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Bushfire Co-operative Research Centre

Fire Knowledge Network Report

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Executive Summary

The fire industry in Australia and New Zealand is a billion dollar industry. It includes metropolitan and rural fire agencies, land management agencies, fire managers and fire fighters, thousands of volunteers, researchers, Australasian Fire Authorities Council (AFAC), and the Bushfire Cooperative Research Centre (CRC) – all with a direct interest in fire management and community self reliance.

The bushfires of recent years have highlighted the need for fire agencies to gain access to research on which evidence-based policy can be developed and used to underpin procedures and operations, and also ensure that the community is better informed. They also raised awareness of the importance of fire within the Australian community. As a result the Bushfire CRC was established in 2003 for a period of seven years and is currently carrying out its research program across a range of topics in conjunction with its members.

In addition to the Bushfire CRC, fire research is also undertaken in many other organisations across Australia and New Zealand including the fire and land management agencies, universities, the Bureau of Meteorology, the CSIRO as well as some other CRCs.

With funding provided by the Australian Government for community outreach, the Bushfire CRC began to consider introducing a knowledge exchange network which would allow for more effective transfer and utilisation of new and existing fire related knowledge both within the industry and with the community.

The Bushfire CRC commissioned Howard Partners to assist it in planning a knowledge exchange network that would form the basis of the Fire Knowledge Network. The project involved the preparation of a concept paper and framework for the Fire Knowledge Network together with significant stakeholder consultation to ascertain information and knowledge needs.

The stakeholder consultations with member agencies of the Bushfire CRC indicated that identifying, locating and accessing accurate, credible and reliable knowledge about fire related issues is extremely difficult. There is currently no single reliable source of validated evidence-based knowledge that agencies can turn to with confidence.

Researchers indicated that there was an urgent need for up-to-date bibliographies as well as greater awareness of other research projects currently being undertaken across the industry.

Some agencies, especially the larger ones, have their own libraries which provide a range of library services, including regular monthly updates of new accessions. In addition, the ALIES network of emergency services libraries also provides informal assistance in accessing relevant information to their member libraries.

However, many stakeholders indicated that they would greatly benefit from a current information service that profiled their individual needs and proactively and reactively targeted them with information relevant to their specific needs.

The consultations also accentuated the critical need for improved knowledge transfer from researchers to end-users – particularly to ensure that agencies were not only able to access knowledge, but also understand and absorb it, accept or modify as required, and importantly, adopt the outcomes.

Knowledge Transfer

Developing the Fire Knowledge Network into a trusted source where people can go for reliable, credible, high quality, evidence-based knowledge with confidence will necessarily require the utilisation of the latest technology, taking advantage of web based interfaces, electronic databases, software that can profile end-user requirements and deliver alert emails to recipients desktop, as well as many other useful and time saving applications. However, it

is our opinion that a technology driven approach alone will not solve the much needed knowledge transfer needs of the fire industry.

Genuine learning where people not only have access to knowledge, but are able to understand and absorb it, analyse its importance, and alter their attitudes and behaviour as a result of it, are fundamentally human activities which require a range of appropriate mechanisms to enable human communication and learning to flourish.

The culture of the fire industry

Success for the Fire Knowledge Network will ultimately depend on the ability of the Network to connect with the prevailing culture, values and norms operating within the different stakeholder agencies.

The preliminary consultations indicated that the fire industry is a very 'oral' industry with a preference for face-to-face, interpersonal communication, as opposed to gaining knowledge through reading lengthy research reports.

It was pointed out that at every level a great deal of knowledge sharing and learning takes place through people talking to people they know and trust. It is important therefore that the Fire Knowledge Network taps into these relationships and adopt solutions that will generate buy-in from people.

The Fire Knowledge Network

This Report is the final component of a project to assist the Bushfire CRC in planning the development of the Fire Knowledge Network. Input from senior management in the Bushfire CRC and the Bushfire CRC member agencies as well as agencies external to the CRC has been greatly appreciated and helped to identify the information and knowledge transfer needs and challenges currently facing the fire industry.

Importantly, stakeholders provided valuable insights into how the Fire Knowledge Network will add value and transform the way in which the fire industry accesses, absorbs, accepts and adopts new knowledge.

The Fire Knowledge Network has an opportunity to be different to anything currently available. People in fire and land management agencies have indicated they want to communicate – with each other. The distinctive competitive advantage of the Fire Knowledge Network will be its people.

In fact, the value of the Fire Knowledge Network will be the capacity and capability of its people – the information professionals, researchers, communication professionals, and knowledge brokers who are able to provide the following services:

- Providing a service which identifies, captures, stores and makes information and knowledge accessible
- Current Information Service
- Translational Research Service
- Publication Service, and
- Knowledge Broker

These services are specific to the Fire Knowledge Network and rely on a combination of technology and human resources. In this case, the technology provides an enabling function and is not the driver of the Network.

The Fire Knowledge Network will require significant resource commitment, particularly in human capital. The Australian government's funding commitment is an important contribution in this regard.

This Report puts forward a number of recommendations as follows:

Staged approach to service delivery

Howard Partners recommends the Fire Knowledge Network adopts a staged approach to implementation. The Network needs to *walk before it can run.*

> ***It is recommended that in the first instance the Fire Knowledge Network build up its capability and capacity by adopting the following services:***
>
> - ***Identifying, Capturing, Storing Information***
> - ***Current Information Service***
> - ***Translational Research***

In addition, the Fire Knowledge Network needs to reach out to its users and facilitate opportunities to bring members together to exchange knowledge. In the fire industry, this will involve facilitating workshops, face-to-face meetings and creating two-way understanding.

All of these activities will build confidence in the Fire Knowledge Network.

Marketing and communication

The Fire Knowledge Network needs to develop a marketing and communication strategy that clearly targets its users – both providers of knowledge and end-users of that knowledge.

It will be important for the Network to be positioned in the minds of its users as the focal point for highly credible, reliable, quality peer reviewed knowledge that has also been (or is able to be) translated into a form and format that is useful to end-users.

Engagement

The Fire Knowledge Network needs to engage with its members by involving them extensively in the growth of the Network, constantly monitoring and evaluating the work of the Network to ensure it is meeting members' needs and that they are satisfied.

Target audiences

The Fire Knowledge Network needs to consider its primary target audiences and establish how it manages a potentially large and diverse range of stakeholders.

> ***It is recommended that, in the first instance, the Fire Knowledge Network focus on the members of the Bushfire CRC, before opening the Network up to a broader audience. In this way, the Network can get to know the information and knowledge needs of members, and also work to facilitate knowledge sharing in the industry.***

The Fire Knowledge Network will need to prove its value to members – who will ultimately be the primary sources of information and users of the Network.

> ***To do this it is recommended that the Fire Knowledge Network:***
>
> - ***Set achievable objectives***
> - ***Be manageable***
> - ***Deliver quality and value***
> - ***Build its reputation and future based on its performance***
> - ***Grow organically.***

Section I

1 Introduction

This is the Final Report from Howard Partners to the Bushfire CRC in a project to advise on the development of the Fire Knowledge Network.

In early 2006 the Bushfire CRC commissioned Howard Partners to assist it in planning a knowledge exchange network that would form the basis of the Fire Knowledge Network.

In particular, the Bushfire CRC indicated that it would be keen to develop a capacity that extends beyond information transfer and emphasises a capacity to synthesise information and produce issues-based summaries and compendia.

The project involved:

- Presentation at a CRC workshop in January;
- Reviewing a range of Network concepts and Internet sites that indicate they host Knowledge Networks;
- Producing a preliminary report for the Bushfire CRC;
- Undertaking an information and knowledge needs analysis through stakeholder consultations with members of the Bushfire CRC, using the Howard Partners framework as a basis for discussion;
- Presentation of feedback from stakeholder consultations to CRC workshop in July;
- An Executive Summary of Stakeholder Feedback prepared for the CRC Board in July;
- Final Report with analysis and recommendations to the Bushfire CRC on possible future directions for the Fire Knowledge Network.

The Report will be divided into two Sections. Section I will involve a background to the industry, the Bushfire CRC and the Fire Knowledge Network together with the early stages of the project in particular with the framework for the Network.

Section II will deal with the fieldwork for the project and focus on the stakeholder consultations. In particular, this Section will report the findings of the consultations, provide analysis and offer some recommendations on how the Fire Knowledge Network can go forward.

2 Background

2.1 The Fire Industry

Fire management is a billion dollar industry in Australia and New Zealand. Fire agencies including New Zealand fire and forest research agencies, Australian State and Territory metropolitan and rural fire services, land management agencies, AFAC, the Bushfire CRC and other emergency services as well as the Bureau of Meteorology and Emergency Management Australia all have a direct interest in the state of the fire industry.

In addition many thousands of trained volunteer fire fighters make significant contributions of time and dedication in responding to incidents.

Fire research is undertaken throughout the world. In Australia and New Zealand for example, research is carried out at the Bushfire CRC, as well as in the many fire and land management agencies located in the different States and Territories. Research is also undertaken in universities, the CSIRO and other CRC's such as the Tropical Savannas CRC.

In addition, there are other industries and stakeholders with an interest in fire management including the insurance industry, water and power organisations, planning departments in local government, legislative arms of State and Territory governments, members of the community

both in urban and rural Australia including farmers, residents who live on the urban/rural interface and the media. The bushfires of recent years have gained the attention of the Australian government which has undertaken to ensure that the Australian community is better prepared to protect themselves and their property during the fire seasons.

Consequently, the potential audience for a Fire Knowledge Network is both large and diverse.

2.2 The Bushfire CRC

The Bushfire CRC was established in 2003 for an initial period of seven years under the Commonwealth Government's Cooperative Research Centres Programme. The CRC's partners come from State fire and land management agencies, eight universities, CSIRO, federal government agencies including the Bureau of Meteorology and Emergency Management and New Zealand fire and forest research agencies.

The Bushfire CRC undertakes research that has a specific focus on enhancing the management of the bushfire risk to the community in an economically and ecologically sustainable way. The $100m research program was developed by the research user organisations working with researchers and their institutions and covers a range of topics including:

- Safe prevention, preparation and suppression
- Managing prescribed fire in the landscape
- Community self-sufficiency for fire safety
- Protection of people and property
- Education and knowledge transfer

The Bushfire CRC in partnership with its members aims to transfer the research outputs from the CRC's research program into outcomes for fire and land management agencies and the communities through its technology transfer process which is part of the Bushfire CRC Education Program.

2.3 The Fire Knowledge Network

During 2005, the Bushfire CRC began work on a new knowledge management mechanism to be known as the *Fire Knowledge Network* which would allow for more effective utilisation of new and existing fire related knowledge both within the industry and with the community. It is planned that the Fire Knowledge Network would be an ongoing legacy of the Bushfire CRC.

While the Fire Knowledge Network will be instrumental to the work of the Bushfire CRC's Education Program and its technology transfer program, it is envisaged that the Network will also bring together broader fire research and knowledge in Australia, New Zealand and globally.

The Fire Knowledge Network aims to 'bridge the gap' between researchers who have the latest research and technology and those people 'on the ground' who need to know and understand how to use it. It will work towards linking 'research to practice' through information exchange, workshops, forums, websites, publications and online databases. It also aims to have the capacity to synthesise information and produce issues-based summaries and compendia as well as transfer knowledge.

Similar types of knowledge networks are already in operation in other organisations including Greening Australia, Land and Water Australia and some other CRCs. They work on the assumption that knowledge-users often need information gained from a number of different research projects, not just one. In addition, the networks synthesise the information, analyse it and then reproduce it in a form and format that makes sense to the end-user.

Ultimately, the Fire Knowledge Network aims to act as a focal point for fire knowledge within Australia, New Zealand and globally, and facilitate sharing and exchange via facilities such as publications, seminars and workshops to collect and synthesise current fire knowledge. It will be

an independent, trusted source providing quality research based knowledge that has been peer reviewed and validated.

3 Approach to the project

The Project involved a number of stages. These are outlined below.

3.1 Presentation at a CRC workshop in January

Dr John Howard provided an overview of the Fire Knowledge Network project at an internal CRC workshop held in Sydney. The presentation discussed the concept of a knowledge exchange network together with the knowledge transfer processes and implications.

3.2 Review of other knowledge network concepts

The project identified other organisations that had implemented knowledge exchange networks.

Desk research led to several organisations which indicated they hosted knowledge networks including Greening Australia and the recently launched, *Exchange*, the Desert Knowledge CRC, Land and Water Australia's Knowledge for Regional NRM, Tropical Savanna CRC and the eWater CRC. In addition, the new AusDIN portal, designed to be a one-stop-shop for emergency management information was also examined.

It is important to point out that a web portal and database is only one aspect of a fully functioning knowledge exchange network. The eWater CRC for example has several people who they term, Knowledge Brokers, who are involved in tasks relating to translating theory to practice.

3.3 Preliminary report for Bushfire CRC

A preliminary report was prepared for the Bushfire CRC which canvassed the business case for a knowledge network and the concept of a knowledge broker insofar as it relates to the Bushfire CRC. This report included the framework for a Fire Knowledge Network based on knowledge transfer processes.

3.4 A framework for the Fire Knowledge Network

A framework for the Fire Knowledge Network was developed drawing on Howard Partners analysis contained in *The Emerging Business of Knowledge Transfer*[1], and *Knowledge Exchange Networks in the Australian Innovation System*[2], as well as the analysis from the review of other networks. The framework was presented to the Bushfire CRC and used as the basis of the discussion document which was sent to all stakeholders involved in the consultation process. The framework for the Fire Knowledge Network is represented in Figure 1on page 4.

As can be seen in this framework, the Fire Knowledge Network could address four quite distinct elements in the knowledge transfer process. These include:

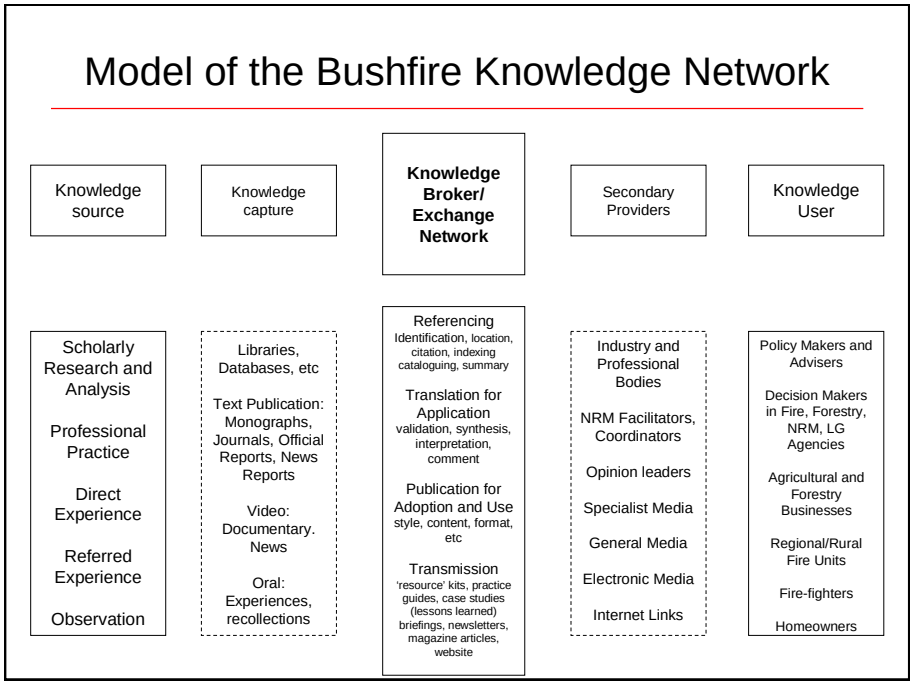
- *Knowledge sources* – including the outputs of scholarly research, documented professional practice, reports of direct experience and observation by third parties

[1] See *The Emerging Business of Knowledge Transfer,* A Report for the Department of Education, Science and Training, March 2005 – www.howardpartners.com.au

[2] See *Knowledge Exchange Networks in Australia's Innovation System: overview and strategic analysis,* a Report commissioned by the Department of Education, Science and Training, July 2005 – www.howardpartners.com.au

- *Knowledge users* – including policy makers and advisers, decision makers, businesses, fire units and fighters and home owners. A particular focus of the Fire Knowledge Network is people and organisations (including Rural Fire Units, Local Government and the various 'Care' groups) in rural areas affected by fires.
- *Mechanisms for knowledge capture and storage* – including libraries and databases, text and electronic publications as well as video and audio formats. Knowledge capture facilities and resources classify and codify knowledge in an endeavour to facilitate access and retrieval. The Internet provides a means for rapid access to some knowledge held in electronic format. The Bushfire CRC is particularly keen to maximize the value of existing partner resources such as libraries and partner websites.
- *Secondary Providers of knowledge to end-users* – including industry and professional bodies, specialized land management facilitators and coordinators, popular commentators (radio, television and print journalists and feature writers), specialist media, and electronic media – including the Internet.

Figure 1: Model of the Fire Knowledge Network



The above framework uses the Fire Knowledge Network to provide the link between the knowledge source and the knowledge user. It provides this link by performing a range of functions, as follows:

- **Referencing – linking information and research**

The Referencing function involves linking information about various aspects of fire and providing an important facility for some user categories and secondary providers.

- **Translation – creating meaningful information**

The Translation function involves taking raw information, validating and checking its accuracy, and integrating it in a way that provides sense and meaning in practical situations through summaries, interpretation and comment. This is effectively a *Current Information Service.*

- **Publication – books, handbooks, brochures, video**

The Publication function involves presentation of books, booklets, brochures and videos intended for a general audience. It can also be in the form of electronic posting on the Internet – perhaps on the Fire Knowledge Network Website with links from and to partner websites.

- **Transmission and Brokerage (outreach) – networking, linking and sharing knowledge**

The Transmission and Brokerage function involves a more specific focus on knowledge transfer to target users and secondary providers. It requires 'Knowledge Brokers' – people with a specific task to actively communicate knowledge to secondary providers and end-users. Transmission also has an objective of influencing and changing attitudes, practices and approaches to fire management.

Ultimately, this framework presents the Fire Knowledge Network as a mechanism to translate and transfer credible, reliable, evidence-based information and knowledge to end-users – whether they are fire agencies or farmers in need of factual information on which to base their decisions.

Section II:

Fieldwork

The next phase of the project was to undertake a stakeholder consultation process with members of the Bushfire CRC to ascertain their information and knowledge needs. The framework for the Fire Knowledge Network was canvassed together with other issues that impact the shape and scope of the Network. This Section of the Report discusses the feedback received from the stakeholder consultations.

1 Stakeholder consultations

One of the primary tasks of the consultation process was to seek the support of the senior management of the Bushfire CRC members. This involved a number of one-on-one, face-to-face meetings with the CRC members carried out over the period May to July 2006.

The consultation meetings with Bushfire CRC members also sought to gauge their level of enthusiasm for the Fire Knowledge Network, together with their willingness to become active members of the Network by contributing and sharing resources and research.

The consultations also aimed to understand *how* stakeholders prefer to communicate and in particular receive and exchange new knowledge and information.

1.1 Bushfire CRC CEO Briefing

A meeting between the Bushfire CRC and Howard Partners was held in May 2006 at the Australian Technology Park in Sydney to provide a briefing for the consultation stage of the Fire Knowledge Network project.

The Bushfire CRC CEO stressed that the consultation process must emphasise the desire of the Bushfire CRC to utilise the Fire Knowledge Network to maximise the value they gain from the collaboration and research efforts they put into the Bushfire CRC – against the background of all of the advanced and existing education activities in which they are currently engaged.

One of the major objectives of the Bushfire CRC is to have the outcomes of its research adopted by end-users. In this way, the Bushfire CRC sees the Fire Knowledge Network as a tool in helping to facilitate 'research to practice". In addition, the Fire Knowledge Network aims to serve other needs as well, including linking research that is being undertaken in different agencies, generating two way communications between researchers and end-users, and synthesising and translating research outcomes to facilitate access and adoption by people with an interest in fire.

The Consultations were aimed at -

- Raising awareness of the Fire Knowledge Network and discussing what it could do
- Raising the level of engagement about the future of fire research after this CRC's initial term ends in 2010
- Finding out where and how people currently access their information
- Finding out the type of information they need
- Finding out about the different agency libraries and the ALIES network.

1.2 Methodology and approach

A letter from the Bushfire CRC and accompanying background paper discussing the Fire Knowledge Network was sent to 17 organisations[3] which resulted in meetings with the senior management at most of the Bushfire CRC's key stakeholders.

Meetings were also arranged with other stakeholders including librarians involved in the ALIES network, information managers with fire agencies, training managers, AusDIN and Greening Australia. In all, more than 60 people were involved in the consultation process.

Consultations were undertaken through stakeholder interviews. A Discussion Paper (see Attachment 1) on the FKN was prepared by Howard Partners and Bushfire CRC and forwarded to all interviewees and meeting times arranged.

Meetings commenced at the end of May and were conducted by Anne Howard from Howard Partners and Kellie Watson from the Bushfire CRC, and later Lesley Crombie from the Fire Knowledge Network.

The meetings were generally conducted as 'conversations' and, depending upon the time available, followed along the lines of the questions outlined below.

- Brief discussion about the organisation including their stakeholders and target audiences.
- Brief discussion about the Bushfire CRC – what they hope to gain from it.
- How staff learn about research outcomes.
- Knowledge people need, not just from the Bushfire CRC.
- Key sources for this knowledge.
- How people access this information currently.
- How they use it.
- Are there any gaps?
- Are these gaps something that the Bushfire CRC can fill, even partially?
- How can the Bushfire CRC play a useful role in filling these gaps?
- How do you communicate the outcomes of fire research and transfer this knowledge (conducted internally) to your staff. What communication channels and tools do you currently use (to communicate new research outcomes) – what works?
- How do you communicate it to a wider audience?

Finally, priority issues that could be addressed by a Fire Knowledge Network were also addressed, as follows:

- How do you see a Fire Knowledge Network working for you?
- How would you access the Fire Knowledge Network in your organisation – for example, how would staff, fire fighters, volunteers, the community access the Network?
- What kind of information and learning could your organisation contribute to a Fire Knowledge Network?

The people and organisations consulted are listed in Attachment 2.

[3] These organisations were: Bureau of Meteorology; Country Fire Authority; Department of Conservation & Land Management; Department of Environment and Conservation NSW; Department of Sustainability and Environment; Emergency Services Bureau; Emergency Management Australia; Fire & Emergency Service Authority of WA; Metropolitan Fire and Emergency Services Board; National Rural Fire Authority; NSW Fire Brigades; NSW Rural Fire Service; Queensland Fire & Rescue Service; Department of Emergency Services; SA Country Fire Service; Tasmania Fire Service; Ensis Forest Biosecurity & Protection.

2 Summary of Findings

An Executive Summary of Stakeholder Feedback was prepared and provided to the Bushfire CRC Board at the end of July 2006. In that summary, the following needs, requirements and preferences for knowledge access were outlined.

2.1 Information and knowledge needs and requirements

The stakeholder consultations indicated that agencies have very similar information and knowledge needs, as follows:

- Fire agencies need access to the latest research to help them develop evidence-based policies and procedures in their operations;
- Access to current bibliographies;
- Many fire agencies indicated they would like access to a facility that assisted with filtering and prioritising knowledge;
- Stakeholders would like to have improved linkages between researchers and end-users;
- Stakeholders indicated that they need research outcomes translated into a form and format that would allow them to easily access, understand and integrate into their own decision making situations;
- A facility that 'pushes' credible, reliable information to them – ideally targeted to their own specific needs;
- In addition to 'pushing' information to end-users, stakeholders also wish to 'pull' or draw out information from a reliable source that fulfils their own needs;
- A register of research and directory of experts with contact details and areas of expertise;
- Communities of Practice – where people with similar interests can communicate and share knowledge;
- There is a strong desire for lessons learned to be recorded, validated and shared within the industry. Stakeholders are concerned that knowledge gained through practice is being lost or not being shared with the result that people are re-discovering what they already know;
- Many stakeholders believe that better knowledge exchange, combined with access to knowledge generated through research will help meet the information needs of volunteers;
- Stakeholders would like to be able to exchange knowledge with other agencies and organisations;
- Members of the community would like to access up-to-date, factual and credible information to help them manage their own situations – although the fire agencies generally prefer to communicate directly with their constituencies.

2.2 Preferences for knowledge access

Stakeholders also discussed the way in which they prefer to access new knowledge. Understanding how organisations access new information is vitally important as it will impact on the form and format of the information, in other words how it is presented, packaged, and exchanged.

The following areas were included:

2.2.1 Using technology (email, Internet, intranet, blogs, etc)

All stakeholders use technology extensively both to access new information and to communicate generally. Technology is enabling faster and more immediate access to information. Software programs are also being designed with the needs of fire fighters in mind which make them much more user friendly and capable of capturing important research data.

Electronic media is also immediate and global in its reach. In addition to the member agencies' own websites, there are a host of other websites, wikipedias, blogs and chat rooms that are operated by volunteer fire fighters and others with an interest in fire.

Stakeholders pointed out that 'informal' blogs that operate within the industry are a source of considerable information and knowledge exchange between the users. As with all media, individual online contributors develop a reputation for the quality of information they share.

While computer technology is vital in the industry and will grow in importance with time, it was also pointed out that some regional fire units have only gained access to computers during the past couple of years. Consequently, computer technology is still an emerging means of communication in many areas.

2.2.2 Through the library

Libraries are a highly valued source of new information and knowledge according to the stakeholders. Not every agency actually has a library, however. In the larger agencies, the librarians circulate regular library updates of new library accessions, usually with a short synopsis for quick perusal.

In 1991, the libraries from emergency services and public safety agencies formed a cooperative information network known as the Australasian Libraries in the Emergency Sector (ALIES). ALIES supports the information requirements of the fire and emergency sector by promoting and facilitating the sharing of knowledge and resources within Australia and New Zealand.

The ALIES network has been involved in the new AusDIN portal (Australian Disaster Information Network) being developed by the Attorney General's Department and which provides access to emergency management related information and services, including fire, from all levels of government. The AusDIN portal is a multi-agency initiative to establish a national knowledge and information network of people and systems to serve the emergency management community in the Australian region. The AusDIN portal aims to facilitate access to data, information and knowledge for all phases of emergency management.

The Fire Knowledge Network will link with AusDIN to provide access to the widest range of fire related information and knowledge.

2.2.3 Interpersonal communication

The majority of stakeholders stressed the 'oral' nature of the fire industry. Both formal and informal face-to-face communication was considered extremely important in accessing new knowledge. For example, stakeholders indicated that a great deal of knowledge exchange and learning at the operational level takes place around the mess table – through story telling. It was pointed out by a great many stakeholders that while fire fighters are not avid readers, they are 'great' story tellers. However, it was also pointed out that some of the stories can tend to become somewhat exaggerated.

Despite the potential for inaccuracies and exaggerated accounts of incidents, storytelling is a powerful and often preferred means of communication within the fire industry, particularly at the operational level.

The fire agencies also pointed out that the fire industry is quite hierarchical. As a result, official communication occurs along fairly formal lines.

Overall, stakeholders indicated that the majority of industry personnel prefer to talk to each other, as opposed to writing things down.

2.2.4 AFAC groups and committees

AFAC groups play an important role in knowledge transfer by providing opportunities for members to meet regularly, learn and exchange information.

2.2.5 Conferences, workshops, meetings, training

Meetings play a vitally important role in accessing new knowledge – not only through the information presented, but also through the face-to-face connections and trust based networks that are established.

The majority of stakeholders indicated that they would favour more opportunities to attend workshops and conferences which focused on particular issues. Importantly, they pointed out that they would value such meetings also for the opportunity to meet and get to know members of other agencies to discuss issues of importance to them.

2.2.6 Publications – internal magazines, journals, Fire Note

Fire agencies do not favour lengthy academic reports. Rather they prefer short, synthesised fact sheets that interpret the findings in an easy to understand format. Stakeholders also want to be able to refer to the actual science, if needed – for example *Fire Note*.

The agencies produce many publications from fact sheets, posters and brochures to magazines with specific audiences in mind. Many are translated into multiple languages for broad community appeal.

Internal hard copy magazines designed for fire fighters highlight acts of bravery and skill displayed by agency members. The magazines feature stories and accompanying photographs and are easy to read.

Stakeholders indicated that posters, fact sheets, and the magazines are all effective channels of communication.

2.2.7 Chance and serendipity

Many stakeholders indicated that chance and serendipity play a large role in the way in which they access new information. They also stressed their desire to have a more structured way of accessing factual, reliable information.

2.3 Stakeholders views about the Fire Knowledge Network and the framework

Prior to the consultations, stakeholders had been sent a copy of the Discussion Paper which outlined the aims and objectives of the Fire Knowledge Network together with a discussion of the framework for the Network.

The Paper also canvassed stakeholders' views about how they believed their organisation could utilise, and contribute to, a Fire Knowledge Network.

The overwhelming message from the stakeholder consultations was that there is an urgent need and strong support from the agencies for the Fire Knowledge Network.

Stakeholders indicated that they could benefit greatly from such a Network if it could provide solutions to their information and knowledge needs as identified in the consultations.

- **Scope of the Fire Knowledge Network**

Stakeholders had a range of views about the scope of the Fire Knowledge Network. The framework provides for the Fire Knowledge Network to service the fire industry, secondary providers such as the media, as well as the community. While some stakeholders saw the value in making the Network open to all of the community, others had concerns about the broad scope of the Network, especially in the start up stages.

In this regard, some stakeholders asked the question: "How big is big?" They were concerned that the size of the initial framework put forward in the Discussion Paper was too broad. They worried about issues such as management of such a diverse network.

Stakeholders pointed out that the Fire Knowledge Network needs to establish credibility and maintain a very high quality with its users or they fear that one small error could undermine the entire project.

In addition, they were concerned about the resources it would take to make it work. Agencies felt that it was important for the Fire Knowledge Network to commence in a small way and grow organically, building on each success.

This means that many stakeholders believed the Fire Knowledge Network should begin by building credibility and proving its worth with its own industry members first before launching to a wider community.

- **The Fire Knowledge Network to be more than a web portal**

The framework for the Fire Knowledge Network provides several functions which focus on providing different levels of services to end-users. Communication and education (i.e. creating mutual understanding) are key to a well performing knowledge network.

While information and communication technologies are crucial to facilitating fast and efficient access to information, the majority of stakeholders indicated that they wanted the Fire Knowledge Network to be a great deal more than just a web portal. For example, putting something up on the "net"' does not amount to communication: there can be no presumption that the information provided will be read, let alone acted upon. Feedback from the stakeholder consultations supported this view. While some users will seek out information from the Internet, the vast majority will not.

Communication channels relevant to knowledge exchange networks can be represented as a continuum ranging from *rich channels* which allow a communicator to focus the message in a personal manner to *lean channels* which lack the personalisation but are more economical and provide broader reach.

Rich channels (such as face-to-face meetings, phone calls, forums and workshops) allow the sender to respond to questions and feedback. They are highly effective in getting a message across, but expensive and limited in their reach. Conversely, lean channels have limited effectiveness, but are inexpensive to operate. Stakeholders indicated that they would like the Fire Knowledge Network to be *people focused* with an emphasis on the *richer channels* of communication.

- **Role of the Knowledge Broker**

The framework also places a heavy emphasis on the 'knowledge broker'. Since the rapid evolution of the Internet, we have seen the emergence of knowledge brokers and information intermediaries to interpret and recast information into a form that can be received and acted upon by users. Inevitably, knowledge exchange networks need these information brokers and intermediaries.

Stakeholders supported the concept of the framework as outlined in the Discussion paper. In particular, they were strongly supportive of the Knowledge Broker role.

- **The Fire Knowledge Network must keep the user in mind**

Stakeholders were keen to point out the importance of understanding their needs and perceptions and providing the information and knowledge in a way that makes sense to them.

There are many knowledge networks that have been developed from the creator and provider perspective on an assumption that once information is available, for example in a hard copy report, or on the Internet, it will be sought after, accessed and effectively received by potential users. Experience shows, however, that the *channel* and the *management* of communication are critical to its reception and understanding.

- **Content for the Fire Knowledge Network**

The Fire Knowledge Network, while a creation of the Bushfire CRC, always intended to draw in fire research from across Australia, New Zealand and globally – as well as the research from the Bushfire CRC. Stakeholders wanted the Fire Knowledge Network to reach out and become a trusted source for all fire knowledge.

Stakeholders however all believed that the Bushfire CRC research would provide an ideal base of knowledge for the Fire Knowledge Network. They were *all* keen to see the results of the research from the Bushfire CRC. Also, the Bushfire CRC owns the intellectual property rights and it would be easy to transfer this knowledge into the Fire Knowledge Network.

Of course it must be remembered that the stakeholders were members of the Bushfire CRC and had a direct interest in the outcomes from the CRC. Many stakeholders indicated that the Fire Knowledge Network could potentially assist the CRC in communicating with them.

- **Agencies wanted the Fire Knowledge Network to be a centre where they could all participate equally (ie share the outcomes of their own research programs)**

Many agencies undertake their own fire research programs for which they hold the intellectual property rights. In addition, there is a great deal of other information which agencies hold such as documented lessons learned from incidents, planning for unit exercises, as well as community programs. Agencies indicated that they are willing to provide the research and its outcomes to the Fire Knowledge Network; however, they also wanted to be assured that ALL member agencies were contributing equally.

Again, this pointed to the Network being relatively 'closed' to its members in the first instance. Work was needed to be done to create trust within the Network and a sense of sharing between members. It was suggested that if the Network were available to everyone immediately, it would not provide the time to build the foundations for a strong, trust based approach.

- **Many agencies believed that it was their responsibility to communicate and educate the community – and not the responsibility of the Bushfire CRC or the Fire Knowledge Network**

Throughout the stakeholder consultations, some agencies were concerned about the scope and size of the Fire Knowledge Network. Community engagement was a sensitive issue with some agencies.

Stakeholders indicated that they had responsibility for communicating with the community – which included their volunteers – and that it was not something either the Bushfire CRC or the Fire Knowledge Network should get involved in. It would appear that there were several reasons, such as:

- Not all communities across Australia and New Zealand experience the same environment, challenges, issues or understanding
- It is possible that what might be right for one state is not right for another
- Most agencies preferred to maintain their 'position' and credibility with their communities, rather than handing it over to a Fire Knowledge Network
- Importantly, the agencies believed they had a 'relationship' with their own communities that is important and needs to be preserved and further developed.

It was pointed out that the agencies have websites, hotlines and contact people who are there to work within their own communities. They have developed relationships with the community, and have a 'standing' that they wish to preserve.

The point was also made strongly however that because the agencies have the community engagement responsibility, it was absolutely essential and urgent that they be made aware of and be able to gain access to the latest fire research to help them with their own operations and in the messages they in turn communicate to their communities. They saw this function as being one of the strongest assets of a Fire Knowledge Network.

In this regard, the Fire Knowledge Network could play a vitally important role in providing them with credible fire research that has been *translated* into a form and format the agencies can easily understand, analyse, integrate and adopt.

- **Some agencies see the Fire Knowledge Network as providing an opportunity to communicate more broadly with volunteers and the community**

A small number of stakeholders did see merit in having the Fire Knowledge Network available for members of the community as a place they can go to for credible, reliable and validated fire research.

In addition, agencies could see the value of the Fire Knowledge Network for their volunteers, particularly in helping those volunteers who would like to better understand the latest research.

- **Differences between urban and rural fire units**

Stakeholders pointed out that the Fire Knowledge Network needs to be relevant to *both* urban and rural fire units to build up and maintain its credibility. While they all attend to fire, there are a great many differences in their information and knowledge needs.

Fire fighters today particularly in the urban areas for example are dealing with issues such as environmental protection, storm and tempest, hazardous materials, rescue, emergency medical response and much more. In turn, fire fighters in rural areas have a growing range of issues they also need to better understand.

Additionally, the interface or 'izone' is presenting its own range of issues for fire managers and fire fighters to deal with. Attention must be given to *all* areas. Users need to believe that the Fire Knowledge Network is catering to *their* information and knowledge needs.

- **Agencies were concerned about the ongoing costs of the Fire Knowledge Network and want to see a return on any investment in the Fire Knowledge Network.**

Stakeholders were particularly concerned about the ongoing costs of the Network. Stakeholders were aware of the seed funding provided by the Australian government and indicated they would not be willing to provide additional financial input into the Network at this stage. Rather they would want to see the value in the Network first before they commit to any funding.

The message from this feedback is that the Fire Knowledge Network needs to ensure that it has a clearly defined business case and value proposition to put to the agencies.

3 Analysis of Stakeholder Consultations

Consultations identified that Bushfire CRC stakeholders have very similar information and knowledge needs. They also pointed to most of them sharing very similar issues with regard to communication.

While there is an enormous amount of information available on fire related issues, there is no single trusted source where people can go to find the information they need, or be directed to that information. The agency libraries provide a much needed and highly valued service to their members and through the ALIES network provide the closest point to being able to access new knowledge. The new AusDIN web portal site is also attempting to assist in this regard.

The Fire Knowledge Network has an opportunity to be different to anything currently available. The stakeholder consultations drew attention to the urgent need in the fire industry for evidence-based knowledge, and *importantly* having that information and knowledge *translated* into a form and format people can understand. Translation and fostering two-way communication between researcher and end-user is rare.

Table 1 summarises the stakeholder information needs, the underlying implications and communication implications that need to be considered by the Fire Knowledge Network. It then puts forward some possible communication strategies for consideration.

Table 1: Possible Fire Knowledge Network communication strategies

Stakeholder Information Needs/Wants	Underlying Implications	Communication implications	Possible communication strategies	Fire Knowledge Network (FKN)
Agencies want access to research to underpin the development of evidence-based policies, procedures and operations	Society expects a greater level of accountability from agencies; greater level of potential litigation; Agencies need science to guide policies, procedures, operations and training Implication is that agencies have difficulty accessing the research they need to support development of evidence-based policy	There are many different target audiences within each agency: chief executive level, senior management, operations, safety, etc. Individual fire units with professional fire fighters and volunteers – all have different information and knowledge needs and ways of communicating which will impact on the message, channel and mode of communication chosen	Internet technologies – website, email; briefing papers Articles placed in relevant publications Articles written in particular style – often with pictures Workshops and seminars Knowledge broker/ manager to 'bridge the gap' between end-user and research	FKN needs to be able to ensure that it provides access to credible fire research Just making it available will not guarantee it is received by end-users There are functions that the FKN could provide to ensure knowledge is accessed, and importantly, transferred in a way that makes sense to the user
Fire science that has been translated into a form that can have immediate use at operational level	Currently, agencies find it difficult to understand the science as it is presented Problems with language, volume, style, format – it is produced from a researcher perspective, not an end-user perspective	At an operational level, the 'science' needs to be able to be easily understood and acted upon. There are different levels within the agencies that need the new information – different end-users Information needs to be communicated with the	Communication audit to ascertain 'how' different audiences like to receive new information It needs to be made available in different formats – from synthesised reports through to short one-page fact sheets – depending upon how	FKN could work with end-user and researcher to translate outcomes so they can be easily understood and utilised

Stakeholder Information Needs/Wants	Underlying Implications	Communication implications	Possible communication strategies	Fire Knowledge Network (FKN)
	Consequently, it is not being picked up as it should be at the agency level	target audience firmly in mind	the end-user likes to receive the message	
A one-stop-shop for credible, accurate, independent, reliable, trustworthy and timely information/ knowledge about fire – both in Australia and overseas	Currently agencies indicated that there is no single reliable place where people go to solve their knowledge needs Recurrent problem of how to access timely, research-based, relevant information/science Agencies want to be able to trust the information. They want research that is evidence-based, not anecdotal Agencies want to quickly understand the state of knowledge that currently exists in a particular area Sometimes research has been carried out by an agency in the industry, however no knows it exists One of the implications is that there are a number of databases out there and the FKN needs to be able to differentiate – not duplicate	Libraries and databases of scholarly research and analysis accessed directly by the Fire Knowledge Network – would contain a referencing function (this involves: identification, location, indexing, cataloguing, and summary) Would provide for 'information pull' from people who seek out information Would ideally run workshops around topical areas of interest	Communication and marketing strategies would be important to create awareness of the FKN The FKN would also need to be positioned in the eyes of users Workshops and conferences would increase awareness and positioning of the FKN in eyes of users	Internet technologies that provide access to databases. Key words to direct to relevant topics A librarian/ research function that provides a current information service A research function provided by a FKN researcher/knowledge manager who can synthesise the state of knowledge
Register of key people in Australia, NZ and internationally on particular topics	People don't know what they don't know. People don't know where to turn, or who to turn to for the 'state of play' of the knowledge	A database of experts/ researchers – along with contact details, bio and other relevant information	Focus on strategies to put people in touch with experts Public relations strategies	Data base accessible through Internet /FKN Stimulate communities of practice through providing knowledge maps – maps of key people, contacts etc

Stakeholder Information Needs/Wants	Underlying Implications	Communication implications	Possible communication strategies	Fire Knowledge Network (FKN)
Case studies of incidents to capture Lessons Learned – including inquiries	There are many incidents (both major and minor) that could help future operational procedures – inquiries, coronial inquests, as well as debriefs Need to uncover the reasons and ask 'why?' Often they can lead to root causes, of which some could be systemic Need to ensure accuracy, and that the experience is combined with the science	An expert case study writer to work with those who have 'lessons' to share and produce a 'story' Case studies need to be placed in an analytical framework Produce guidelines to help end-users – this needs to be controlled by AFAC and agreed (Eg as in smoke alarm position)	Lessons learned are a 'big' topic in the fire industry Would be popular subjects of workshops Could be made into a 'story' and published in agency publications, or produced into video	The FKN would maintain the Lessons Learned Could be made available through FKN website / technology Published in accessible publications In certain cases – perhaps a video/DVD or audio production Workshops to study in depth scenario - training
Need to capture corporate knowledge that exists in agencies – often it is 'tacit' knowledge and not easily written down	Agencies currently feel they are reinventing what they already know – over and over again When years pass between incidents, corporate knowledge is often lost The planning for Exercises provide important time saving information based on past experience	Tacit knowledge exists in people's heads – it is their 'know how' and is very 'context' dependent and usually multi-faceted. It is not easily written down. Having an expert case writer who can turn out a short story can help to capture important lessons. The case writer is also 'independent' from the incident 'Apprenticeship' style systems within agencies allows for both tacit and explicit knowledge to be transferred – the understudy gets to know what and who to know'	People involved in an incident provide personal briefings more widely Interviews recorded on audio tape – or a short video with maps and other data plus the story being told could be captured Informal networks are important for transferring knowledge and may be encouraged – with BBQs, etc. for sharing knowledge Internal magazines could contain context specific stories to capture knowledge and translate and transfer to users	FKN would maintain good referencing of corporate information – such as brochures that each agency publishes; research reports; debriefs that have been written up; reports of exercises, etc

Stakeholder Information Needs/Wants	Underlying Implications	Communication implications	Possible communication strategies	Fire Knowledge Network (FKN)
Currently, there is 'too much' information; need a priority system that sorts, categorises and communicates information to target end-users which would save time and ensure it is received	The subject areas that are of concern to Fire Agencies are expanding into areas such as environmental protection, hazards materials, rescue, emergency medical response, storm and tempest, OH&S, and many more Also, not everyone in the Fire Agency is focused on the same issue – people specialise, and yet it is difficult to access specific, relevant information	A system that would profile end-users and inform them when new information became available in their special interest areas The system would be 'information push' in design The system could also become 'information pull' if end-users interacted and asked questions of the FKN / researchers	Alert Emails sent to end-user to create awareness of new information Could be a subscription service – demand driven Again, through communities of practice, 'conversations' could develop between those end-users who need the same information Workshops and seminars might develop if needed – between research and end-users	FKN should look at setting up a system that can tailor messages to subscribers The FKN should also encourage greater communication between people with similar interests – with the result that practice could feed back into research
Guidance on how to deliver sessions – Dummy's guide to fire fighting	Some agencies need help in designing their education and training packages. They want the science – but are unsure how to interpret and put into easy to understand practice	People learn in different ways. Most in the fire industry prefer to learn through face-to-face communication, story telling, pictures and short fact sheets	A knowledge broker/ manager who works with agencies to help diffuse and communicate the new information to specific end-users	FKN would need to put in place an experienced and qualified knowledge broker who has excellent communication skills to work with agencies
Agencies would like access to the latest and most accurate information	Usually do not have time to research issues – will 'tell it as they see it'	Information is instant – through Internet technologies, television, radio and publications Time is scarce resource	Spokesperson – either from an agency or the FKN (for science background, etc)	A FKN that is easily navigated with access to short, synthesised and credible information

4 Recommendations

4.1 The components of the Fire Knowledge Network

Stakeholders need a range of services to fully enable knowledge to flow effectively – particularly from the science to the end-user.

These services are specific to the Fire Knowledge Network and rely on a combination of technology and human resources. In this case, the technology provides an enabling function and is not the driver of the Network.

The Fire Knowledge Network will require significant resource commitment, particularly in human capital. The Australian government's financial commitment is an important contribution in this regard.

The real value of the Network lies in its people – the information professionals, researchers, communication professionals and knowledge brokers who drive the Network and deliver the value to members.

> ***Based on the findings of the stakeholder consultations, we recommend the services (as described in Table 2) be provided by the Fire Knowledge Network. The services identified represent increasing levels of interaction between people working in the network – and correspondingly, increasing levels of resource intensity***

As indicated, the cost of the Network increases at each service level. At each subsequent level additional resource commitments, and management commitment, is required. Resource requirements would also be contingent on whether the service is to be available to the fire industry or to the broader community.

Table 2: Fire Knowledge Network Services

Service Level	Service to be provided	Description of service	Resources required
1	Identify Capture Store Accessible	This service involves identification of information and knowledge located both within Australia and New Zealand and also globally. It then involves capturing that information, storing it and ensuring that it is accessible and searchable as required	An information professional to coordinate the resources for the Network.
2	Current Information Service	Profiles members; provide current information alerts; provides both proactive and reactive research function; provides summaries of available information	Performed by information professional
3	Translational Research service	This service involves taking knowledge created through research and integrating it with other aspects of knowledge and providing it in a form and format that can be used by practitioners. The service provides sense and meaning in practical situations through summaries, interpretation and comment The service would also take situations and events and present them as "case studies", or "lessons learned" using appropriate case study techniques	A science graduate with communication skills and knowledge of fire research and the practice of fire management
4	Publication	Involves presentation of books, booklets, brochures, articles, media releases, fact sheets, audio-visual production Publication can give wider dissemination to the outcomes of translational research services. Publications need to be developed to meet the specific requirements of target users	A communication professional with editorial, writing, presentation, and organisation skills
5	Knowledge Broker	This is the 'richest" (and most resource intensive) form of communication. A Knowledge Broker must be capable of understanding both the science and the end-user's needs. It provides a consultancy service for end-users needing to explore evidence-based research, or have research outcomes translated, integrated and communicated throughout their agency Knowledge brokerage facilitates knowledge sharing through workshops, face-to-face meetings, creating two-way understanding	Post graduate qualifications with excellent communication skills Experience in education, training, and extension. Human resource management and change management skills may be appropriate.

4.2 Staged approach to service delivery

Howard Partners recommends that the Fire Knowledge Network adopts a staged approach to implementation. The Network needs to *walk before it can run.*

It is recommended that in the first instance the Fire Knowledge Network build up its capability and capacity by adopting the following services:

- ***Identifying, Capturing, Storing Information***
- ***Current Information Service***
- ***Translational Research***

In addition, the Fire Knowledge Network needs to reach out to its users and facilitate opportunities to bring members together to exchange knowledge. In the fire industry, this will involve facilitating workshops, face-to-face meetings and creating two-way understanding.

All of these activities will build confidence in the Fire Knowledge Network.

4.3 Marketing and communication

The Fire Knowledge Network needs to develop a marketing and communication strategy that clearly targets its users – both providers of knowledge and end-users of that knowledge.

It will be important for the Network to be positioned in the minds of its users as the focal point for highly credible, reliable, quality peer reviewed knowledge that has also been (or is able to be) translated into a form and format that is useful to end-users.

4.4 Engagement

The Fire Knowledge Network needs to engage with its members by involving them extensively in the growth of the Network, constantly monitoring and evaluating the work of the Network to ensure it is meeting members' needs and that they are satisfied.

4.5 Target audiences

The Fire Knowledge Network needs to consider its primary target audiences and establish how it manages a potentially large and diverse range of stakeholders.

It is recommended that, in the first instance, the Fire Knowledge Network focus on the members of the Bushfire CRC, before opening the Network up to a broader audience. In this way, the Network can get to know the information and knowledge needs of members, and also work to facilitate knowledge sharing in the industry.

The Fire Knowledge Network will also need to prove its value to members – who will ultimately be the primary sources and users of the Network.

To do this it is recommended that the Fire Knowledge Network:

- ***Set achievable objectives***
- ***Be manageable***
- ***Deliver quality and value***
- ***Build its reputation and future based on its performance***
- ***Grow organically.***

5 Conclusion

The overwhelming finding from the stakeholder consultations was that the Fire Knowledge Network has a very important and valuable function to perform in the fire industry. The fire industry in Australia and New Zealand is a large, diverse sector that is spread widely. Industry participants currently find it difficult to access information and knowledge and to be across all the different aspects that are important to them.

It is therefore timely to put in place a knowledge exchange network that can better service the information and knowledge needs of this diverse industry and importantly, generate discussion and sharing of knowledge and ideas.

As was pointed out in the Report, there is an enormous amount of information available on fire related issues spread across the industry; however, there is no single trusted source where people can go to find the information they need, or be directed to that information and have that information *translated* and *communicated* in a form and format that they can understand.

While the agency libraries provide a highly valuable service to their members which was acknowledged by all agencies with libraries, there is a need in the industry for a high level translation and communication function.

In this regard, the Fire Knowledge Network has an opportunity to be different to anything currently available. The fire industry is an industry comprising people who have indicated they want to communicate – with each other. The distinctive competitive advantage of the Fire Knowledge Network will be its people.

Attachment 1: *The Fire Knowledge Network* Discussion Paper

This document was circulated as a discussion document for the consultations undertaken for the project.

Purpose

The Bushfire CRC's new Fire Knowledge Network is potentially one of the most important innovations in the fire industry in the last 20 years. The Network aims to assist everyone who has an interest in or responsibility for improved fire management and community self reliance, as well as making the most of both the latest research and the lessons of the past.

The network will bridge the gap between researchers who have the latest research and technology and those people 'on the ground' who need to know and understand how to use it. It will work towards linking 'research to practice' through information exchange, workshops, forums, websites, publications and online databases.

The effectiveness and impact of the network will depend heavily on the level of value that is created for end-users. To ensure this, the Bushfire CRC is currently consulting with stakeholders to address the following questions and to ensure the network meets the needs of the fire management community –

- What are the key drivers in improving the performance of your organisation?
- What knowledge do your people need?
- What are the key sources of information for your organisation?
- How does your organisation use this information?
- How can the Bushfire CRC help your organisation with useful information?
- What kinds of information resources and products could be used by your organisation?

Background

The Fire Knowledge Network will allow for more effective utilisation of new and existing knowledge related fire management and the interaction with the community. In addition to transferring information, it is envisaged that ***the network*** will also have the capacity to synthesize information and produce issues-based summaries and compendia that will be useful to users.

The Bushfire CRC is current developing its technology transfer program as part of the CRC's Education Program – this program will help transfer the research outputs from the CRC's research program into outcomes for fire and land management agencies and the communities they serve. The Fire Knowledge Network will be instrumental to this process, but it will also bring together broader fire research and knowledge, in Australia, New Zealand and globally.

In effect, ***the Fire Knowledge Network*** will build on the experience of the successful networks hosted by organisations such as Greening Australia and Land and Water Australia. Successful Knowledge Networks work because they are inclusive of all participants and they provide those participants with relevant, accurate and reliable knowledge that is useful in meeting their specific needs.

Information and Knowledge Needs of Target End-users and Secondary Providers

One of the most effective ways to transfer knowledge between providers and users is to use a Knowledge Broker. Some organisations that host Knowledge Networks, including some CRCs, employ Knowledge Brokers. These people have the task of translating knowledge into application and diffusing knowledge to end-users – either directly, or indirectly through what might be termed secondary providers (opinion leaders, media, and direct briefings).

Secondary providers are critical elements in a knowledge transfer process as different end-user categories receive their knowledge from a range of different 'trusted sources'. These trusted sources, or secondary providers, present knowledge to end-users in a way that attracts their attention and in a form and format end-users can 'receive' and understand. These people are also often referred to as 'opinion leaders' and 'influencers'.

Secondary providers must be fully informed and kept abreast of current knowledge, information and best practice. They also need to be able to easily fill gaps in their knowledge from a credible, accurate and reliable source.

Working within a Knowledge Network, Knowledge Brokers are able to locate and validate relevant and applicable knowledge in a timely and efficient manner, removing the possibility of misunderstanding and misinformation that could lead to inappropriate or incorrect advice, prescription and actions.

The value-added aspects of a knowledge broker function is based on ensuring that secondary providers and end-users have available relevant, accurate and reliable knowledge *that is useful* in meeting their specific needs.

With the resources that have been made available for the development of a Fire Knowledge Network there is an opportunity to develop a Network that adds considerable value through a Referencing function combined with Translation, Presentation and Transmission responsibilities These will be discussed more in face to face briefings.

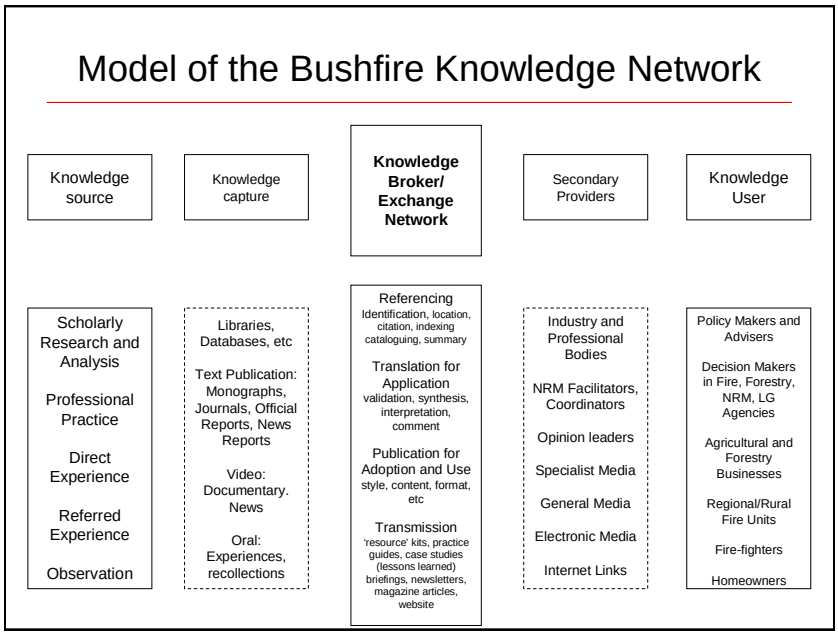
The BCRC Fire Knowledge Network

The effectiveness and impact of a Fire Knowledge Network will be largely contingent on the level of value that is created for end-users.

The present development plan envisages that the Fire Knowledge Network will address four quite distinct elements in the knowledge transfer process. These are outlined below:

- *Knowledge sources*, including the outputs of scholarly research, documented professional practice, reports of direct experience and observation by third parties.
- *Knowledge users*, including policy makers and advisers, decision makers, businesses, fire units and fighters and home owners. A particular focus of the Fire Knowledge Network is people and organisations (including Rural Fire Units, Local Government and the various 'Care' groups) in rural areas affected by fires.
- Mechanisms for *knowledge capture and storage,* including libraries and databases, text and electronic publications as well as video and audio formats. Knowledge capture facilities and resources classify and codify knowledge in an endeavour to facilitate access and retrieval. The Internet provides a *means* for rapid access to *some* knowledge held in electronic format. The Bushfire CRC is particularly keen to maximise the value of existing partner resources such as libraries and partner websites.
- *Secondary Providers of knowledge,* to end-users, including industry and professional bodies, specialised land management facilitators and coordinators, popular commentators (radio, television and print journalists and feature writers), specialist media, and electronic media - including the Internet.

The functions are listed in the following Model of the Bushfire Knowledge Network.



As can be seen in the above Model of the Bushfire Knowledge Network, the Network and particularly the role of Knowledge Broker, performs a range of functions. These functions are listed in an increasing scale of 'value added' and organisational investment as follows:

Referencing *– Linking information and research*

- involves linking information about various aspects of fire (involving citation, indexing, cataloguing and summary). It would cross reference to libraries among Cooperative Research Centres members and provide an important facility for some user categories and secondary providers.

Translation *– creating meaningful information*

- involves taking raw information, validating and checking its accuracy, and integrating it in a way that provides sense and meaning in practical situations through summaries, interpretation and comment. This is effectively a *Current Information Service.*

Publication *– books, handbooks, brochures, video*

- involves presentation of books, booklets, brochures and videos intended for a general audience. It can also be in the form of electronic posting on the Internet – perhaps on the Fire Knowledge Network Website with links from and to partner websites.

Transmission and Brokerage (outreach) *– Networking, linking and sharing knowledge*

- involves a more specific focus on knowledge transfer to target users and secondary providers. It requires 'Knowledge Brokers' – people with a specific task to actively communicate knowledge to secondary providers and end-users. Transmission also has an objective of influencing and changing attitudes, practices and approaches to fire management.

The Bushfire CRC would like to develop a Network that adds considerable value through a Referencing function combined with Translation, Presentation and Transmission responsibilities.

It is envisaged that the Fire Knowledge Network will also involve Knowledge Brokers, hopefully from within partner agencies. The Fire Knowledge Brokers would establish close links with the Fire Service Association and Agencies, the NRM Facilitator and Coordinator Network and

rural/regional and locally based organisations that are close to target end-users. They would also communicate with other opinion leaders such as the media, as well as seek out opportunities to make presentations at fire and natural resource management meetings, corporate briefings, conferences and seminars.

The Knowledge Brokers would also work closely with others who have specific roles in the Knowledge Network Unit to oversee the preparation of handbooks, manuals and other 'lessons learned' materials that could be useful in meeting the specific needs of users.

Where to from here?

Building up the capacity and capability in a Fire Knowledge Network will take time. However, as a vital first step, the Bushfire CRC is keen to fully understand the information and knowledge needs of target users and secondary providers.

The Bushfire CRC is currently recruiting a Project Manager and Referencing Officer to implement the first stages of the project.

To take the project to the next level, the Bushfire CRC would value your comments on the following questions and will seek to have dialogue with partners through face to face meetings.

Issues for Discussion

- How is new knowledge currently accessed in your organisation?
- What are the priority issues that could be addressed through a fire knowledge network?
- How would your organisation utilise the fire knowledge network in your organisation?
- Which knowledge exchange tools would work in your organisation and why? (websites, handbooks, fact sheets, forums, workshops)?
- What kind of information and learning could your organisation contribute to a fire knowledge network?

Attachment 2: People and organisations consulted

	Person	Organisation
1	Bill Hewitt	Fire & Emergency Services Authority of Western Australia (FESA)
2	Ralph Smith	Manager, Bush Fire & Environmental Protection, FESA
3	Barry Hamilton	Executive Director, Community Safety, FESA
4	Craig Hynes	FESA
5	Rick Sneeuwjagt	Manager, Fire Management Services, Department of Conservation and Land Management (CALM)
6	Neil Burrows	Director, Science Division, CALM
7	Ian Abbott	Leader, Science Applications Program, Science Division, CALM
8	Denam Bennetts	Planning Officer, Parks & Visitor Services, CALM
9	Robyn Owens	University of Western Australia and BCRC Board member
10	Peter Dunn	Commissioner, ACT Emergency Services Authority
11	Michael Ross	Chief Officer, ACT Rural Fire Service
12	David Prince	Chief Officer, ACT Fire Brigade
13	Trevor Clement	Acting Director General, Emergency Management Australia
14	David Imhoff	Manager, Emergency Management Policy, EMA
15	Kimberlie	Greening Australia
16	John Gledhill	Chief Officer, Tasmania Fire Service
17	Tony Davidson	Regional Chief South/Brigade Chief Hobart, Tasmanian Fire Service
18	Davien Killalea	Director, Community Fire Safety, Tasmania Fire Service
19	Ken Burns	District Officer, Tasmania Fire Service
20	Enola Johnson	Librarian, Tasmania Fire Service
21	Barbara Hunter	Senior Research Officer, Corporate Planning & Research, Metropolitan Fire & Emergency Services Board (MFB)
22	Lyndsey Wright	Corporate Planner, Corporate Strategy, MFB
23	Neil Bibby	Chief Executive Officer, CFA
24	Naomi Brown	Director Community Safety, CFA
25	Ewan Waller	Chief Officer, Fire & Emergency Management, Department of Sustainability and Environment (DSE)
26	Alan Goodwin	Assistant Chief Officer, Operational Support, Fire & Emergency Management (DSE)
27	Liam Fogarty	Assistant Chief Officer Strategy and Partnerships, Fire & Emergency Management, DSE
28	Andrew Matthews	Fire Information and Systems Group, Fire & Emergency Management, DSE
29	Euan Ferguson	Chief Officer, SA Country Fire Service (SACFS)
30	Leigh Miller	Community Education, SA CFS
31	Mick Ayre	Manager, Risk Management Services, SA Fire & Emergency Services Commission
32	Brenton Ragless	Media Liaison Officer, CFS Headquarters, SA CFS
33	John Anderson	Deputy Commissioner, NSW Fire Brigades (NSWFB)
34	Mark Brown	Superintendent, NSWFB
35	Greg Buckley	Superintendent, NSWFB
36	Christine Owen	Bushfire CRC

	Person	Organisation
37	Geoff Love	Director of Meteorology, Bureau of Meteorology
38	Gary Foley	Deputy Director (Services & Systems) Bureau of Meteorology
39	Fiona McKersie	Director-General, Department of Emergency Services, Queensland
40	Richard Williams	Strategic Policy and Executive Services, Department of Emergency Services, Queensland
41	Lee Johnson	Commissioner, Queensland Fire & Rescue Service
42	Russell Neuendorf	Director, Organisational Performance, Department of Emergency Services
43	Reg Christiansen	Assistant Commissioner, Department of Emergency Services, Queensland
44	Mark Carpenter	Assistant Secretary, Information Services, Attorney-General's Department
45	Anne Pickles	Information Co-ordinator, NSW FB
46	Phil Koperberg	Commissioner, NSWRFS
47	Keith Mackay	Operations Planning Officer, NSW RFS
48	Mal Constedt	NSW RFS
49	Rob Rogers	NSW RFS
50	Angelo Baldo	NSW RFS
51	John Hojel	NSW RFS
52	Phil Robeson	NSW RFS
53	Mark Sullivan	NSW RFS
54	Trevor Anderson	NSW RFS
55	Jim Gould	CSIRO (NSW RFS)
56	Michael Wright	Director, Reserve & Wildlife Conservation Branch, Parks & Wildlife Division, Department of Environment & Conservation
57	Brian Richardson	General Manager, Forest Biosecurity and Protection, Ensis
58	Ray Tai	Project Officer, Knowledge Management, Department of Emergency Services, Queensland
59	Julie Sorensen	Library Manager, NSWFB
60	Barbara Glass and Kristine	Librarian, NSW RFS
61	Sandra Lunardi	AFAC
62	Plus several others on an informal basis while at Wollongong.	