

Quantifying connection and influence:

Climate Systems Hub
Knowledge Broker
Social Network Analysis



Introduction

The Climate Systems Hub is one of four research hubs funded through the Australian Government's National Environmental Science Program (NESP). A defining feature of the Hub is its team of Knowledge Brokers—professionals embedded within state and territory government organisations who sit at the interface between climate scientists and those who use climate science to inform decisions.

[First Person Consulting](#) was engaged to conduct a Social Network Analysis (SNA) of the Knowledge Broker network. The aim was to map the connections the Knowledge Brokers have built across jurisdictions, to explore the value they provide, and capture feedback and insights from the network for the analysis.

Taken together, the findings provide strong empirical support for the embedded, interjurisdictional knowledge broker model. Knowledge brokering is relational work, and its outputs are hard to capture through conventional monitoring, evaluation and reporting. This project provides an example of how relational networks of this kind can be examined empirically.

The breadth and density of the network, and the value reported by those within it, demonstrate that the Knowledge Brokers are doing what the model was designed for: connecting climate science to the people and organisations that need it.

The five Knowledge Brokers from NSW, Victoria, SA, WA and a national coordinator, work together through a buddy system to support colleagues in the ACT, Queensland, Northern Territory and Tasmania, forming a national network. The team holds together a network that would not exist as a connected whole without them, and the people in that network find their interactions with the Knowledge Brokers valuable for their work in climate change and adaptation.

Key findings

1. The Knowledge Brokers brought **220 unique organisations** into contact with hub scientists.
2. The Knowledge Brokers create the network's **connective tissue** by acting as key bridges between stakeholders.
3. **Knowledge Brokers add value.** This value is acknowledged by respondents. Over 90% valued the Knowledge Broker interactions, more than half saw quite a lot or a great deal of value.
4. Knowledge Brokers don't just create individual connections, they facilitate **network to network connections**.
5. The network is **deep, broad and diverse**. It is deep within the represented jurisdictions and broad across the country. This creates multiple pathways for scientists to reach stakeholders.
6. Knowledge Brokers are the **central connectors** and they also leverage the network to help information move further around it.

Network summary

The network has 924 people with 1,881 relationships mapped.

The relationships span all 8 states and territories. Across each jurisdiction, the network, extends into national climate science agencies.

Roles reached include:

- 572 from state and territory government
- 87 national climate science agency staff
- 84 university researchers
- 58 local government
- 44 federal government climate/adaptation policy experts.

The Knowledge Broker team have built relationships and increased the number of connections. If they are excluded, the network analysis shows only 286 links. With the Knowledge Brokers this expands the whole network to 1881 relationships – a 558% increase.

The five Knowledge Brokers represent just 0.5% of the network's members but are responsible for most of its connections (86%).



Figure 1: Features of the network

Value of the Knowledge Broker team

- Knowledge Brokers **strengthened access to key networks and people** (93% of respondents) and are a valued bridge for collaboration.
- Most people who engage with the Knowledge Brokers **find the interaction meaningful to their work**. Almost all (94%) survey respondents saw value in their Knowledge Broker interactions.
- **Over half** (53%) noted a significant influence on contributions to work or thinking on climate change.

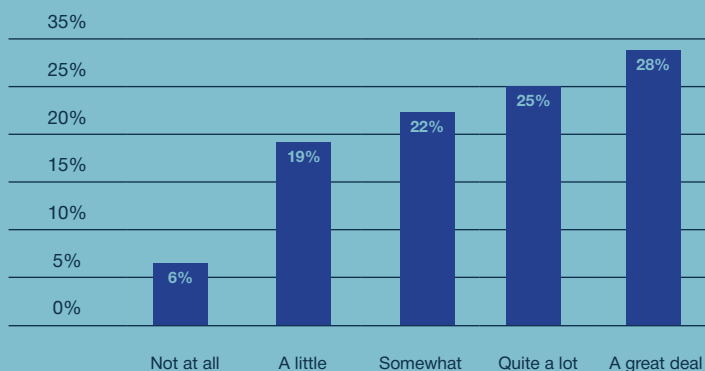


Figure 2: Overall extent to which Knowledge Broker-respondent interactions contributed to work or influenced thinking in relation to climate change and climate science (n=318)

The Knowledge Brokers link scientists, stakeholders, and decision-makers; and knowledge sharing is two-way, with 37% of relationships reciprocal.

Respondents valued the Knowledge Brokers:

- communication and translation of knowledge
- ability to bridge divides across academia, communities, and government
- fostering of accessible science and inclusive events
- role in helping people discover what others are already doing.

By simultaneously being across multiple networks and organisations, the Knowledge Brokers identify overlaps and create efficiencies that individual practitioners couldn't achieve on their own.

Key finding 1 – connection with 220 unique organisations

220 organisations are connected to the network, spanning all states and territories. This creates multiple pathways for scientists to reach stakeholders. The black diamonds represent the Knowledge Brokers – the biggest influences on the network.

What this means

There are 168 Climate Systems Hub associated individuals in the network. With the Knowledge Brokers in place, these researchers sit within two-steps of around 60% of the entire network of 220 organisations. Some can reach nearly 90% of the network. Without the Knowledge Brokers, this reduces to around 2%.

In addition, the Knowledge Brokers bridge the gap for jurisdictions to reach national climate science agencies, university researchers and federal government climate policy officers.

This bridging role is acknowledged in the survey with 93% noting that Knowledge Brokers strengthened access to key networks and people.

The mixture of organisation types represented demonstrates how the Knowledge Brokers’ networks operate beyond their home organisations. They extend outward to the research community, to other levels of government, and beyond. The relationships facilitate multiple ways in which information can disseminate through the network.

Organisation type	Total organisations	Total individuals
State Government	90	572
Local Government	35	58
Universities	32	84
Private	22	28
Non-government organisation	20	25
Federal Government	9	25
National climate science organisation	7	87
First Nations Corporation	5	6

Table 1: Network composition by organisation type

“ I value most the Knowledge Broker role’s ability to connect scientific research with real-world decision-making.

It plays a vital part in translating complex climate science into practical information and tools that support policymakers, land managers, and communities in adapting to climate change.

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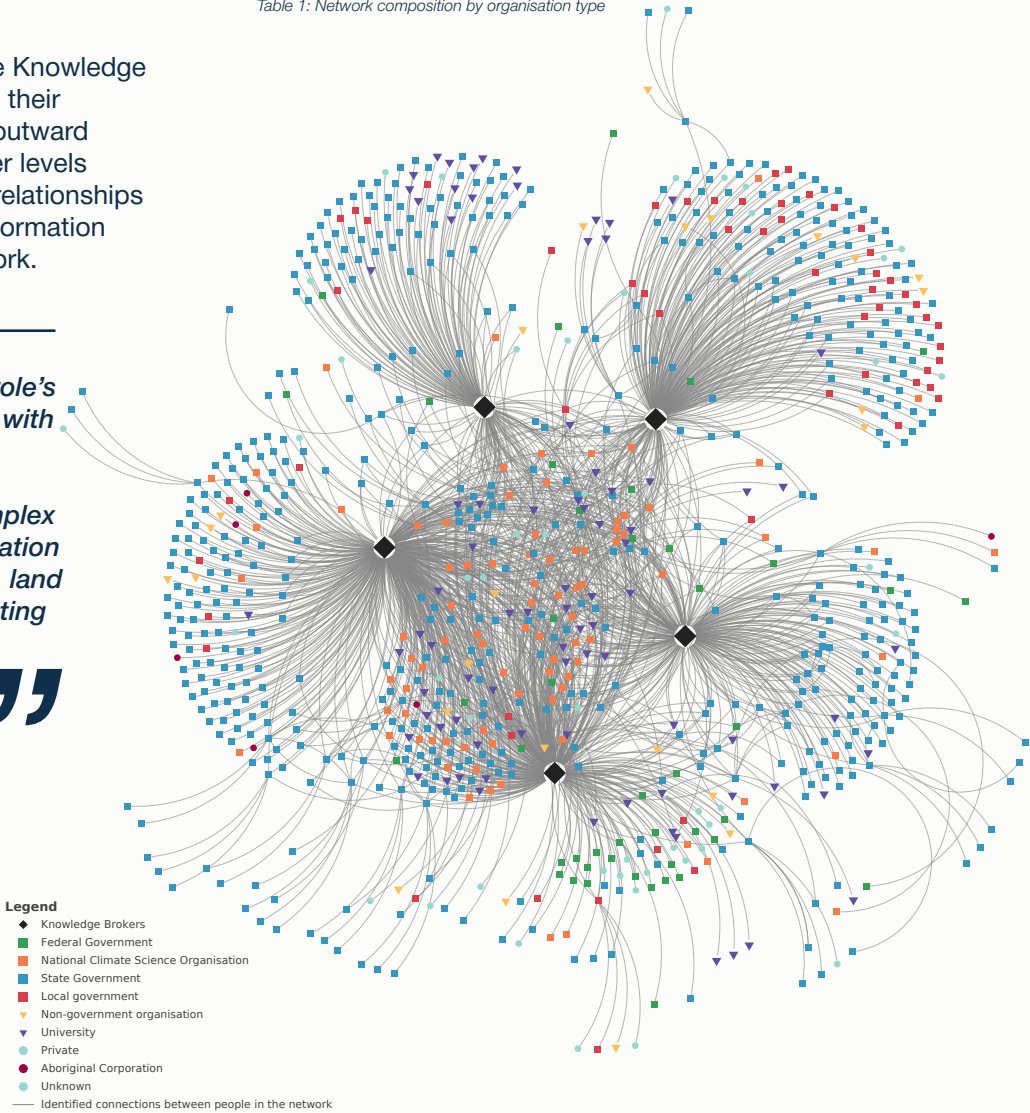


Figure 3: Network map by organisation type

Key finding 2 – the Knowledge Brokers create the connective tissue

The Knowledge Brokers are the connective tissue of the network. The five Knowledge Brokers represent just 0.5% of the network's members but are responsible for most of its connections (86%) in the network of 924 individuals. If they are excluded, the network analysis shows only 286 links. With the Knowledge Brokers this expands the whole network to 1881 relationships – a 558% increase.

While Knowledge Brokers are the central connectors, they also leverage the network to help information move further around it.

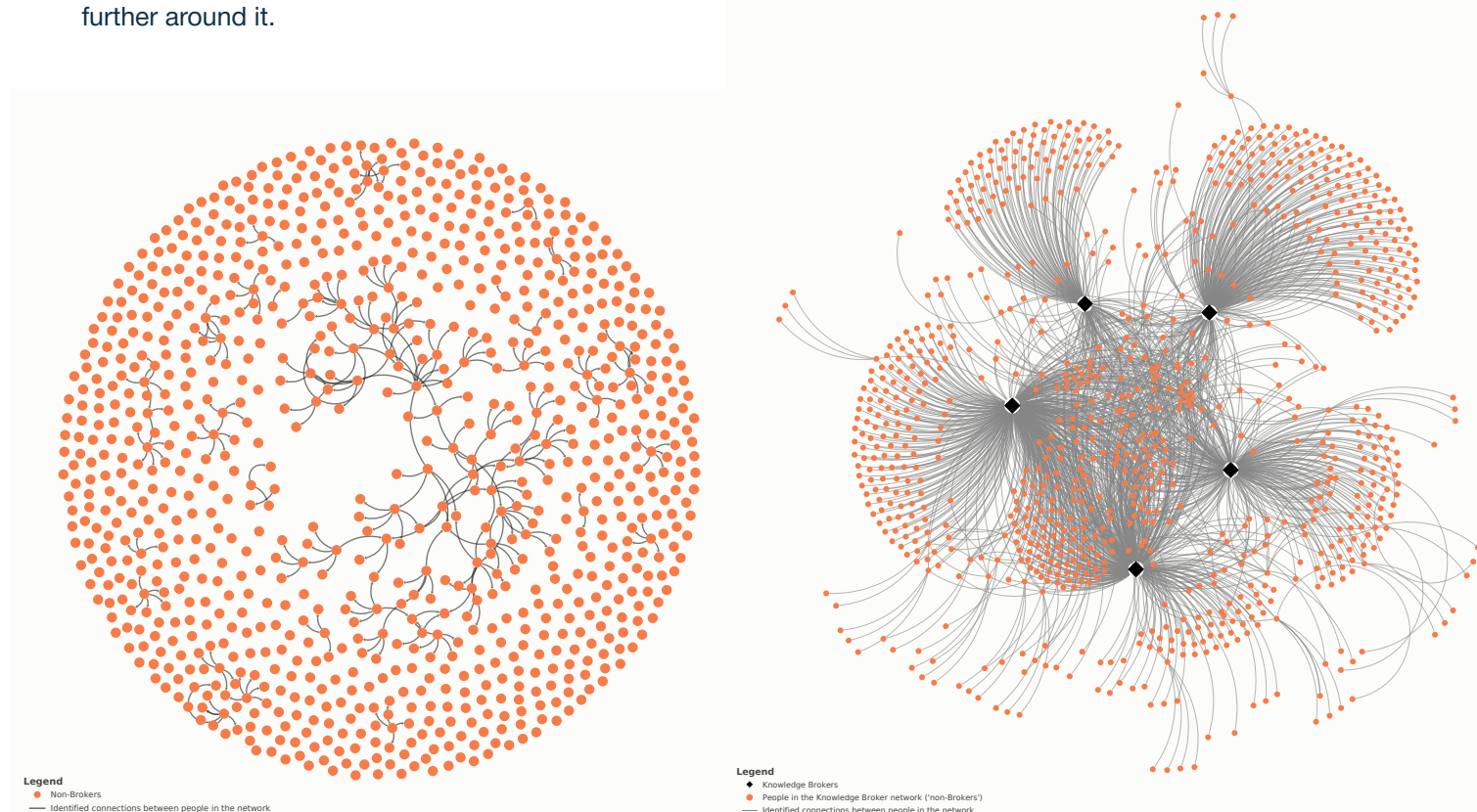


Figure 3: Maps showing the network with the Knowledge Brokers and their connections removed (left) compared to the network with connections.

What this means

Over time the Knowledge Brokers have developed and continue to maintain a very large network. This reinforces the purpose and value of the Knowledge Broker roles for staff across jurisdictions and organisations as facilitators of access to a much wider network. The analysis revealed that the next most connected non-Knowledge Broker would hold ten connections, and very few common third parties link different parts of the network to one another. If the Knowledge Brokers were removed, the network would fragment

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[I value] the Knowledge Broker roles as a trusted single point of contact for the Climate Systems Hub. They simplify engagement by connecting stakeholders directly to the right expertise, ensuring clear communication and timely access to relevant research. This streamlined approach makes collaboration efficient and impactful.

”

“

[I value] that strong connections are made between states and territories that share knowledge and have a collaborative approach to tackling large-scale issues like climate change. Community is how you make change, not working in isolation.

”

Key finding 3 – Knowledge Brokers add value

The Climate Systems Hub Knowledge Brokers delivered clear value to people in their networks. Over 90% of survey respondents said a Knowledge Broker interaction contributed to their work or thinking on climate change, with over half (53%) noting a significant influence.

Results were broadly consistent across jurisdictions. In addition, 37% of relationships are reciprocal or two-way knowledge sharing.

When asked what they valued most, respondents highlighted:

- Translating complex science into practical, accessible information — the most frequently cited, with the Knowledge Brokers described as essential in making climate science usable for non-specialist audiences.
- Connecting people across organisations, sectors, and jurisdictions (35% of comments) — linking people who face similar challenges but would not otherwise know each other.
- Keeping people across the broader field of climate science research and policy, both nationally and across jurisdictions. This scanning and curating function helps people situate their own work within a broader context.
- Reducing duplication of effort — by being across what different groups are working on, the Knowledge Brokers help people discover relevant work and avoid reinventing it.
- The benefits of Knowledge Brokers as a single point of contact who can quickly direct people to the right information, the right opportunity or the right person.

“

They make a complex topic accessible and interesting to a range of audiences, including those of us who aren't scientists or subject matter experts.

”

What this means

Respondents emphasised the efficiency gains that come from having someone who knows the field and can reduce the time navigating complex institutional arrangements. This was particularly valued by those in smaller jurisdictions or organisations with limited internal capacity.

The two-way nature of the relationship: the Knowledge Brokers feed user needs back to researchers, helping to ensure research is fit for purpose and targeted to real-world demand.

By being across multiple networks and organisations simultaneously, the Knowledge Brokers were seen to identify overlaps and create efficiencies that individual researchers or practitioners would not be able to achieve on their own.

“

Someone is aware of the work we do AND the work that others are doing, so they can connect the dots. This connection means work isn't unnecessarily duplicated, and our work can be informed and evidence-based.

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Key finding 4 – Knowledge Brokers don’t just create individual connections, they facilitate network to network connections

Knowledge brokers effectively strengthened participants’ access to key networks and people, earning strong survey support as a valuable bridge for collaboration. Respondents highlighted knowledge brokers’ role in linking scientists, stakeholders, and decision-makers. Respondents also valued their communication - bridging divides across academia, agriculture, communities, and government, fostering accessible science and inclusive events.

Survey respondents emphasised how knowledge brokers facilitated access to networks. 57% reported that Knowledge Brokers had strengthened their access to relevant people or networks either a great deal (32%) or quite a lot (25%).

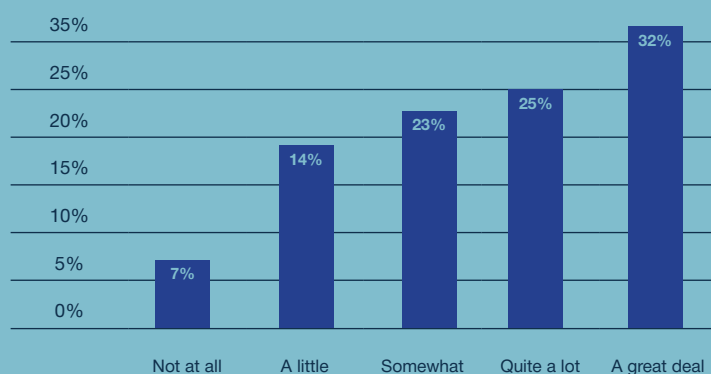


Figure 5: Overall extent to which Knowledge Brokers strengthened access to relevant people or networks to support work (n=330)

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The connections with industry and local government have been hugely beneficial to ensure that my research can be used for decision-making / policy decisions (in addition to tackling the important science problems).

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What this means

The most prominent theme across survey responses was the value of Knowledge Brokers in connecting people across organisations, sectors and jurisdictions (approximately 35% of comments).

Respondents described how Knowledge Brokers link scientists with decision makers, connect people working on similar challenges in different states, and bridge divides.

Respondents described the value of having someone who is across what is happening in other states, what projects are underway, and what is emerging in the research.

This scanning and curating function helps people situate their own work within a broader context. While the connecting function was seen as something respondents could not easily replicate on their own.

Key finding 5 – the network has significant depth and breadth

The Knowledge Brokers connect state and territory governments into national climate science and federal policy infrastructure. The analysis mapped a network spanning all eight Australian states and territories. When the Knowledge Brokers are removed from the map, and the network fractures into a series of small, disconnected clusters.

Table 2 summarises the structure of the network. Together the five appointed Knowledge Brokers work through a ‘buddy system’ to support colleagues in the ACT, Queensland, the Northern Territory, and Tasmania to create a national network. Notably, the four jurisdictions without a resident Broker are still represented.

Jurisdiction	Individuals	Unique Organisations	Individuals connected to multiple Knowledge Brokers (%) ¹	Knowledge Brokers
Victoria	201	38	28%	Yes
South Australia	176	52	4%	Yes
National	161	41	45%	Yes
New South Wales	126	19	14%	Yes
Western Australia	126	20	16%	Yes
Tasmania	53	19	52%	No
Queensland	33	19	27%	No
ACT	14	5	57%	No
Northern Territory	11	5	0	No

Table 2: Network structure by jurisdiction

What this means

The significance of the jurisdictional spread is that the Knowledge Brokers have built networks that are both deep within their own jurisdictions, reflecting local context in terms of represented organisations, and breadth across the country.

For jurisdictions without a resident Knowledge Broker there are still instances of multiple Knowledge Broker connections. For instance, Queensland has 33 people identified in the network, with nine of them connected to multiple Knowledge Brokers, this is due to close working relationships between the national Knowledge Broker and people in QLD. Tasmania is well integrated, with strong engagement from state government and community individuals supported by the Victorian and National Knowledge Brokers.

¹The percentage is based on the number of individuals within a jurisdiction that were identified as being connected to more than one Knowledge Broker. For example, in Victoria out of 201 individuals in the network 55 of them were connected to at least one of the other four Knowledge Brokers.

The ACT shows concentrated engagement at the territory environment directorates, supported by the NSW Knowledge Broker.

The ability of a Knowledge Broker network to span jurisdictions means that climate science information and scientists have multiple pathways to reach the people who need it including decision and policy makers.

“

It is a unique way to connect across the states and territories. Each state and territory faces similar challenges, and this enables a connection to stakeholders in other jurisdictions facing the same climate challenges. It also connects me with information from projects I would have had no idea are happening.

”

Key finding 6 – Knowledge Brokers are central connectors in the network, and they also leverage the network to help information move further

The Knowledge Brokers have created the networks they sit in. Without them, most people in the network would have no path to individuals in other jurisdictions, other levels of government, or the national climate research community.

The network analysis reinforces this picture. When measuring which individuals act as bridges for information flow, the Knowledge Brokers dominate. With 37% of relationships reciprocal and encompassing two-way knowledge sharing, information moving from one part of the network to another almost always passes through at least one of the Knowledge Brokers.

What this means

The Knowledge Brokers leverage the bridging role of others to support further dissemination of information into different jurisdictions or organisations.

Respondents also valued the two-way nature of the Knowledge Broker role, noting that the Knowledge Brokers do not simply ‘push science outward’ but also feed user needs and priorities back to researchers. This was seen to support co-design processes and help ensure that research is targeted to real needs rather than operating in isolation from end users

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They play a crucial role in facilitating the sharing of research findings and two-way dialogue between researchers and stakeholders who are end users of that research.

This increases the value and the impact of the research, while helping ensure the research is better designed and focused on meeting end user needs.

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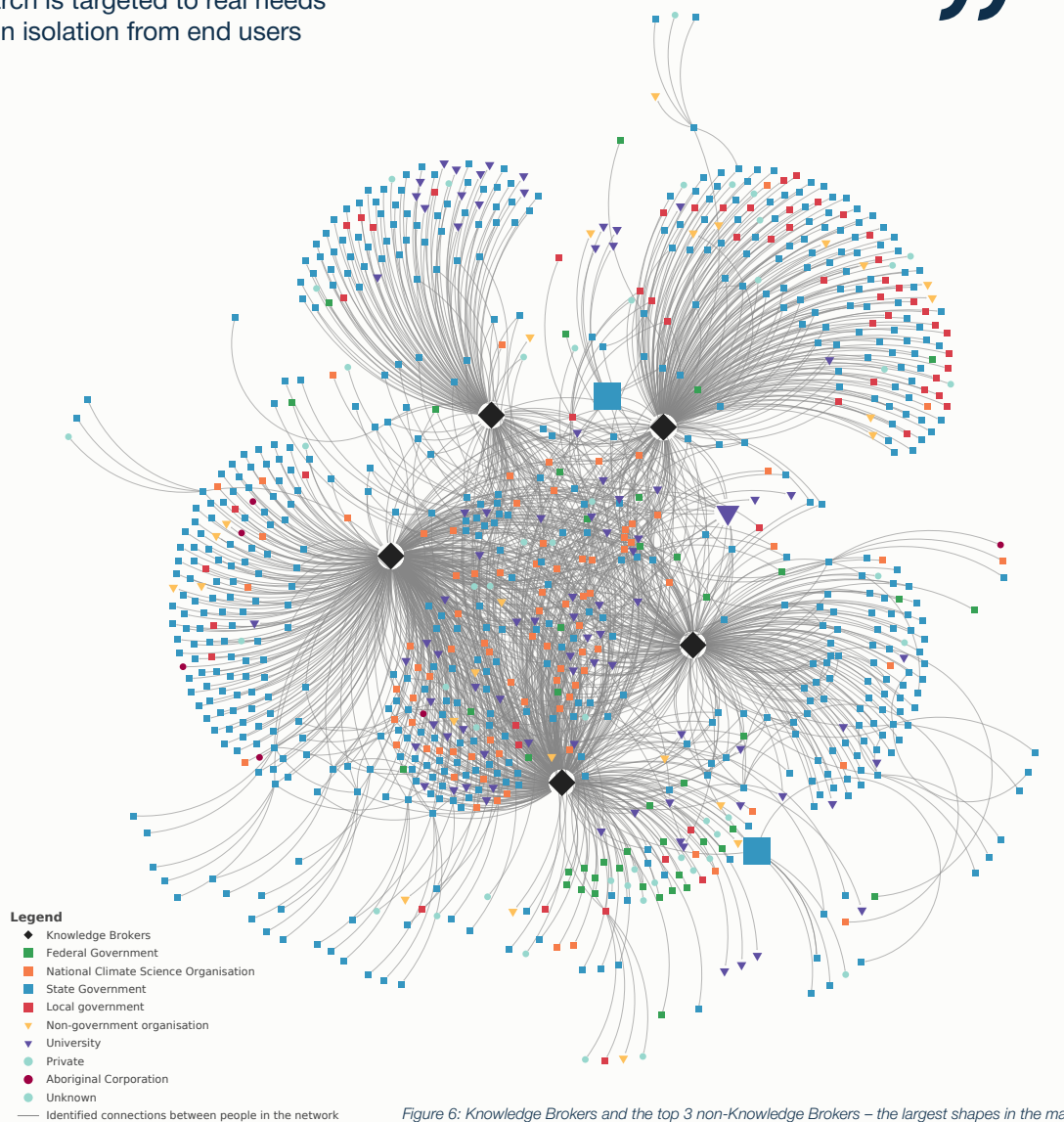


Figure 6: Knowledge Brokers and the top 3 non-Knowledge Brokers – the largest shapes in the map

Further information

Read the full report: [National Environmental Science Program Climate Systems Hub – Knowledge Broker Social Network Analysis.](#)

[Get insights from the people we work with](#) on how knowledge brokers can help you.

Cite this article as: Evans, H., Bloustein, H., Dalla Pozza, R., Oliver, J., Sweeney, S., Tandy, A., Healey, M., and Lea, J. (2026). Quantifying Connection and Influence: Climate Systems Hub Social Network Analysis. National Environmental Science Program Climate Systems Hub, Govt. of Australia.



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