Dedicated boundary-spanners can support a more effective relationship between science and policy

Boundary-spanning is one approach to creating a more comprehensive and inclusive knowledge exchange process between science and decision-makers. Articulating the views and experiences of a group of fellow boundary-spanners, ***Chris Cvitanovic*** *explains how the concept has come to be defined and is now being taken up by those tackling highly complex or "wicked" modern-day problems. Boundary-spanners can support a more effective relationship between science and policy in a number of ways, including by increasing the efficiency with which scientific information is considered in decision-making processes and by identifying policy windows and helping scientists to capitalise on them quickly.*

Cultivating a more dynamic relationship between science and policy is essential for responding to complex modern-day challenges such as climate change and population growth. One approach to doing this is to "span the boundaries" between science and decision-making and create a more comprehensive and inclusive knowledge exchange process. The exact definition and role of boundary-spanning, however, can be nebulous. As a result, boundary-spanning often gets conflated and confused with other approaches to bridging the gap between science and policy, such as science communication, applied science, and advocacy. Not only does this undermine progress in the field of boundary-spanning, it also makes it difficult to understand its value and importance and contributes to the ongoing reluctance to mainstream boundary-spanning positions within academic and decision-making institutions.

Here, I synthesise the key points of a recent workshop, and subsequent research paper, of a group of boundary-spanners with over 130 years of cumulative experience across 11 countries to help address these challenges. Drawing on our experiences and perceptions, we hope to articulate the value and importance of mainstreaming boundary-spanners to cultivate a more dynamic relationship between science and policy.

What is boundary-spanning?

Boundary-spanning as a concept first emerged in the business and organisational management literature which sought to identify organisational characteristics (e.g. specific functions or roles) that facilitate knowledge exchange between two or more organisations. More recently, however, the importance of constructive knowledge exchange has been taken up by those tackling "wicked problems", such as those exemplified by modern-day sustainability challenges. The idea is that solutions for wicked problems have to account for many dimensions of "knowing and learning". This includes the ways different actors engaged in, or affected by, an issue view the cause of a problem; their institutional and political incentives; how they feel about each other; how they view the relevance and credibility of available evidence; how they access and understand evidence; and how they view potential solutions and their viability.

Drawing on these features, and our collective experiences, we define the practice of boundary-spanning as "*work to enable exchange between the production and use of knowledge to support evidence-informed decision-making in a specific context*", and boundary-spanners "*as individuals or organisations that specifically and actively facilitate this process*".

This definition of boundary-spanning encompasses a spectrum of roles and organisational configurations. For example, in some cases, an individual researcher can act as a boundary-spanner and work to understand and reflect user needs in their own research programme, as well as to create opportunities for themselves to engage in a decision-making process. However, given the intensity and scope of the work required to improve the relationship between science and decision-making, we have found that boundary-spanners are more likely to act in a full-time capacity as an expert intermediary, rather than be engaged directly in research. Examples of such intermediaries include dedicated knowledge brokers or boundary organisations. In other cases, a team of boundary-spanners may focus on building capacity among scientists and decision-makers to engage more effectively in boundary-spanning activities (e.g. COMPASS). Funding agencies can also act as boundary-spanners, for example, by actively matching the production of science with specific decision-making needs and contexts (e.g. the Lenfest Ocean Program).

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While components of boundary-spanning are similar to other roles that operate at the interface between science and decision-making (e.g. science communication, applied science, and advocacy), we believe that several features help distinguish it as a distinct practice:

1. Boundary-spanners focus on interactive, regular, two-way exchanges aimed at understanding what research would be most useful and why, and how other actors and sources of knowledge factor into the decision-making process, rather than packaging research for transmission to potential "users".
2. Boundary-spanners help build the relationships and broader social formations that are necessary to facilitate the uptake of scientific research.
3. Rather than acting as advocates for specific research results or policy changes, boundary-spanners aim to foster trust that they and the scientists and others with whom they work are not pushing an agenda or distorting research findings to fit a particular position.
4. Boundary-spanners are reflective and comprehensive about identifying perspectives and values of all actors within a decision-making process, including their own, so that those values are explicitly recognised and accounted for whenever possible.

A value proposition for boundary-spanning

Based on the above we consider boundary-spanning as a distinct and emerging practice, with its own unique benefits. Boundary-spanning can help to:

1. *Increase the efficiency with which scientific information is considered within decision-making processes*: our experiences and observations suggest that research "designed for action" and targeted for specific contexts is more likely to be considered in decision-making. By creating a system for effective knowledge exchange and dedicating time to scanning relevant scientific research and policy issues, boundary-spanners can help track current and emerging science needs in decision-making to help the scientific community focus research efforts accordingly.
2. *Increase the potential for durable decision processes and policy*: this is not to say that the goal is to support decisions that are static or unchangeable. Rather, we mean decision-making processes that can integrate new evidence and perspectives throughout periods of change, such as changes in governance processes and/or government administrations, or unexpected conflicts that may arise.
3. *Increase the legitimacy and social robustness of science*: boundary-spanners specifically aim to increase permeability between science and policy in order to promote "testing and retesting" of the usefulness of scientific knowledge. Our experiences suggest that boundary-spanning can result in those involved in this process better understanding the role and value of multiple sources of knowledge, including science, and feeling that their perspectives have been considered. This could reduce the potential for science to be seen as a vehicle for pushing a particular viewpoint at the expense of other perspectives and may also help to mitigate the politicisation of science.
4. *Identify current and emerging opportunities for science to inform policy (i.e. identify policy windows)*: this increases the likelihood that scientists can capitalise quickly on new policy windows, enhancing the prospect that a decision will be evidence-informed.

Conclusion

Scientific knowledge, alongside other forms of knowledge, has an important role to play in helping decision-makers address contemporary societal challenges. We contend that boundary-spanning as a distinct practice can play a critical role in facilitating this contribution, by reconciling the production and use of scientific knowledge to support policy and practice. By offering this proposition for the value of boundary-spanning, we hope to encourage a more robust and critical conversation about how best to achieve evidence-informed decision-making in practice. We also hope to encourage a more constructive discussion about how boundary-spanning roles can be more efficiently mainstreamed into existing institutions (or newly created institutions) that operate at the interface of science, policy, and practice.

This blog post is based on the author's co-written article, "Boundary spanning at the science–policy interface: the practitioners' perspectives", published in Sustainability Science (DOI: 10.1007/s11625-018-0550-9).

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About the author

Chris Cvitanovic *is a Research Fellow in the Centre for Marine Socioecology at the University of Tasmania, Australia, specialising in knowledge exchange, stakeholder engagement and the governance of marine resources. In doing so Chris draws on almost ten years of experience working at the interface of science and policy for the Australian Government Department of Environment, and then as a Knowledge Broker in CSIRO's Climate Adaptation Flagship. Find Chris on Twitter via @ChrisCvitanovic or get in touch via email.*

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