Climate Systems

National Environmental Science Program

Developing a shared understanding of knowledge brokering

What is knowledge brokering? Knowledge brokers facilitate interaction and engagement among researchers and users to enhance knowledge exchange, enable the use of scientific knowledge in decision-making processes and strengthen research impact (Cvitanovic et al 2025).

In the context of academic research, knowledge brokering is broadly described as "the full suite of activities required to link decision-makers with researchers, facilitating their interaction so that they are better able to understand each other's goals and professional cultures, influence each other's work, forge new partnerships and promote evidence-based decision-making" (Lomas, 2007).

With the value of knowledge brokering gaining recognition, we explore the gaps in understanding of the diverse practices knowledge brokers engage in, and how important their day-to-day activities are.

Climate science knowledge brokering in practice

Government decision-makers facing climate impacts and adaptation decisions are demanding consistent, trusted, credible, and actionable climate information. Research findings are often presented as a range of different possible futures or scenarios, and climate model outputs, so the information needs to be interpreted and tailored for specific uses and applications.

Knowledge brokers help to bridge this gap between decision makers and climate science by facilitating a knowledge exchange process. They provide a direct feedback loop between climate researchers and decision-makers to ensure the science is shaped by real world needs and is fit-for-purpose.

The National Environmental Science Program (NESP) is a long-term investment by the Australian Government in Australia's environmental research that enables evidence-based policy and better management decisions for the future.

Researchers partner with a range of stakeholders including First Nations people, state, territory and local governments, community and industry. Together they design projects for environmental and climate research to meet decision-making and on-ground information needs and knowledge gaps.

This is the output of a NESP Climate Systems Hub workshop in October 2024. Over 50 participants attended, from a range of organisations including the Australian Climate Service (ACS), CSIRO, the Bureau of Meteorology (BoM), the ARC Centre of Excellence for the Weather of the 21st Century, the ARC Centre of Excellence for Climate Extremes, and other NESP Hubs.

Workshop participants ranged from researchers, knowledge brokers, research and project managers, policy officers, data and service providers and tool developers. Knowledge broker expert Dr Christopher Cvitanovic, of University of New South Wales, shared his experience and understanding of knowledge brokering as a profession to guide discussion.

Supporting decision making

Knowledge brokers play a critical part in enabling those partnerships, facilitating initial engagement then building stronger, trusted relationships, forming a bridge between researchers and decision-makers. The NESP program formally recognises knowledge brokers as essential for research impact by contractually requiring the allocation of funding to knowledge broker roles.

To deepen the impact of knowledge brokers, the NESP Climate Systems Hub has also partnered with state and territory governments to embed knowledge broker roles within state government departments across the country, supporting an interjurisdictional team of knowledge brokers. As state and territory government decision-makers are often responsible for policy and on-ground action, access to these cross- jurisdictional networks creates key opportunities to establish two-way collaboration and ensure the hub's science is relevant.

This is particularly important in climate science >

What do knowledge brokers do?

Knowledge brokers undertake a range of activities (outlined in Figure 1). Their focus is on building the capacity of decision-makers to use research and information, and aligning research with the information needs of those decision-makers. Knowledge brokering activities can overlap with activities undertaken by science communicators, user experience professionals, data and service providers and research managers.

What distinguishes knowledge brokers is their overarching goal. They seek not only to communicate the information, make it useable and accessible, or align research outputs to meet user needs, they also seek to facilitate the process of sharing and embedding knowledge, and supporting the application and use of that knowledge, in decision-making.

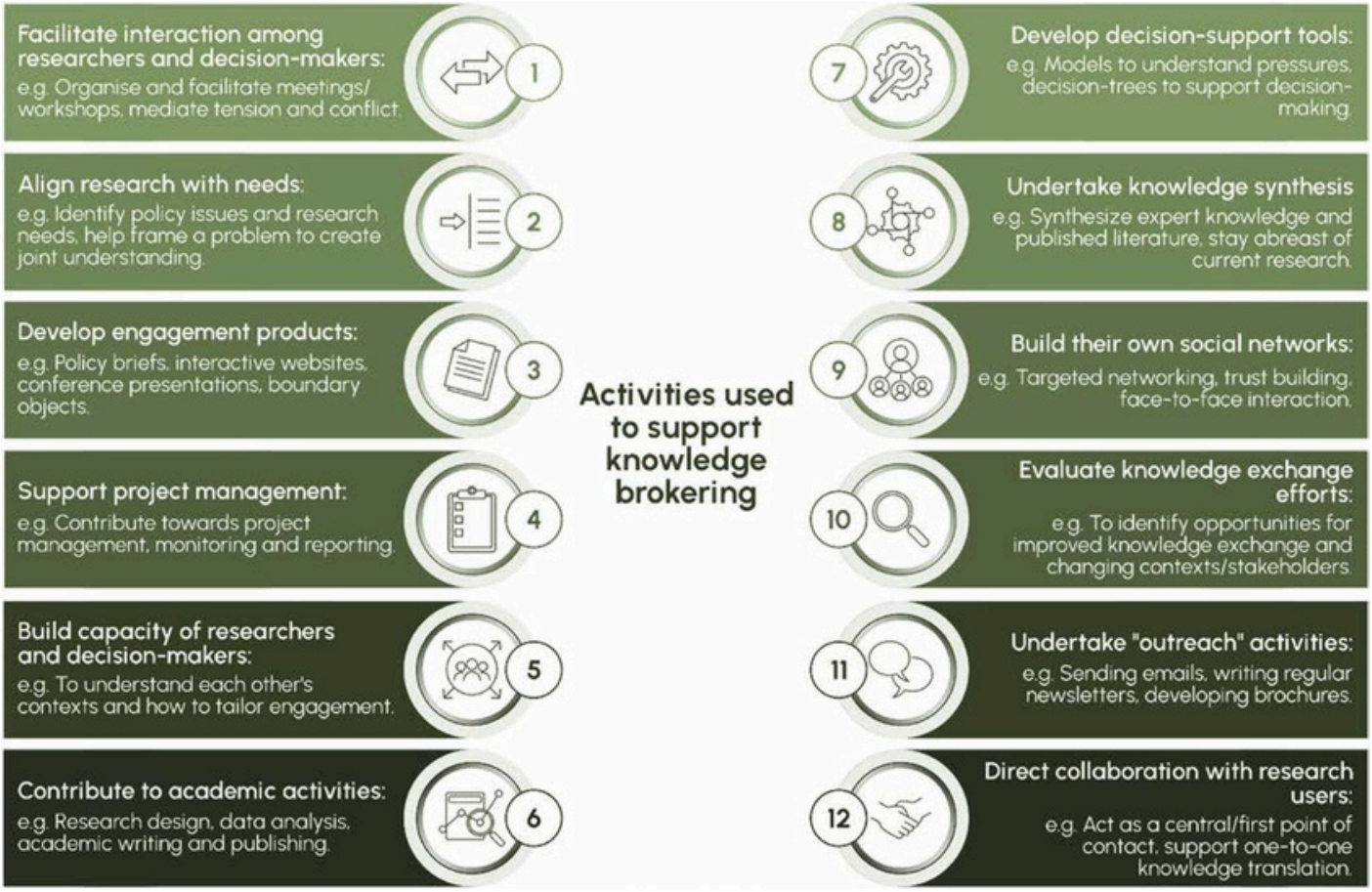


Figure 1. What do knowledge brokers do? Graphic describing up to 12 different activities done by knowledge brokers. (Source: Cvitanovic et al., 2025).

Build capacity of researchers and decision makers

Knowledge brokers facilitate targeted interactions between researchers and decision-makers, align research with user needs and directly collaborate with research users. In doing so, they play a key role in supporting targeted knowledge translation and exchange. Creating strong, trusted relationships and connections based on recognition of user needs and an awareness of the expertise available to address those needs is a crucial part of the knowledge brokering process. It ensures the research scope is focused on helping to answer user questions and address information gaps, developing a feedback loop to ensure both researcher and decision maker agendas and expectations are met.

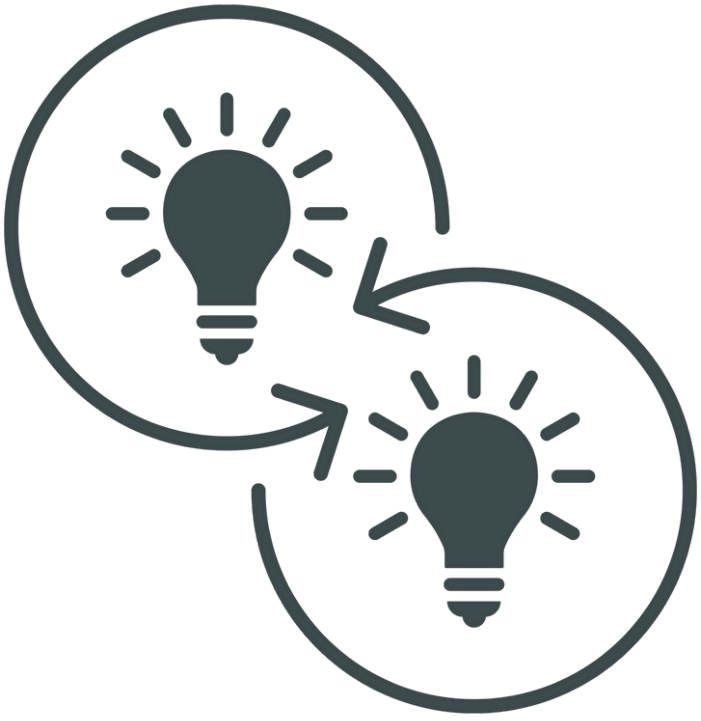
Practically, this can mean initial independent engagements for the knowledge broker with both decision-makers and researchers, gaining an understanding of the research itself and the relevance of the research for specific user needs and contexts. This is followed by coordination of an iterative process of discussions, meetings and/or workshops, often beginning with separate discovery-oriented discussions (activity 1). In addition, the knowledge broker will conduct background reading and research to deepen their understanding of what the research means in the decision-maker's context. This enables the knowledge broker to interpret and translate the science to align with user needs (activity 2). Once the knowledge broker has helped to build understanding/capacity on each side (activity 5), they facilitate a focused collaboration (activity 12) to co-design and co-develop products and tools as appropriate.

The NESP Climate Systems Hub has developed a co-design guide to support this collaboration >

Synthesise research to support decision-making

Through collaborative engagement and an understanding of decision-making frameworks and policy landscapes, knowledge brokers enable the integration of new research into fit-for-purpose tools, products and guidelines to better inform decisions (activity 7). Knowledge brokers distil, communicate and deliver research (activities 3 and 8) to meet the diverse needs of a range of decision-makers.

Much of the value added by knowledge brokers that lays the foundation for subsequent impact can be challenging to measure. This is because it is often non-tangible and non-linear. It's 'invisible'. A big part of this 'invisible' work is establishing connections and building and nurturing relationships through specific networks and engagement (activity 11).



What is good practice?

Knowledge brokers must be trustworthy, credible, authentic and transparent. Typically, they are neutral, favouring neither scientific or policy interests, and have an in-depth understanding of both science and policy practice and professions (Cvitanovic et al., 2025). This allows the knowledge broker to identify the most appropriate avenues through which to engage and influence.

Knowledge brokers don't necessarily need a background in science or the more technical aspects of research, but they do need a deep appreciation of the different environments in which researchers and decision-makers operate and an understanding of their needs and motivations.

To be most effective, the expertise, contributions and interpersonal skills of knowledge brokers need to be recognised as an essential part of a project team. Knowledge brokers need to have shared and equal power with the researchers to advocate on behalf of users in the co-design process for the project.

Knowledge brokers contribute to driving a culture shift in research:

- from a traditional one-way exchange of information, where researchers produce new scientific information in the form of published papers and then provide them to the stakeholders who may find the information useful to inform their decisions
- to a two-way 'knowledge' exchange where researchers and those that need the information to inform policy or management decisions work together with shared influence and expertise to co-design and co-produce fit-for-purpose outcomes.

Benefits

For decision makers:

Tailoring the scientific information to directly answer user questions reduces the potential for misinterpretation or inappropriate application of the research.

Working in partnership with researchers with mutual goals from the start of the project.

Enabling early involvement in shaping research:

- allowing for a deeper understanding of the research,
- providing early access to stakeholders,
- creating consistent approaches that create comparable outputs for users
- identifying links and collaboration opportunities for research as well as with decision-makers.

For researchers:

- Providing an opportunity to gain an understanding of the broader research landscape and decision-making frameworks/processes.
- Building understanding of how to refine the scope of the research to provide more useable, purpose-built outputs that can be integrated into decision-making processes.
- Ensuring a broad range of stakeholders are involved, creating links and collaboration opportunities.
- Reach audiences who wouldn't read scientific papers.
- Creating feedback loops to enable ongoing research to fill knowledge gaps for decision-making.
- Knowledge brokers help synthesise and make science outputs more "punchy" for decision-makers.
- Knowledge brokers can judge correctly when a scientist needs to speak directly to a decision-maker or when to stand back.
- Knowledge brokers understand and explain the user perspective and needs.

What is needed for success?

- **Incentivise scientists for research that informs decisions** that will benefit society as well as published papers to reinforce that science has the most value when it is applied.
- **Create a deeper and broader understanding of methods knowledge brokers use** to bring researchers and users together, eg, co-design approaches, and a recognition that it takes significant time, effort and resources to do it well.
- **Recognise the importance of and allow time for the 'invisible' work**. It is strategic and can be complex involving relationship building, networking, developing a solid understanding of the science and policy landscape.
- **Provide long-term funding for knowledge brokering work and roles**. Knowledge brokers provide strategic support to an organisation and its activities, ensuring their reach and impact. In the current environment, knowledge broker roles are mostly tied to short-term projects and/or funding cycles.
- **Progress the ability to quantify the benefits of knowledge brokering**, where success is defined not just by impact but also by effecting progress along the pathway to impact.
- **Support a better understanding of knowledge brokering** as a distinct field and/profession with a career path, and with expertise and influence to strategically support organisations.

Future recognition and action to help support the important role that knowledge brokers play involves highlighting the value and strategic support they bring to applied research programs and organisations, and to decision-makers on the ground. As the knowledge brokering profession continues to gain momentum, there are a number of opportunities identified for strengthening and deepening existing understandings and awareness of these roles and their associated expertise.

Firstly, opportunities for initiating and facilitating discussions about knowledge brokering with a broader audience (whether that be with funders, program management staff, executive staff), where success stories and case studies where knowledge brokering efforts have achieved desired goals and impact are shared.

Secondly, the opportunity for developing a knowledge brokering network for climate science in Australia. Starting small, this may include formalising the NESP cross-hub knowledge brokering network.

Developing a set of principles of 'good practice' knowledge brokering and validating those principles is another key aspect. This will foster further understanding and awareness of knowledge brokering as a distinct profession.

References

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Cvitanovic, Karcher, Breen, Badullovich, Cairney, Dalla Pozza, Duggan, Hoffmann, Kelly, R., Meadow, Posner (2025) Knowledge brokers at the interface of environmental science and policy: a review of knowledge and research needs. Environmental Science and Policy, 163. https://doi.org/10.1016/j.envsci.2024.103973.

Kaplish (2024)Building bridges between climate scientists and policymakers. The Policy Maker

Lomas (2007) The in-between world of knowledge brokering. British Medical Journal 334,129-132.

For further reading

The ARC Centre of Excellence for Climate Extremes | Building Bridges Between Climate Scientists and Decision-Makers - The ARC Centre of Excellence for Climate Extremes

Dedicated boundary-spanners can support a more effective relationship between science and policy | Impact of Social Sciences

Three ways that knowledge brokers can strengthen the impact of scientific research - Research to Action

https://blogs.lse.ac.uk/impactofsocialsciences/2022/06/29/the-true-costs-of-knowledge-exchange-a-checklist/

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