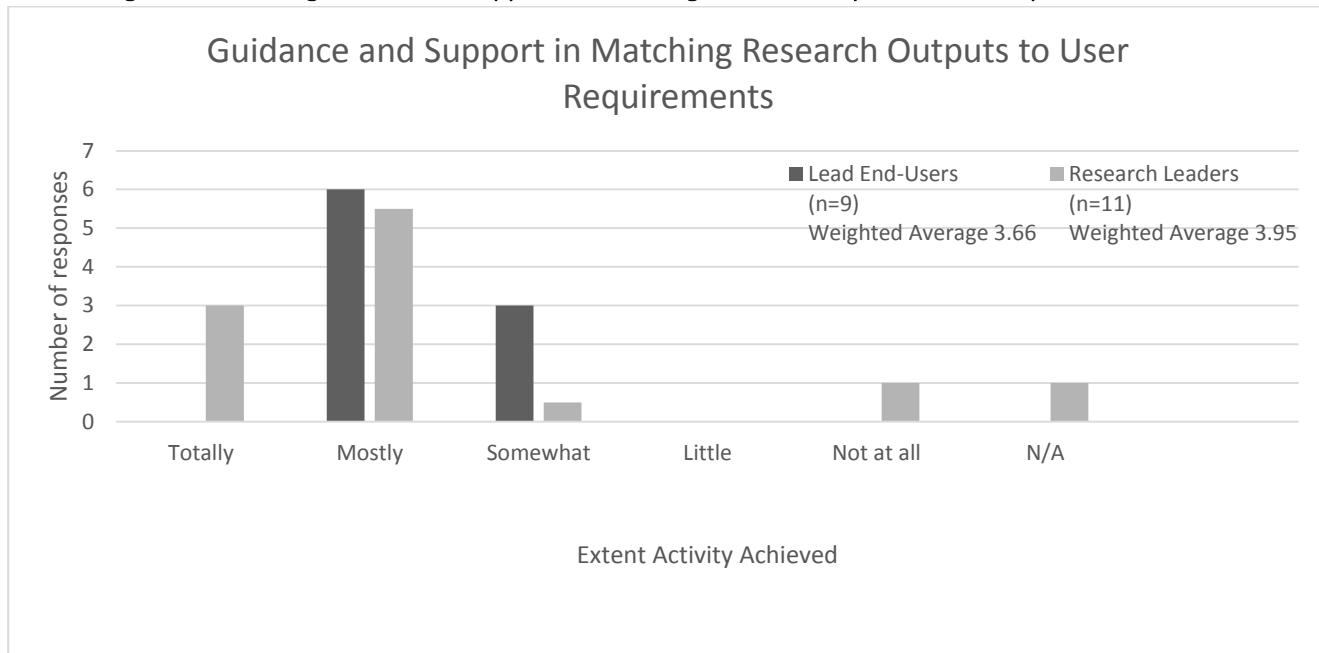
Aside from time being an issue for establishing and maintaining links between researchers and end-users, other aspects were also raised. A couple of people stated disappointment around the response rates of other agencies and the associated lack of accountability. Comments also related to difficulties Lead End-Users may have if they are not particularly research savvy and not feeling that they were well matched to the research or researchers.

Respondent 16: Performed this role about 30% of job. Getting a good handle on research takes a while....Difficult to meet the needs of researchers particularly not well known to me...

This uni had established links with another agency earlier - if the LEU had come out of this agency it would probably have resulted in better outcomes

4.5.6 RESEARCH OUTPUTS

Figure 6. Provide guidance and support in matching research outputs to user requirements



One Research Leader did not answer this question, however in line with previous responses, the majority of Research Leaders responded that the guidance and support they received in this area was 'Totally' to 'Mostly',

while Lead End-Users mainly rated their performance as ‘Mostly’ achieved to ‘Somewhat’ achieved. Facilitators and barriers to this process are discussed below, with facilitators cited as being more practical measures, and barriers formed by a mixture of attitudinal and practical issues.

Facilitation: Research Outputs

Some of the activities mentioned that facilitated engagement in providing guidance and support in this area included phone conversations, face-to-face meetings, stakeholder meetings, AFAC workshops and publications. As a device in its own right, simply ‘reporting to LEU’ assisted in making researchers very aware of the applicability of their research for the end-users.

Discussions directing the guidance and support were noted by many. Ideally, these were perceived as ‘two-way’ conversations and covered these types of areas:

Respondent 17: Discussion around instruments, samples, questions

Respondent 19: Determine direction and refining questions... Ensuring the questions were valid and research in the field was essential to end user requirements

Respondent 18: part of the design, and input into questions, draft reports. Involved at every step

The LEU’s own expertise and their ability to seek input from a range of other end-users was keenly valued and appreciated by many researchers. Their ability to keep researchers on track and influence outputs in order to ensure they can be used and understood was also highly valued; even when the research was not yet up to output stage, the LEU still acted as a guide to thinking about what to deliver in a practical sense.

The value and importance of guidance and support in this area was highlighted by several comments:

Respondent 15: several meetings with combined Research Leaders, researchers and Lead End-Users... Very consultative and collaborative

Respondent 2: Some of most positive part of what we do. Keeping it relevant, needs for future - steps to get us there

Respondent 7: Discussion of outputs useful. Lead End-User very aware and supportive of academic papers - interpret and make industry aware.

Respondent 16: Influence the way things have unfolded to meet needs of the sector

Barriers: Research Outputs

The seven respondents who discussed this matter had widely varying views.

As a counter to a previously mentioned facilitating factor which emphasised honing the practical aspects of research, a couple of comments were made which reflect the consequences that perhaps too rigid thinking or application in this area may have:

Respondent 20: ...because of their focus on response activities - the way we've structured the project with regard to its outputs - have been focusing very much on that aspect of delivery, not on the planning and the community safety side...

Respondent 6: Problematic because not direct outcomes - policy outcomes/practice, theoretical orientation

Respondent 11: Regarding outputs, this can be difficult, what people think are outputs others challenge.

The following shows an array of other comments mentioning barriers to this process:

Respondent 2: some research wandered off on tangent

Respondent 9: Getting quarterly outputs done - not the most important issue at the time

Respondent 11: Vision that PSAs would have done this, but LEUs have filled this void

1.5.7 Overview

In order to compare the perspectives of Lead End-Users and Research Leaders on overall achievement across the role statements, each quantitative category (Totally, Mostly, Somewhat, Little, Not at all) was allocated a weighting (5, 4, 3, 2, 1, respectively). A weighted average was then formulated by summing the totals of each category and dividing by the number of respondents in that group. The resulting weighted averages are summarised into Table 1 below. Clearly there is very little difference between the overall perspectives of the two groups, with all weighted values being around '3', indicating that each role statement was achieved, on average, 'Somewhat'. It is important to note however, that such weighted averages provide only a very generalised overview and possibly highlight only very contrasting opinions. They do not provide the reader with any indication of the range of responses within each role, and within each group.

Table 1. Comparison of responses of Lead End-User and Researchers across role statements using weighted averages.

Role Statement	Lead End-User (Weighted Average)	Research Leader (Weighted Average)
Act as a link between researchers and AFAC groups	3.38	3.27
Act as representative of end-users in national context	3.77	---
Access to agencies and support in establishing project	3.77	3.96
Establish and maintain links between Researchers and End-Users	3.50	3.92
Guidance and support matching research outputs to user requirements	3.66	3.95

5 INTERVIEWS: THE BROADER ROLE OF LEAD END-USERS

This section will now detail additional areas that were covered in interview questions. In order to assist the reader to make the most sense of overall responses, which could be quite fragmented across questions, some questions have been reordered and collapsed together. The following format is the restructured version; detailing use of LEU time, their most useful function, whether they were used for other matters or foresaw other matters that require addressing, and whether research leaders needed to go elsewhere for support. It

then covers other any other general comments that were raised and how such needs could be met and suggestions for improvement. Finally some responses around whether the LEU is a good way to achieve these functions are highlighted for consideration.

5.1 TIME

5.1.1 Overall Time Commitment

It was initially anticipated that the time-commitment for the role would be approximately 2 days per month. Would you agree that this is accurate? Yes / No If not, what has been your experience?

Preceding evaluation of time, some initial consideration needs to be given to the varying circumstances in which Lead End-Users are operating. It is very difficult, and likely unfair, to compare the circumstances of one LEU directly with that of another. For example, one may be spread across multiple projects with separate research themes requiring interstate travel, while another works on one project within his/her own region. The high demands of their paid day job are also likely to be major factors that need to be taken into account. Experience, organisational skills and support appear to play some role, and may have mediated the stress levels of some LEUs. Having strong organisational skills already in place allowed some LEUs to take on the role a little more seamlessly, and alternatively, others delegated tasks as needed to share the workload if and where appropriate. Employing such measures tended to assist LEUs to slot this role into pre-existing jobs a little more effectively and efficiently. Other aspects to consider are the complexity of the projects, whether allocation of multiple projects they are located within the same university, flexibility of the home agency, experience of the researchers involved, and prior research experience of the Lead End-User. Potentially many more factors could be also be at play.

Given this complexity, it is understandable that a very wide range of responses were received around the LEU's level of time commitment. One participant reported that he had only one initial contact from his designated LEU without any further follow-up ever, however this was not the norm. More commonly this type of contrast around time commitment occurred "Yes, accurate. One and a half to two days...", yet for another "two days a month is a gross under-estimate". The same contrast applied for interviewees that dealt with across several projects. While two days per month may be appropriate for one or two projects within the same university, many other scenarios appear to require more time allocation or a different working arrangement.

5.1.2 Frequency of Contact

Frequency of contact seems to closely mirror the natural ebb and flow of research work; with some periods reflecting a flurry of activity, countered by quieter periods where comparatively little contact was required. Some interviewees attempted to provide a rough breakdown of activity during these peaks and troughs, while others provided a more general average across time. During very busy periods, those estimating specifics reported that they required daily to weekly contact, perhaps up to 3-4 times per week by either phone or email. During the slower periods, some reports stated that contact was required every 2-3 weeks, and others had periods without contact for 5-6 weeks. For those reporting averages, the most frequently cited timeframe was *at least* once a month or once a fortnight, however contact was also reported as quarterly (at a minimum) with a couple of contacts in between. Thus, those reporting averages all tended to cluster around monthly contact. Interestingly, the level of formality within working relationships was stated to be influential here, with formal structure reported around aspects such as quarterly reporting requirements and other milestones, and informal or impromptu 'catch-ups' forming part of the overall maintenance across the project. This negotiation of working relationships appears to play an important function across the life of the project.

5.1.3 Time Ratio

Lead End-Users were asked to try to estimate the level of time spent with researchers compared with other end-users. Overall, of the nine LEUs, five reported that they spent more time with researchers, two stated that they spent more time with other end-users, and two said it was a '50/50' split between the two. While some who stated a preference toward one or the other indicated that it was only a little more of a leaning, there were others who indicated that their contact with one particular group was very skewed (in one instance a 10:1 ratio of end-users to researchers was estimated). Again, factors such as distance, the stage of the research, and relational elements such as personalities, personal preferences and ease of contact, were all stated influences.

5.2 PRIMARILY, WHAT WAS THEIR MOST USEFUL FUNCTION?

Very few people were able to state just one function that was helpful and often several helpful practices were noted. When evaluating these primary and secondary functions it became apparent that there was much overlap across interviewees. Four major themes were identified.

Authority/Status/Influence/Advocate

Provides endorsement of the research thus elevating the profile of the research in a way that is not otherwise readily available to researchers. Focusses industry attention on the research and its usefulness.

Connector/Facilitator

Provides contacts and connections, facilitates access, provides direct contact with industry under formal arrangement, provides ability to talk to senior people in organisations, organises meetings, makes introductions.

Intellectual Contributor/Translator

Keeps research current and relevant, provides industry perspective, is a sounding board, fine-tunes the direction, wording, and language.

Support

Provides support, encouragement and enthusiasm.

5.3 WAS THE LEAD END-USER HELPFUL FOR OTHER MATTERS? WERE OTHER FUNCTIONS PERFORMED?

These questions were posed to Research Leaders and Lead End-Users respectively, in an effort to capture instances where LEUs were actively operating outside of their intended role. Given that the role description is broad however, and that it does not consist of an extensive list of activities, it can be difficult to gauge what is considered to be an 'other' or 'outside' matter. There was a range of activities that were common to all LEUs, and also considerable variation from person to person as to how far they engaged with the role. For example, many LEUs operated very competently as facilitators and engaged with researchers as needed to keep them on track and providing research that was relevant to industry, however there was also one who, for example, organised quarterly meetings with members from all fire services within the state regarding CRC research. This level of activity is clearly not the expectation of every LEU, however it highlights the diversity and degree of input individual people can bring to the role.

The most common matter that was raised by a few people was around assisting Masters and PhD students (in one case up to six), but more particularly, students who were not on the project they were overseeing.

Respondent 11 ...then they would go to another LEU for information. Part of the whole collaborative process... Wouldn't have altered decision, but didn't expect it... Probably put another 30% into other projects as surrogate LEU

Becoming a collaborative part of a research team was another theme that was mentioned not only here, but throughout the whole interview process. Lead End-Users tended to express that one of the most valuable and interesting aspects of the Lead End-User role was in becoming more familiar with the whole research process and the thinking and activity that it encompasses. Many expressed that this engagement enriched their appreciation of research and that they could see greater value in research after experiencing the LEU role. Some also suggested that the experience of performing the LEU role had been valuable on both a personal and professional level.

Lead End-Users were also asked to offer professional opinion on ideas forwarded for the next round of research funding in order to test whether the industry would be interested in the areas researchers were considering investigating. They were also sought for general discussion outside of the specific research project for political information, to gain an insider's view of the broader industry perspective, and gain greater insight into movements of individuals within the fire industry. Another mentioned that coordinating workshops was an unexpected activity that had come out of the LEU role.

5.4 THE 'MODEL' LEAD END-USER

The ideal characteristics of a Lead End-User have been only briefly touched-on in previous sections, however over the course of interviews these were highlighted on numerous occasions, both to highlight extreme disappointment and also to celebrate and acknowledge the helpful as well as the exceptional. A summary of 'ideal' features and personal characteristics is provided here which is compiled from comments made during interviews. These features are listed in no particular order.

- ✓ A senior person in the organisation who remains accountable to others
- ✓ Willingness to put time into others and provide feedback; pick up factual errors and ideas that are important
- ✓ A focus on research agenda that is not too narrow
- ✓ Keen interest or personal interest and an ability to value the work of others
- ✓ Communication skills
- ✓ Time management skills
- ✓ Wide personal networks (preferably intra- and interstate) and desire to continue networking
- ✓ Supportive, active and encouraging

5.5 Structural Considerations

Ideas relating to broader, structural considerations were also raised and are noted here:

- ✓ A good match between project and LEU: Match distance, personality, skill level, credibility
- ✓ Allow researchers some involvement in the process of LEU selection
- ✓ Flexibility in the system to change LEU if/when necessary
- ✓ Not to alter the match if both parties assess that it is working well.

5.6 MISCELLANEOUS CONCERNS AND COMMENTS FOR CONSIDERATION

Other useful comments that did not appear to neatly fit elsewhere are offered here...

Respondent 11: Useful to explore Scientific Advisor and Research Director [as a group], and LEU group. LEU may be handy in broader CRC context to make sure getting the best out of both groups... Explore relationship to see if duplication or synergies in research and managed over course of CRC... When CRC finishes, there are LEUs with info on where data sits - how not to lose

this with time... How will they know who/where to go to for information on that particular area? Not just industry but for research as well.

Respondent 12: Will be different players in Natural Hazards CRC

Respondent 19: Having multiple LEUs was recognition of some that it was asking too much, and sharing the workload was a valid solution... Pool of LEUs is small - a handful can do that level of work, a number of them are already engaged... Time commitment required because they already have a full-time job... Expectation from CRC was that it would be 'in kind' - this doesn't recognise the lower level of 'in kind' end-users already provide... Agency provided a lot of help in assisting projects: staff, access to field sites... [Participant sees this as being 'on top of' an LEU contact]... Researchers with little experience need to make a real effort to understand end users... How things are done in reality - processes that are involved etc. All to do with contacts.

An LEU will quickly tire of hand-holding.

Respondent 20: If anything, better structure. To have project managers of projects share information and collaborate between projects... set up roles and responsibilities in a document to describe different roles within projects. If end users have better understanding of their roles... Not formal training, but have info across... send reminders, thank you emails, reminders of the role - at the moment it's too informal... it's not seen by their organisations to have very much priority - the only way I can see of getting around that is by paying them, similar to what the BCRC does with the advisors... increase value of LEU the only way to do it is to have it as a formal activity within their own work plans in their organisations.

Respondent 21: Get [LEUs] together to workshop and support... One Lead End-User had an idea for application we hadn't thought of

Respondent 15: ...the idea of bringing four scientific advisors to the extension program together to consult and to work from there was a masterstroke I think because it paves the way for a lot more quality in the research projects and the differentiation between the streams. I think this one was particularly successful.

Respondent 8: Worked with few CRCs - this one has the best framework for linking researcher with industry... LEU is the critical element of that... System CRC has had is fantastic

Respondent 2: need to go to person with interest with what's going on - 'targeted partnerships'

Respondent 5: Legacy of project and who owns and shepherds it forward... bringing back research from conferences to disseminate to own organisation and wider fire sector

Respondent 6: From other end-users - LEUs could talk to others - more active role

Respondent 11: Would be good if there were a few more mini forums / conferences so more visibility on projects on the way through... Value in formalising LEU networks - ideas and approaches

Respondent 13: Role for LEU in being able to guide decision making at CRC level. - How conference stream is organised - LEUs should be able to influence structure

5.7 HOW COULD NEEDS BE MET? SUGGESTIONS FOR IMPROVEMENT.

Once interviewees were asked if there were any needs that were not met, or whether any foreseeable needs had been identified along the way, they were then asked to think about how any such issues might be addressed. Clearly, individuals were placed on the spot by this question, and understandably, relatively few people felt that they had had the necessary time to come up with an appropriate solution and consequently not all issues raised have a suggested resolution. Thus, in order to provide a more comprehensive and cohesive list of helpful suggestions, this section and 'suggestions for improvement' have been collapsed and are detailed below.

Respondent 3: ...capitalising on LEU network...meet at start, milestone throughout and at end...lead-in stuff with LEUs (like a pre-season / pre-program). e.g. "These are the projects.... Leading here....

Respondent 16: Useful if LEU was in the same state...Don't spread too thin over many projects (max 2)...Reference groups in previous CRC - LEU network unit. In previous CRC ran annual workshops across streams and forum for users to get together...research similarity...value add with researchers - may help draw attention to work that LEUs put in...lack of appreciation of CRC

Respondent 20: Very, very busy peopleThat's where the worry is; they're quite often in catch-up mode.... it's not a regular activity, it's not sort of that half a day a week that it really needs to be.... One way to sort of get around this is by having this activity on their work program and perhaps them being paid to do the work, to do the task... so it's something they have to do, they have to address and it's of some priority, because generally it's not a priority in their normal daily life... Managers of the projects probably should get together in the early days.

Apart from RAF not much room to see where collaboration could be fostered. Currently not meetings where you can look at synergies etc.

Respondent 21: In all the groups I am involved in, there is a staff member who is a second - someone I share daily contact with. If something happens and I'm no longer an LEU, they can pick it up and keep going. They have all the files and are cc'd on emails or forwarded emails.

Respondent 12: Having one single LEU - danger can suffer from the political whims of one person. Balanced by having two with different agendas.

Respondent 7: early on - better match between skill of end-user and project... prime selection criteria should be: important and interesting, curious, actively interested in new knowledge...

Respondent 4: Currently restricted travel for LEU - if CRC could assist with travel... recognition within their pre-existing job around travel

Respondent 3: LEUs need to be committed and passionate... If just doing it to fill in numbers, doing it a disservice... Pressure to be LEU - may be hard to say 'no' even if you aren't appropriate

5.8 IS THE LEAD END-USER ROLE A GOOD WAY TO ACHIEVE THESE FUNCTIONS?

Final comments were sought around the use of the LEU role.

Respondent 2: ...is a critical role. The CRC should probably offer for agencies to submit staff as willing to participate....More than AFAC groups and needs to be some process...need to tap into

people who are really interested...Co-LEUs make it easier - distance. Organisational challenges such as restructuring [difficult]

Respondent 3: Essential...Use key industry people, relate to research, networks...Importance of the LEU needs to be elevated... Critical role, more rigorous selection

Respondent 5: Yes. The role can be improved in light of experience but really hard to get researchers and end users to connect...role has produced group of people who are more research and science savvy - exposure to disciplines outside fire, exposure to research and researchers...could have been opportunity for LEUs to meet and collaborate - peer support - rather than stumble individually... connectivity between projects - sequential or outcomes need to be pooled - overlap, synergies...

Respondent 11: "Really valid way of doing it. Surprised to find that other CRCs don't necessarily use LEUs... Researchers certainly liked that they had a go-to person... All posters/fire-notes has end-user statement on it - having LEU provide this helps to build trust in research across the country... LEUs adds a lot of value to project: Understand and help researchers focus goals at the start was a really important part of the process sounding board into interest from researchers on projects outside CRC... overlay of state and commonwealth legislation"

6 ONLINE SURVEY DEVELOPMENT

The online survey was developed using Survey Monkey and closely followed the line of the interview questions (see Appendix 5). In an attempt to make the survey as fast and user-friendly as possible, questions were framed with likert-scale responses e.g. (Totally, Mostly, Somewhat, Little, Not at all, Not applicable), and data collected was anonymous. Respondents were also provided with 300 character limit text boxes in which they could provide any further information they deemed relevant. All questions, save the open-ended text boxes, were set as fields that required responses before continuation was possible. In total there were potentially 25 questions asked of participants, though the presentation of several questions was dependent on a previous response type, and therefore may or may not have actually been presented to any given participant. The survey took only a few minutes to complete.

6.1 METHOD OF SELECTION FOR SURVEY:

The survey was built in Survey Monkey and sent out through the Bushfire CRC's communication system Tall Emu. Email recipients were sent an invitation email outlining the research, which included a link to the survey. Recipients were formed from the Bushfire CRC database. Recipients were advised of the final date the survey would remain open, which was approximately two weeks from the date of email receipt. Due to a technical glitch within AFAC, the survey did not originally reach all of its intended recipients, therefore a second email run was performed to ensure AFAC managers and AFAC Groups were also captured, allowing them one week to complete the survey. Analysis of data was predominantly quantitative, though valid qualitative data was collected and analysed separately.

6.2 SURVEY SAMPLE CHARACTERISTICS

The survey link was originally emailed to 283 individuals, inviting recipients to forward the email on to anyone they thought would be appropriate or interested parties. Of 133 responses; five (5) individuals had already completed a telephone interview and were therefore excluded, leaving 128 who had not been previously

interviewed. Of this 128; eight were excluded as they contained no data, leaving a total pool of 119 responses. Responses were then filtered by awareness of the Lead End-User role.

3.2.1 Are you aware that Lead End-Users have been nominated to engage with Bushfire CRC projects?

Table 2: Awareness of the Lead End-User role by those in broader industry structure.

Position Category	Aware % (n)	Not Aware % (n)
Other End-User (in AFAC group)	57% (30)	43% (23)
Other End-User (NOT in AFAC)	64% (7)	36% (4)
AFAC Managers	57% (4)	43% (3)
Bushfire CRC Project Leader (Researcher)	100% (5)	0
Bushfire CRC Project Researcher	100% (11)	0
†Other	72% (13)	28% (5)
Lead End-User	100% (1)	0
TOTAL	67% (71) Aware of LEU role Data Collected	33% (35) Not aware of LEU role No data collected
*Misidentified as LEU	Awareness of LEU role unverified 13 Data collected 12	

†Other Category / Aware: CRC staff/students (10), AFAC member (1), ex-LEU (1), Unspecified - "A number of the above" (1)

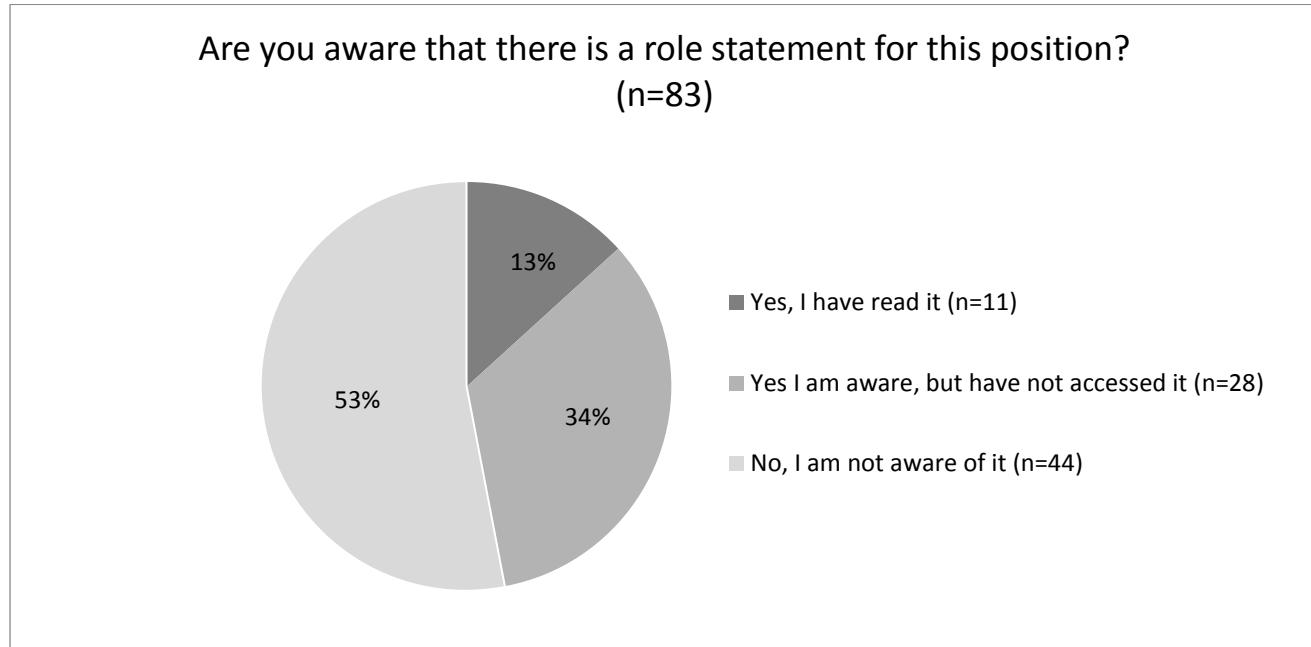
Table 2 shows a breakdown of the 119 responses based on identified industry categories and awareness of the LEU role. As this research was primarily interested in the role of the Lead End-User, an informed response could only be provided by those who were aware of the LEU role. Therefore, those who were aware of the role were included, while those 'not aware' were excluded from further survey questions.

6.3 SURVEY RESULTS

***A notable problem arose when 14 participants identified themselves as Lead End-Users, when only 13 Lead End-Users are actually designated Bushfire CRC representatives.** It appears that a number of respondents may have misinterpreted this question. As one respondent self-identified as a Lead End-User and this could be verified, the data for this participant was retained as a Lead End-User. For the remaining 13, it was decided that data would be retained as "Misidentified". It could not be established as to whether these respondents were, or were not aware of the LEU role - anyone identifying as a Lead End-User automatically skipped the question of awareness under presumption that they were aware of their role. The data for one of these 13 respondents was excluded, as responses were missing for all key questions, save preliminary questions around sample characterisation. As data had been collected for the 12 remaining responses, these were included in analyses. However, it is important to note that responses for the 12 'Misidentified' participants should be treated with some caution, as they were gathered outside of the intended protocol.

Survey data for 83 participants was collated and analysed; 71 participants who 'were aware' of the LEU role, and a further 12 participants who were relabelled 'misidentified'.

Figure 7: Awareness of the Lead End-User role statement



One of the preliminary questions asked surveyed awareness of the role statement. As can be seen from Figure 7, the vast majority of people who were aware of the Lead End-User role were not actually familiar with the role statement for the position. Seventy-two people (87%) stated that they were either not aware, or had not accessed the role statement, while only 11 people of the 83 (13%) stated that they had actually read it.

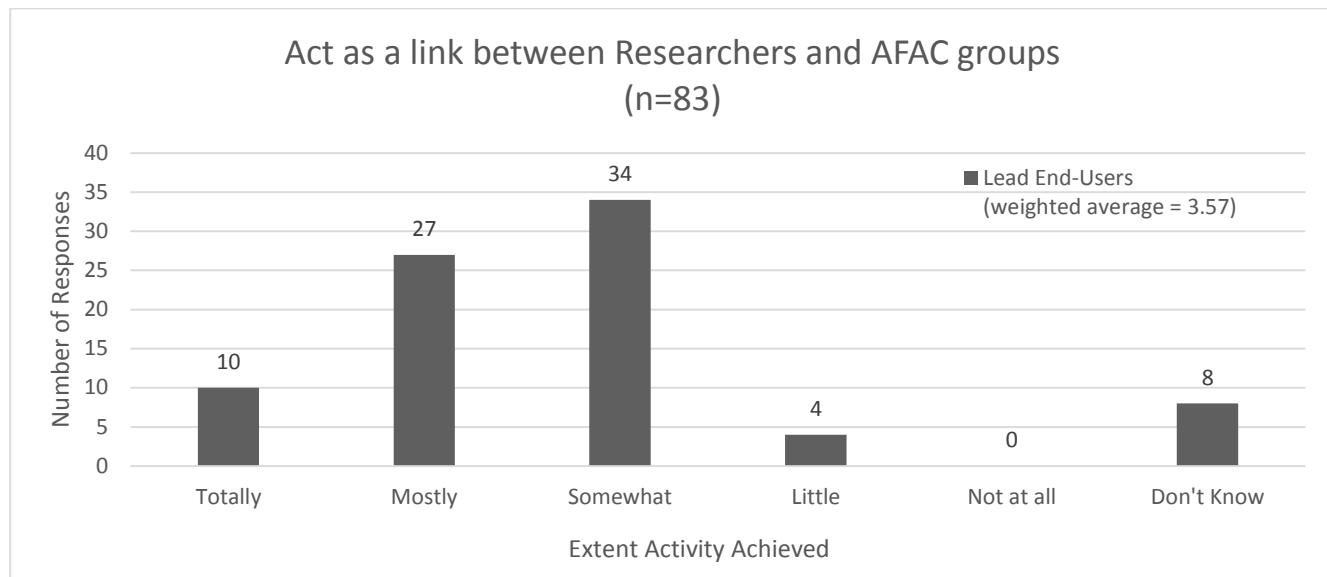
The set of core research questions were then presented in the survey. It is important to note that the one-way ANOVAs (statistical tests) applied to this data did not render statistically significant results. The following Tables are provided as indications of the outcomes and are described to provide the reader with the best indication of findings and trends. Where appropriate the implication of these in a more general sense is discussed.

6.4 THE LEAD END-USER ROLE STATEMENTS

This section will detail each role statement and provide an outline of the survey responses.

6.4.1 LINKING WITH AFAC

Figure 8: Perceptions around the extent to which Lead End-Users act as a link between researchers and the AFAC groups to distil directions and advice on research, and facilitate adoption activities.



Of the 83 respondents, 86% reported that they felt the LEU acted as a link between researchers and AFAC groups 'totally', 'mostly' or 'somewhat' of the time. Seventy-four percent of these fell in the 'mostly' and 'somewhat' categories. No person reported that LEU's do not ever perform this activity.

Facilitation: Linking with AFAC

Eighteen respondents contributed views on facilitating links with AFAC. In terms of the benefits provided by a Lead End-User facilitating affiliation with an AFAC working group, these tend towards two major categories; support in terms of practical assistance, and support which revolved more around the decision-making processes.

In terms of practical support : Conferences, workshops, networking (how and who), dissemination of project work, reviews of materials and reports, teleconferences, presentations, discussions, downloads, summaries, making videos of the research/ers, compiling comments for feedback, providing resources, providing access to key stakeholders.

In terms of decision-making processes: Lead End-Users provide understanding and direction to researchers about the nature and application of tools and materials. They modify the outputs from academics to be End User-friendly and fit the purpose to "ensure that the sector's needs and the scientific process align" (Respondent 2711408938). Linking researchers with AFAC groups assists in facilitating connections with those in industry who can be helpful in this overall process.

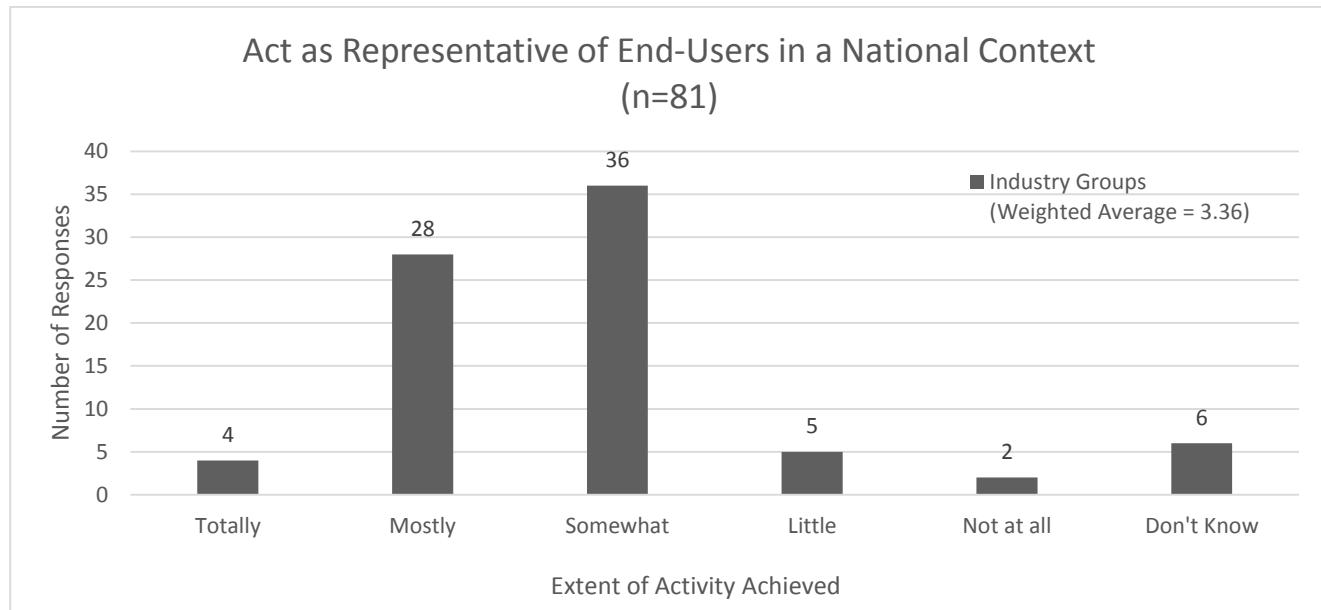
Barriers: Linking with AFAC

Thirteen participants cited barriers in linking researchers to AFAC groups. The most commonly cited response related to time constraints and workload issues for Lead End-Users which restrict their availability to others.

Communication issues were also problematic, particularly around the dissemination of information which is often “complex and difficult to explain” (Respondent 2728167862). Difficulties arise in sharing this information within the organisation of the LEU (keeping other people in the loop) and also in sharing information across other AFAC working groups. Not having access to sufficient, or consistent, contact lists was also cited as a barrier. The conservative nature of industry thinking was also mentioned; “It is often difficult to know what the industry wants in terms of practical research that can have a real impact if the research does not fall squarely within the purview of traditional bushfire research or scientific research” (Respondent 2718566755), thus openness to innovation is perceived as a barrier in this case. Lack of resources was cited as problematic, as they are required in order to adopt and facilitate research. How well the research fits with an AFAC group was cited, and it was stated that Lead End-Users are “sometimes not across the operational or technical details that might have an impact on the ease of research adoption” (Respondent 2708528334). Restructures and other organisational events may also be contributors which impede Lead End-Users linking researchers to AFAC in order to facilitate directions and advice on research and adoption activities.

6.4.2 NATIONAL REPRESENTATION OF END-USERS

Figure 9: Perceptions around the extent to which Lead End-Users act as a representative of end users in a National Context.



Missing data was recorded for only two respondents. Clearly the majority of respondents across industry (79%) indicated that they believed the LEU acted as a representative of end-users in a national context ‘mostly’ or ‘somewhat’. Only five percent reported that they believe this activity is achieved ‘totally’, and similarly, those who believe this activity is achieved ‘little’ or ‘not at all’ comprised only nine percent of the sample.

Again, responses noting barriers and facilitators this process were analysed and are discussed below.

Facilitation: National Representation

Seven respondents contributed to ideas on facilitation to national representation and these are similar to those previously listed. Generally the approval of the LEU as endorsing the project was important, along with their support and direct input to the project. Acting as a liaison for agency related research and holding workshops with key stakeholders was a valued activity with “a diverse group of representatives who were critical to

engage in the research" (Respondent 2708547701). Research Advisory Forums, networking, promoting discussions about tools and products (as outputs), meetings, phone conferences, and videos were also noted.

Barriers: National Representation

Twelve people reported on barriers to national representation. Time demands on Lead End-Users again featured in comments along with time constraints for key stakeholders. Communication issues within agencies and beyond own agency was again raised as an issue; agencies outside CRC have no knowledge of research if LEUs do not actively disseminate it beyond AFAC. Communication of complex projects was again mentioned. More generally, source agency constraints and the dispersed nature of agencies was indicated as problematic. In relation to industry thinking, a few issues were mentioned; a lack of understanding of research, end-users representing their own interest, and divergent agency views.

The level of reliance on a LEU to facilitate research adoption was questioned – it was suggested that this should be more a part of the research design. More directly related to the particular Lead End-User, individual differences between LEUs was mentioned and "limited range of contacts based on area of responsibility" (Respondent 2728263635). The effectiveness of the LEU to engage across multiple agencies was also a concern noted.

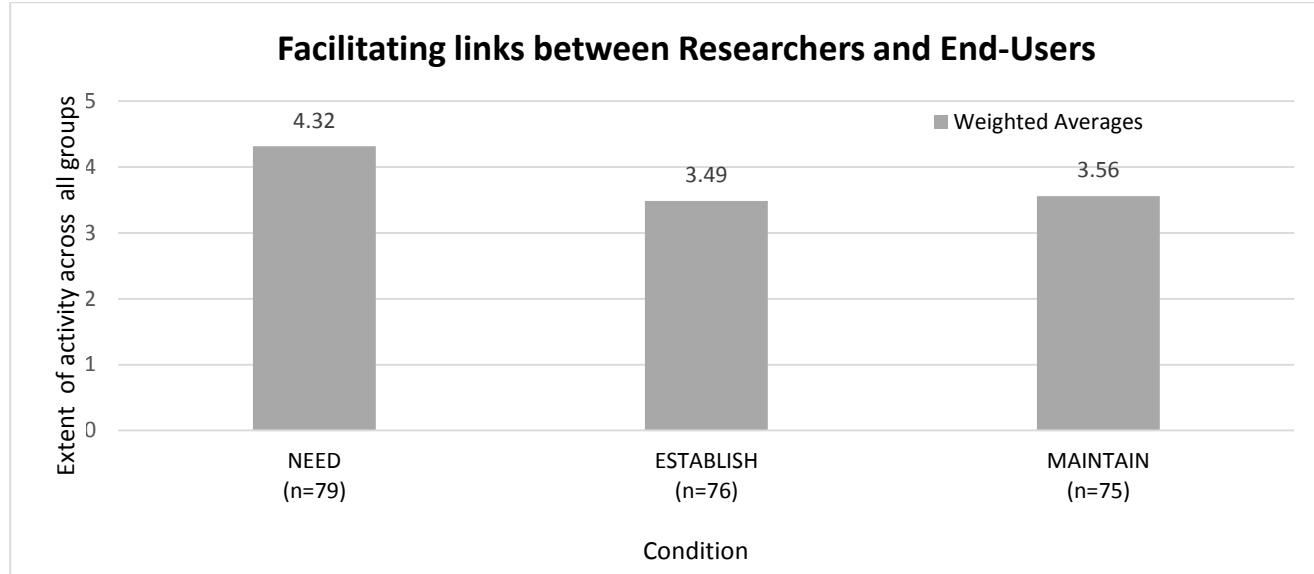
A more general issue around the CRC process of matching LEUs to research projects was also noted, and contributes further to issues previously raised around the matching processes. This concern particularly relates to projects that do not fit neatly with a specific AFAC group, or potentially have a more general, over-arching impact on *all* bushfire research. The current categorical organisation of the CRC system means that this level of research is not easily disseminated at a national level.

6.4.3 SUPPORTING RESEARCH ESTABLISHMENT AND LINKING RESEARCHERS WITH END USERS.

The next research question related to the third and fourth aspects of the Lead End-User role statement; namely, to assist researchers in gaining access to agencies and ensuring ongoing support in establishing their research projects, and further, to facilitate links between researchers and all end users are established and maintained. To ease the burden on survey respondents these activity areas were collapsed in order to gauge an overall perspective of this area while minimizing the number of questions asked of respondents.

Respondents were initially asked to what extent there was a 'need' for Lead End-Users to facilitate links between researchers and end-users to serve as a general baseline response. We then asked to what extent LEUs 'do' facilitate *establishment* of these links, and then to what extent an LEU *maintains* these links. The quantitative results for these questions are contained in Figures 10 &11, and Table 3 below. For the sake of brevity, only the barriers to these role activities was sought and these are discussed at the end of this section (3.4.3).

Figure 10: Perceptions around the Lead End User Role in Facilitating Links between Researchers and End-Users collapsed across all industry groups



In Figure 10 the y-axis indicates the extent of the activity, wherein a rating of 5 denotes 'totally', 4 'mostly', 3 'somewhat', 2 'little' and 1 represents 'not at all'. The extent to which Industry perceives the *need* for Lead End-Users to facilitate links between researchers and end-users is provided by the weighted average 4.32, indicating that is 'mostly' required. The extent to which Industry perceive that the activity is *actually* achieved is very similar across the *establishment* of links and *maintenance* of those links; as indicated by the weighted averages of 3.49 and 3.56 respectively, denoting that the activity is perceived as lying between 'somewhat' and 'mostly' achieved.

Figure 11: Perceptions around the Lead End User Role in Facilitating Links between Researchers and End-Users of each industry group (weighted average)

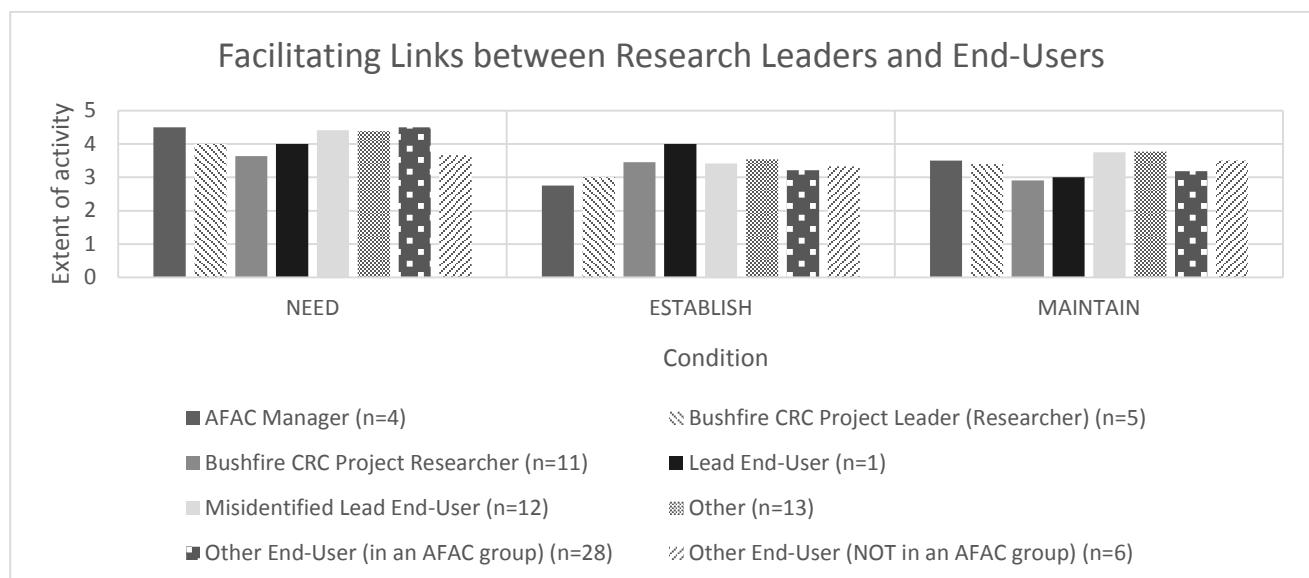


Table 3: Industry Perceptions around the Extent to which Lead End-Users Facilitate Links between Researchers and End-Users indicated by Weighted Averages.

	NEED	ESTABLISH	MAINTAIN
AFAC Manager (n=4)	4.50	2.75	3.50
Bushfire CRC Project Leader (Researcher) (n=5)	4.00	3.00	3.40
Bushfire CRC Project Researcher (n=11)	3.64	3.45	2.91
Lead End-User (n=1)	4.00	4.00	3.00
Misidentified Lead End-User (n=12)	4.42	3.42	3.75
Other (n=13)	4.38	3.54	3.77
Other End-User (in an AFAC group) (n=28)	4.50	3.21	3.19
Other End-User (NOT in an AFAC group) (n=6)	3.67	3.33	3.50

Figure 11 & Table 3 provide an indication of Industry perception around facilitation of links between researchers and end-users by breaking the data down into Industry Groups and providing the weighted averages for each. Again, a rating of 5 denotes ‘totally’, 4 ‘mostly’, 3 ‘somewhat’, 2 ‘little’ and 1 represents ‘not at all’. The greatest discrepancies between expectation (need) and delivery of this activity are perceived by the AFAC Managers and Other End-User (in an AFAC group) in both areas of *establishing and maintaining* links. Bushfire CRC Project Leaders and the Misidentified Lead End-Users perceive a discrepancy between need and *establishing* links, and the Lead End-User perceived a discrepancy between need and *maintaining* links. All discrepancies highlighted here are 1.00 units or greater.

Barriers: Supporting Research Establishment, and Linking Researchers and End-Users

Thirteen individuals responded to the opportunity to convey attitudes around barriers in these areas. The most strongly featured response was, again, time, though these responses were of a more general nature rather than targeted at anything specifically tangible. Communication was again mentioned, specifically relating to a perceived lack of consistent and current contact lists. Access to groups where there is an LEU was also noted as a barrier, and this may likely be related to communication issues, such as the dissemination of current contact lists.

Factors at agency level included the “size of end user agencies and staff mobility... inter-agency and intra-agency politics of agencies within a [state level] jurisdiction” (Respondent 2708528334) and sensitivity around research findings. It is also perceived that research can be viewed as a low priority for agencies.

Though this report seeks to inform readers around the role of the Lead End-User, it became apparent that some factors regarding researchers also contributed to barriers and so these few comments are included here to provide a more holistic overview. Some respondents reported about the need for researchers to have their own “tailor made” networks in order to counter the diverse and dispersed nature of agencies, and in addition, “...researchers not seeing that their role includes engagement with end users. i.e. I can't remember the last time an end user visited country Victoria to communicate their findings or to seek advice as to the relevance of their research” (Respondent 2728321746).

Several barriers again related more specifically to issues related to LEU selection; “getting the right kind of Lead-End-Users” (Respondent 2728222451), having LEUs who were not sufficiently proactive in linking with other agencies, lack of awareness of the needs of others and their “Understanding, knowledge, capacity” (Respondent 2708587300). One comment stated “Given the diverse and dispersed nature of agencies and other parties it's better for researchers to establish their own “tailor-made” networks. It cannot be assumed

that a supposed representative "middle-man" can assist with this. Often it simply adds an extra, counter-productive layer between researchers and managers" (Respondent 2713696901).

6.4.4 RESEARCH OUTPUTS

The final questions pertaining to the LEU role statement asked "To what extent IS THERE A NEED for the Lead End-User to provide guidance and support in matching research outputs to user requirements?" and "In your opinion, to what extent HAVE Lead End-Users provided guidance and support in matching research outputs to user requirements?" Results are presented in Table 13 below.

Figure 12: The need for Lead End-Users to provide guidance and support in matching research outputs to user requirements

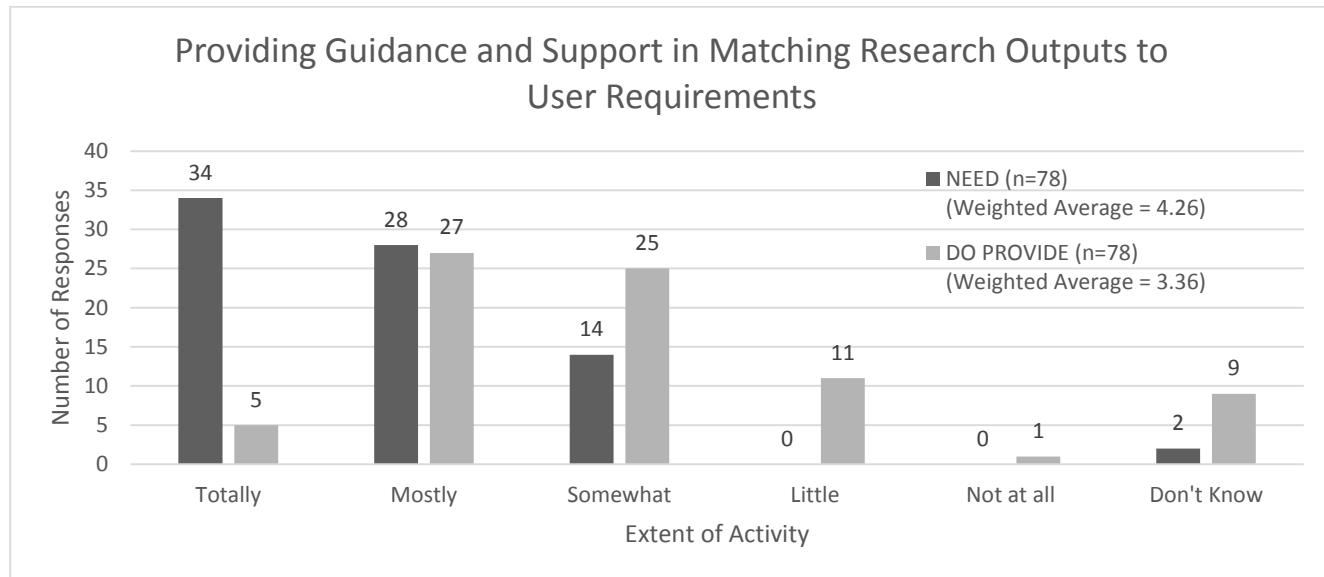


Figure 12 indicates the responses received around the role of the Lead End-User in providing guidance and support in matching research outputs to user requirements. The weighted averages provide an overall indication that Industry perceives a slightly greater need (equivalent to 'mostly' to 'totally') than is actually being delivered (equivalent to 'somewhat' to 'mostly') in this area. While 43% (n=34) reported that this activity is 'totally' needed, only six percent report that they believe it is actually achieved at this level. Ninety-seven percent of people rated the *need* for this activity within the three uppermost categories; 'totally', 'mostly' and 'somewhat'. The bulk of these responses (67%) rated that the activity is actually *provided* 'mostly' or 'somewhat'. Again, for the sake of brevity, only barriers were sought from those surveyed.

Barriers: Research Outputs

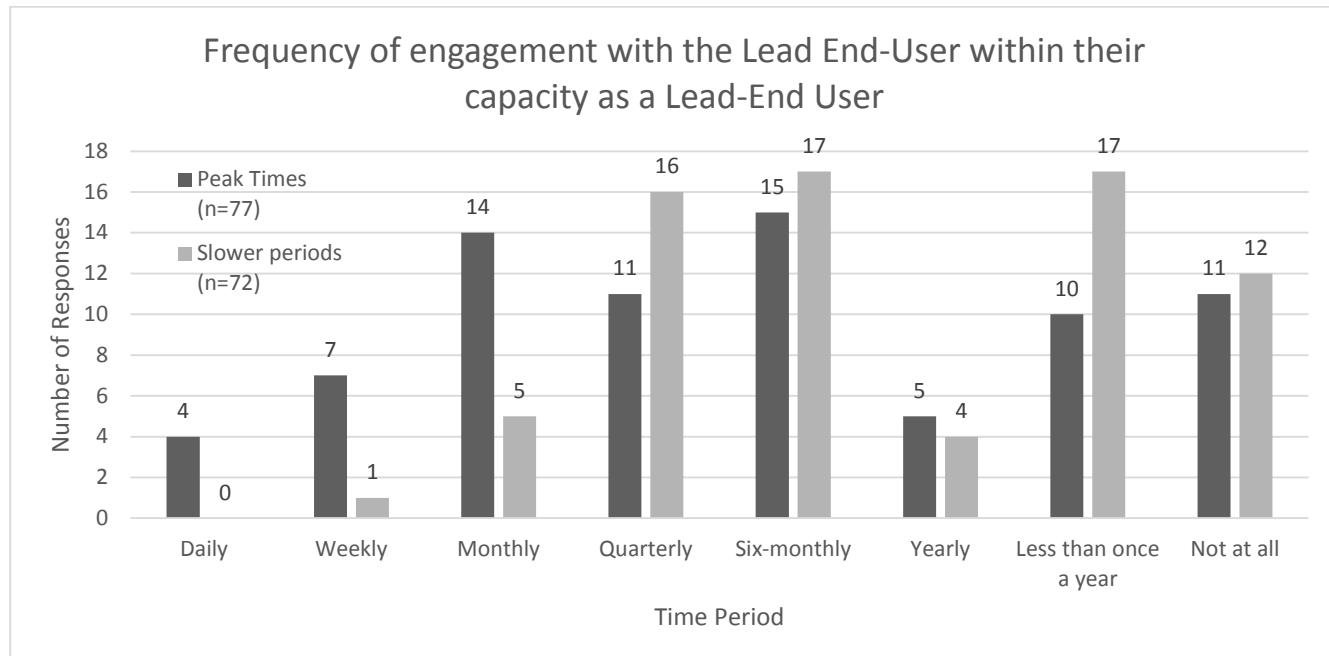
Six people noted barriers to this area. Issues particularly related to the time constraints of Lead End Users, their personal networks and movement in agencies. Another comment related particularly to the dual role of LEUs, who "can become captured by the researcher agenda and be a researcher advocate rather than broker for both sides" (Respondent 2728155277). In addition, a general comment was made on the current research program "The end-user doesn't necessarily know what their requirements are. If they did, then the research might not be necessary. The research program desperately needs a technical oversight component that is, and has been, lacking" (Respondent 2728109091).

7 GENERAL QUESTIONS AROUND LEAD END-USER UTILISATION

7.1.1 Engagement with the Lead End-User

These survey questions sought to gauge the frequency with which individuals in the Lead End-User role are contacted by industry personnel while acting within the Lead End-User capacity. As stated in the Role Statement, it was anticipated that the role would “average 10% or approximately 2 days per month”. Following interviews with Lead End-Users and Research Leaders the survey questions were constructed to reflect the general view of ‘peak’ times and ‘slower’ periods.

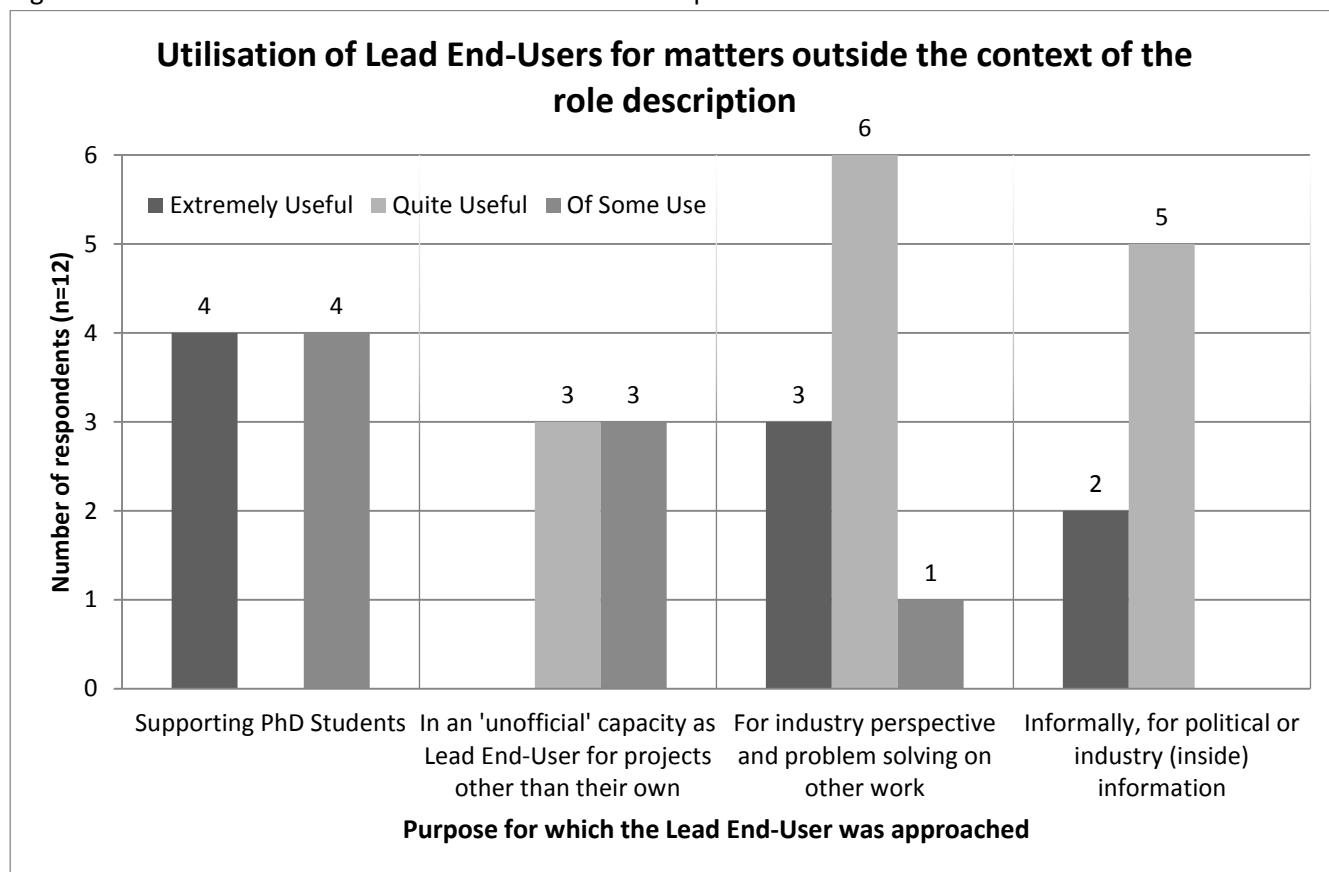
Figure 13: Engagement of the Lead End-User by Broader Industry Sector



Across the broader industry sector access to Lead End-Users varies depending on whether it is a peak period or quieter, slower period. During the peak times 52% of respondents stated that contact occurs at monthly, quarterly or six-monthly intervals, and for a further 27% contact occurs less than once a year or not at all. Nine percent of the time the broader industry reports contacting the LEU on a weekly basis during peak periods. During the slower times, 46% of respondents report that contact is required at quarterly or six-monthly intervals, and for 40% of respondents the time contact is reported as less than once a year or not at all. The key discrepancy worth noting here is the presence of daily, weekly, and monthly contacts stated by 33% of respondents during the peak periods and eight percent of respondents during slower periods. Together, this equates to 41% of respondents contacting LEUs on a daily, weekly and monthly basis across time. It may be valuable to bear this in mind when evaluating potential LEU time commitments.

- 7.1.2 To your knowledge, have Lead End-Users been approached for other matters (outside the context of the role description detailed in previous questions)?

Figure 14: Utilisation of Lead End-User outside role descriptors

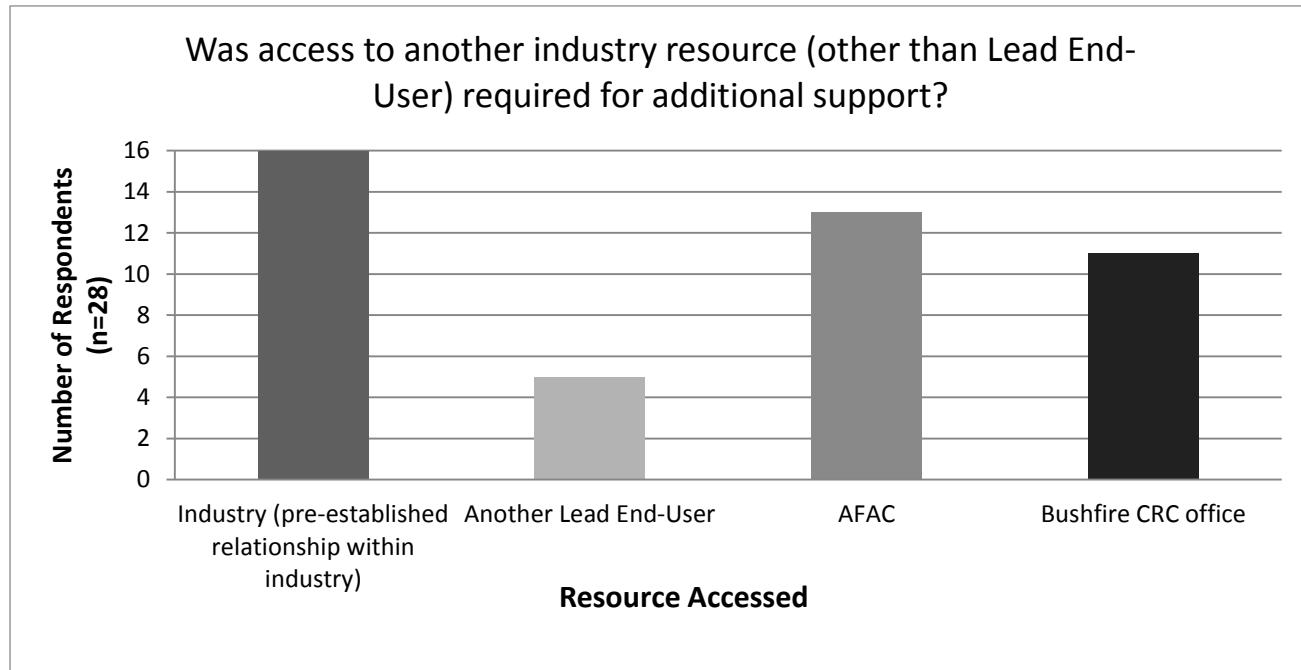


Only 12 respondents answered that they were aware of Lead End-Users being approached for other matters and these responses are provided in the chart above. The vast majority (54) responded ‘not to my knowledge’, eight chose ‘not applicable’, one person responded ‘no’ and eight responses were missing data. The selection of possible responses were based on the most common responses from the LEU and Research Leader interviews. As can be seen in Table 15, all four areas were considered to be *at least* ‘quite useful’. Additionally, one respondent stated that the LEU had also been useful for exposure, specifically beyond their own research area.

While most of the broader industry sector seem to be unaware of whether LEUs are used for purposes outside their role function, it appears that some people do have knowledge of this occurring and this is consistent with the results gleaned from LEU and Research Leader interviews.

4.1.3 The Use of Other Supports

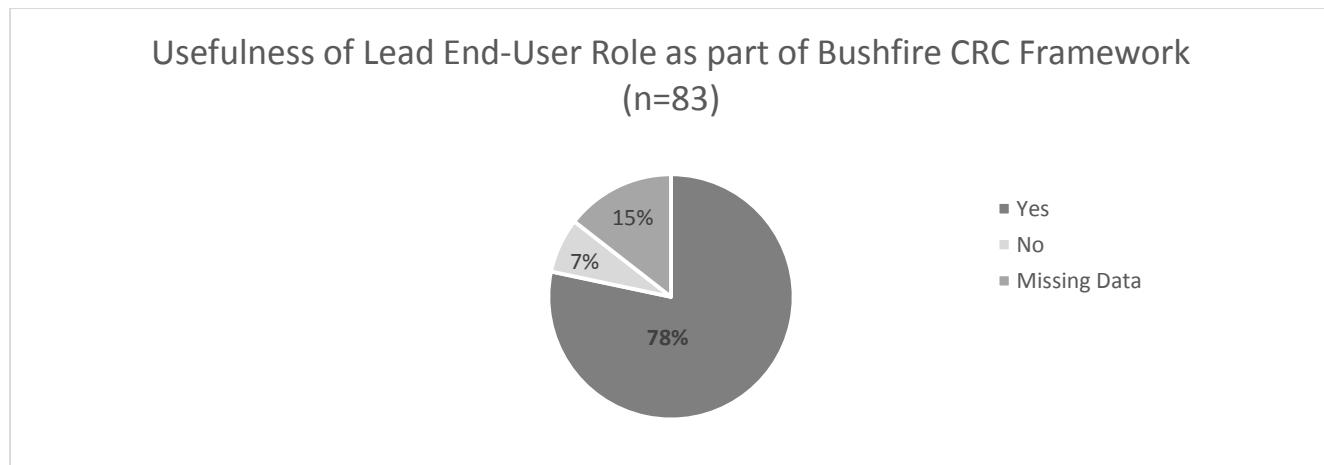
Figure15: Access to other industry supports



Clearly Lead End-Users are not able to fulfil this role in isolation, and cannot be all things to everyone. The broader industry sector acknowledges this to be the case, as indicated in the chart above. Pre-established relationships within industry are highly recognised as being necessary adjuncts to an LEU, and AFAC and the Bushfire CRC office are also seen as assistive. Interestingly, a few people also acknowledged the help of other Lead End-Users. This broader picture (encompassing the four areas above) also speaks to previous discussion around the potential for LEUs to perhaps link their own individual networks a little more formally, thus capitalising on their ability to connect others, and allowing a broader capacity for networking within regions and across the country.

4.1.4 Is the Lead End-User role a Useful part of the CRC Framework?

Figure 16: Usefulness of the Lead End-User role within the Bushfire CRC Framework



Seventy one responses were received regarding the usefulness of the LEU role within the Bushfire CRC framework and 12 responses were missing data. Just over three quarters of those responding (78%) report that they consider the position to be useful, while seven percent indicated that in their view, the position is not useful.

7.1.5 Further Suggestions

Some of the themes from this section have already been covered previously, however a few additional thoughts are captured here as they provide more tangible suggestions for consideration:

Important to have lead end users engage with and be a member the AFAC group to which they are attached and not simply provide a presentation to them. (Respondent 2710137543)

Within the project there clearly needs to be a head end user but their work needs to be delegated to the most appropriate personnel regarding the research been fulfilled. (Respondent 2708775803)

CRC should facilitate contact lists of agency staff interested in receiving communication on specific projects (Respondent 2733407368)

I agree with the need for such a role, however I believe the role needs to be clearer, the nomination of lead end-users should be transparent (I have little idea of how this happens and what I might need to do to be more involved). Overall communication out of the CRC seems ad hoc and not comprehensive, e.g. I am unaware of who receives invites to research forums and why, I often seem to find out about these activities from others yet I am on an AFAC technical group. (Respondent 2729963864)

Promote who they are (Respondent 2728224971)

8 CONCLUSION AND RESEARCHER REFLECTIONS

In conclusion, the role of the Lead End-User seems to have been a very successful venture for the Bushfire CRC, and appears to have been particularly helpful overall in linking researchers with end-users, thus facilitating research on a wide variety of levels. It was in fact commonplace for Research Leaders to express enormous amounts of gratitude toward Lead End-Users during the interviews, as their assistance in helping to move research off the ground was considered by most as invaluable. This role also appears to have created a league of end-users who feel they are more 'research and science-savvy' than they were prior to undertaking the role, and thus gratitude toward researchers was also conveyed by many Lead End-Users.

Whilst there has been great success in areas such as establishing research connections and facilitating engagement with agencies and industry, there does appear to be room for improvement in some other areas, and some thoughts on these are briefly noted below. Please note that these are not reported here as 'recommendations', but are provided as a means to facilitate conversation if and where this may be helpful.

- There was some concern noted by a few people around the (over)emphasis on very practical research, and some questioning around whether research that is more 'overarching' or more theoretical in nature is really valued, and how dissemination of such research might be further facilitated.

- As may have been noted in reading the report, there is a perception by a few people that PSAs are paid for their work in that role. Therefore, there appears to be some confusion in industry around both the PSA and LEU roles within the Bushfire CRC structure. It may be helpful to find ways to raise awareness of these roles through increasing awareness of the role statements and the functions within them.
- While appreciating that there is a danger in being too prescriptive, there appears to perhaps be a lack of clarity around what is expected of someone operating within an LEU role.
 - Further clarity and transparency around the structures, selection and matching processes that are undertaken in determining who fills the LEU role may also assist in this general area.
- It was suggested that most LEUs will not return to the role. This comment seems to indicate that there is a perception, at least by some, that the LEU position may, in its current form, be regarded as a thankless role. Taking on this role does not currently appear to add status, but does create an additional work load. This may be an issue the CRC could address. Understandably it is the LEU role that is neglected when the individual feels overburdened.
- Building in measures to assist in overcoming the geographical issues, assisting LEUs to capitalise on their strengths (such as communicating and networking) a little more formally, raising their profile and the status across the sector, limiting the number of projects they are across (maximum suggested as two).
- Consider implementing Co-LEUs on projects where possible to help overcome difficulties around leave-taking, sickness, distance, burden, and attrition. This may require some structuring from the beginning to clearly delineate roles and functions. It was stated that it was particularly helpful if LEUs are from different areas, thus facilitating different perspectives, e.g. one from land management and other from a fire agency.
- In considering how unique this role is, might the information LEUs attain (collectively) be better accessed and utilised? For instance, would it be helpful for LEUs to be more involved in some instances in guiding decision-making at the CRC level? Could they have helpful input into the structuring of conferences, fora and other state or national meetings? Do they have ideas on how to attract higher rates of industry interest/turnout? There may be ways to access the knowledge acquisition, overview and foresight LEUs attain from being involved in this role, and use it to drive new or better processes at a higher level.

9 APPENDIX 1: SEMI-STRUCTURED INTERVIEW – LEAD END-USER REPRESENTATIVES

ID# _____

DATE _____

Pre evaluation question: Were you aware of the role statement?

- If so, did you use it for guidance to shape the way you engaged? How much?

Has the LEU role operated as outlined in the role statement?

Q1. The Role Description of the Lead End-User was formed in its infancy around three years ago. Five key areas were then identified as the proposed purposes for this role. These five areas may, or may not, reflect the actual LEU role as it has evolved today. The purpose of these questions is to ascertain if these five areas accurately represent the day-to-day reality of the role, and perhaps, to what extent. Given this, I want to emphasise that there are no right or wrong responses, and we are just seeking to explore what the role has been like, and how it might differ to the initial role statement that was initially set out. I'm going to take you through the five key purposes as they were proposed, and ask you to have a think and discuss the relevance of each statement.

- **Act as the link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities.**
 - May probe to ask more around which areas they have been more active in, and look for examples of good practice and suggestions for improvement.

- Quantify: To what extend was this activity actually achieved?

Totally Mostly Somewhat Little Not at all

- **Act as a representative of the end-users in national context.**
 - Was this challenging?
 - Was there easy engagement from other states?

- **How did you access people from other states? > useful methods?**
- Looking for good examples or what may have prohibited this and why – no opportunities?
Blocked?

- Quantify: To what extend was this activity actually achieved?

Totally Mostly Somewhat Little Not at all

- **Assist researchers in: gaining access to agencies AND ensuring ongoing support in establishing their research projects**

- Anything that helped to facilitate this process? Anything that was prohibitive? Examples?

- Quantify: To what extend was this activity actually achieved?

Totally Mostly Somewhat Little Not at all

- **Facilitate links between researchers and all end users are established and maintained**

- To what degree has this been part of your role?

- Quantify: To what extend was this activity actually achieved?

Totally Mostly Somewhat Little Not at all

- **Provide guidance and support in matching research outputs to user requirements (conducted together with the Principal Scientific Advisors and the Research Director)**

- Some examples of this, if there are any.

- Quantify: To what extend was this activity actually achieved?

Totally Mostly Somewhat Little Not at all

Q2. It was initially anticipated that the time-commitment for the role would be approximately 2 days per month. Would you agree that this is accurate? Yes / No If not, what has been your experience?

- Time with researchers vs time with others

Q3. What other functions (if any) did you actually perform as a LEU?

- Probes may evolve along the way, over the experience of interviewing

Q4. From experiencing the LEU role, what other functional needs are there that you might foresee (even if you didn't actually perform them)?

- Seeking to identify information on opportunities that may exist, but aren't tapped into.

Q5. How could such needs be met? What would it require?

- Seeking information or solutions and suggestions around how the Bushfire CRC might be able to facilitate this if it's a valuable missed opportunity.

Q6. Is there anything you feel we haven't covered that you think would be valuable for us to know?

Q7. In your opinion is the LEU role a good way to achieve these functions?

- If no, how else could these be done?

10 APPENDIX 2: SEMI-STRUCTURED INTERVIEW – RESEARCH LEADERS

Participant # _____

Date _____

Q1. The initial Role Description of the Lead End-User was conceptualised around three years ago. Most of the key areas identified as defining that role specifically related to liaising with Research Leaders. The purpose of these questions is to ascertain if the role of the Lead End-User as it stands today accurately reflects reality, and is therefore representative of your actual experiences. The review of the Lead End-User role is simply an exploratory process, so there are no right or wrong responses - we are just seeking to explore the role of the Lead End-User and in reality, what your experience with the Lead-End User has been like. I'm going to take you through the rolls of the Lead End-User that would be pertinent to you, and ask you to have a think about and discuss the relevance of each statement. In this process I'll ask that you refrain from stating actual names, so that we can speak as openly as possible about the work and the people involved.

- **Act as the link between the researchers and the AFAC groups to distil directions and advice on research and facilitate research adoption activities.**

○ What has this been like? In what ways? Any really good examples?

○ Quantify: To what extend was this activity achieved?

Totally Mostly Somewhat Little Not at all

- **Assist researchers in: gaining access to agencies AND ensuring ongoing support in establishing their research projects**

○ Anything that was prohibitive? Anything that helped to facilitate this process? Examples?

○ Quantify: To what extend was this activity achieved?

Totally Mostly Somewhat Little Not at all

- **Facilitate links between researchers and all end users are established and maintained**
 - To what degree has this happened? Once established, did the LEU maintain the relationship?
How?
 - Quantify: To what extend was this activity achieved?

Totally Mostly Somewhat Little Not at all

- **Provide guidance and support in matching research outputs to user requirements (conducted together with the Principal Scientific Advisors and the Research Director)**
 - Was this relevant to your role as a Research Leader? Some examples of this?

- Quantify: To what extend was this activity achieved?

Totally Mostly Somewhat Little Not at all

Q2. How frequently do you engage with the LEU? > How often do you talk?

Q3. Was the Lead End-User helpful for any other matters? Did you use them outside the context of what we have spoken about previously?

Q4. Primarily, what was their most useful function?

Q5. Did you go elsewhere for support?

Q6. Any suggestions for improvement?

Q7. Is there anything you feel we haven't covered that you think would be valuable for us to know?

11 APPENDIX 3: EMAIL INVITATION TO PARTICIPATE IN RESEARCH

Dear Bushfire CRC partners and colleagues,

You may be aware that the Bushfire CRC strategically incorporated a Lead End-User role into the research project framework three years ago. In order to evaluate the effectiveness of this important role, the Bushfire CRC has contracted an independent researcher, who has conducted telephone interviews with Lead End-Users and associated Research Leaders. In order to inform the Bushfire CRC more broadly about the impact of this role, we are now seeking input from other organisations and agencies within the broader industry.

As someone who may have had contact with an agency Lead End-User, we are seeking your assistance in completing a short survey which will help the Bushfire CRC see the broader industry perspective on this role. The survey is anonymous, is in compliance with the Bushfire CRC Privacy and Accessibility policy, and only takes a few minutes to complete.

You can access the survey via this link: <https://www.surveymonkey.com/s/SH3FYH2>

The survey will remain open until 11.59pm Sunday 21 July, 2013.

If you believe that this is relevant to other colleagues in your organisation please forward this email onto them.

On completion of this research, a report of the findings will be posted on the Bushfire CRC website for your convenience. In anticipation, we thank you for your participation and greatly appreciate your views on the role of the Lead End-User.

If you have any questions please do not hesitate to let me know.

Yours Sincerely,

Lindsay Pamment BPsySc (Hons)

Contracted Researcher (Lead End-User Role)

Bushfire CRC

Email: L.Pamment@latrobe.edu.au

On Behalf of

Noreen Krusel

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Bushfire CRC

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12 APPENDIX 4: CONSENT AND INFORMATION FORM

Title of Project: Review of the Lead End-User Role

1. This Consent Form has been sent via attachment in an introductory email from Noreen Krusel which provided information about this research, and explained that participation in this project is voluntary.
2. I understand that any questions regarding this research should be directed to Noreen Krusel, and by participating in the research I indicate that I have asked any questions I deem necessary and that these have been answered to my satisfaction.
3. I agree that by scheduling (by phone or email) for an interview to be conducted, I am indicating that am informed about the research and consent to participation.
4. I understand that the study involves an individual, confidential, semi-structured interview exploring my experience of the Lead End-User Role that will take around 30 minutes.
5. Additionally, I will be asked to consent to having my interview recorded, and understand the recording will be de-identified.
6. I understand that quotes may be extracted from the data I provide, and if so, any such quote will retain anonymity and will also de-identify any other individuals mentioned within it.
7. I agree that research data gathered from me for the study may be published provided that I cannot be identified as a participant.
8. I understand that the researcher will ensure my identity remains confidential and that any information I supply to the researcher will be used only for the purposes of this research.
9. I understand that all research data will be securely stored by The Bushfire CRC (or the legally appointed successor body) for three years, and will then be destroyed.
10. I agree to participate in this investigation and understand that I may withdraw at any time without any effect. If I so wish, I may request that any data I have supplied to date be withdrawn from the research, provided I request this by phone, or in writing, before 31 July 2013. Please contact Noreen Krusel (ph: 03 9412 9600; email: noreen.krusel@bushfirecrc.com) or email Lindsay Pamment (L.Pamment@latrobe.edu.au).
11. I understand that participation in this study is voluntary, and it is not anticipated that any adverse effects will result from participation.

For Interviewer Records:

Name of Participant:

Consent to Interview	YES	NO	Date:
Consent to audiotape	YES	NO	Date:

Statement by Investigator/Interviewer

I have explained the project & the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation

Name of Interviewer: Lindsay Pamment

Interviewer signature: _____ Date: _____

13 APPENDIX 5: SURVEY QUESTIONS

Bushfire CRC: The role of the Lead End-User

Preliminary Exclusion Question

***1. Have you participated in a telephone interview with Lindsay Pamment regarding the role of the Lead End-User?**

- Yes
- No

Initial Demographics

***2. For the purposes of this research, which option best describes your position?**

- Bushfire CRC Project Leader (Researcher)
- Bushfire CRC Project Researcher
- Lead End-User
- AFAC Manager
- Principal Scientific Advisor
- Other End-User (in an AFAC group)
- Other End-User (NOT in an AFAC group)
- Other (please specify)

***3. Are you aware that Lead End-Users have been nominated to engage with Bushfire CRC projects?**

- Yes
- No

Initial Demographics continued

***4. Are you aware that there is a role statement for this position?**

- Yes, I have read it
- Yes I am aware, but have not accessed it
- No, I am not aware of it

Assessing the role functions

Bushfire CRC: The role of the Lead End-User

***5. In your opinion, to what extent do Lead End-Users act as a link between researchers and the AFAC groups to distil directions and advice on research and facilitate adoption activities?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

6. If you have any examples of barriers to this process, please provide them in the box below. (300 character limit)

7. If you would like to provide an example of how this was facilitated, please do so here (300 character limit)

Assessing the role functions continued...

***8. In your opinion, to what extent do Lead End-Users act as a representative of the end-users in a national context?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

9. If you have any examples of barriers to this process, please let us know in the box provided. (300 character limit)

10. If you would like to provide an example of how this was facilitated, please do so here (300 character limit)

Role assessment: Links

Bushfire CRC: The role of the Lead End-User

***11. To what extent IS THERE A NEED for Lead End-Users to facilitate links between researchers and all end users?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

***12. In your opinion, to what extent DO Lead End-Users facilitate the ESTABLISHMENT of links between researchers and all end users? Eg. Assist in gaining access to agencies.**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

13. Are there any barriers you can identify that affect this process? If so, please feel free to let us know in the box provided. (300 character limit)

***14. In your opinion, to what extent does the Lead End-User MAINTAIN the links facilitated between researchers and all end users?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

Role Assessment: Outputs and User Requirements

***15. To what extent IS THERE A NEED for the Lead End-User to provide guidance and support in matching research outputs to user requirements?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

***16. In your opinion, to what extent HAVE Lead End-Users provided guidance and support in matching research outputs to user requirements?**

Not at All	Little	Somewhat	Mostly	Totally	Don't Know
<input type="radio"/>					

Bushfire CRC: The role of the Lead End-User

17. If you are aware of any issues that prohibited this process, please feel free to let us know in the box provided (300 character limit)

Frequency of contact

***18. In peak times, how frequently did you engage with the Lead End-User within their capacity as a Lead-End User? This includes all forms of contact, ie. by telephone, email, face-to-face meetings or teleconferencing.**

***19. More generally, or during 'slower' periods, how frequently did you engage with the Lead End-User within their capacity as a Lead End-User? This includes all forms of contact, ie. by telephone, email, face-to-face meetings or teleconferencing.**

Other functions and supports

***20. To your knowledge, have Lead End-Users been approached for other matters (outside the context of the role description detailed in previous questions)?**

- Not Applicable
- Not to my knowledge
- Yes
- No

Bushfire CRC: The role of the Lead End-User

21. Please indicate the purpose for which the Lead End-User was approached, and how useful they were.

	Extremely Useful	Quite Useful	Of some use	Of little use	Not useful	N/A	Don't Know
Supporting PhD Students	<input type="radio"/>						
In an 'unofficial' capacity as Lead End-User for projects other than their own	<input type="radio"/>						
For industry perspective and problem solving on other work	<input type="radio"/>						
Informally, for political or industry (inside) information	<input type="radio"/>						
Other (please specify in 200 characters)	<input type="text"/>						

*22. Was access to another industry resource (other than Lead End-User) required for additional support?

- Not Applicable
- Not to my knowledge
- Yes
- No

23. Which resources were accessed for support?

- Industry (pre-established relationship within industry)
- Another Lead End-User
- AFAC
- Bushfire CRC office

Other (please specify)

Final Section

*24. In your opinion, is the Lead End-User role a useful part of the CRC framework?

- Yes
- No

Bushfire CRC: The role of the Lead End-User

**25. Please use the box below to briefly mention any further suggestions you may have
(in 300 characters)**

