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# Skills for Co-creation\*

Authors: Lene Topp, David Mair, Laura Smillie, Paul Cairney

## Key takeaways:

- Although the JRC is at the centre of the ‘science–policy interface’, it faces the same problem experienced by academic researchers: there is often a major gap between the supply of, and the demand for, policy-relevant research.
- This gap relates primarily to key differences in the practices, expectations, incentives and rules of researchers and policymakers. To address it, JRC synthesised interdisciplinary work on the ‘science–policy interface’ to promote a skill and training agenda.
- Our skills framework identifies the ways in which *organisations* (as opposed to individuals) containing researchers, policymakers, communicators and knowledge brokers can adopt pragmatic ways to connect the demand and supply of policy-relevant knowledge by having teams of people with complementary skills.
- The skills framework contains eight skills that, in an ideal-type organisation, contribute to an overall vision for effective science for policy. Policymakers justify action with reference to the best available evidence, high scientific consensus and citizen and stakeholder ‘ownership’. Researchers earn respect, build effective networks, tailor evidence to key audiences, provide evidence-informed policy advice (without simply becoming advocates for their own cause) and learn from their success.

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**Table 1** Eight skills to support evidence-informed policymaking

1. *Synthesising research*: There is an oversupply of information to policymakers, compared to the limited ‘bandwidth’ of policymakers, producing the need to synthesise and prioritise the most robust and relevant knowledge.
2. *Managing expert communities*: Policy problems are complex and interdependent, calling for cooperation between disciplines and ‘joining up’ a wide range of policies.
3. *Understanding policy and science*: The policy process is better understood as an ecosystem than a policy cycle with linear stages, prompting new ways to understand the link between evidence and policy.
4. *Interpersonal skills*: We need to overcome a lack of mutual respect, understanding and empathy between scientists and policymakers and reflect on our behavioural biases that produce hubristic behaviour.
5. *Engaging with citizens and stakeholders*: Evidence-informed policy should be more informed by citizen and stakeholder views. Scientists should not exacerbate stakeholder exclusion by presenting issues as only technical.
6. *Communicating scientific knowledge*: Policymakers often do not pay attention to evidence on problems or have enough awareness of evidence-informed solutions.
7. *Monitoring and evaluation*: We need to ensure the routine monitoring of policy, partly to use evidence to evaluate success and hold policymakers to account (and monitor the success of evidence for policy initiatives).
8. *Achieving policy impact*: We should close the gap in expected behaviour between policymakers seeking evidence-informed recommendations and researchers trying to draw the line between the ‘honest broker’ and ‘issue advocate’ (Pielke, 2007; Cairney and Oliver, 2017; Smith and Stewart, 2017).

The JRC is at the centre of the ‘science–policy interface’, embedded inside the European Commission, and drawing on over 2000 research staff to produce knowledge supporting most policy fields. Yet, it faces the same problem experienced by academic researchers (Oliver et al., 2014): there is often a major gap between the supply of, and demand for, policy-relevant research. This problem is not solved simply by employing researchers and policymakers in the same organisation or locating them in the same building. Rather, the gap relates primarily to key differences in the practices, expectations, incentives, language and rules of researchers and policymakers (see Chapter 1).

To address this gap, a JRC team synthesised the insights of a large amount of interdisciplinary work on the ‘science–policy interface’ – drawing on published research and extensive discussions with experts – to promote a new skills and training agenda. The training initially developed for the Commission has many insights that are relevant to organisations that try to combine research, management, policymaking and communication skills to improve the value and use of research in policy. We recommend that such organisations should develop teams of researchers, policymakers and ‘knowledge brokers’ to produce eight key skills to support evidence-informed policies (see Table 1).



**FIGURE 1** Eight skills to support evidence-informed policies.

As opposed to approaches promoting efforts of individual researchers, our skills framework identifies the ways in which *organisations* containing researchers, policymakers, communicators and knowledge brokers can adopt pragmatic ways to connect the demand and supply of policy-relevant knowledge by having teams of people with different background, perspectives and complementary skills. None of the individual staff is expected to possess all these skills (Fig. 1).

Each of them is discussed in more detail below, with several expanded as separate chapters of this handbook.

## Synthesising Research

*Skill 1: Employ methods to make better sense of the wealth of knowledge available on a given topic, particularly when driven by a research question ‘coproduced’ with policymakers.*

Policymakers seek reliable ‘shortcuts’ to consider enough high-quality evidence to make good decisions quickly (Cairney and Kwiatkowski, 2017). The sheer amount of available evidence is beyond the capacity of the human mind without the assistance of research synthesis.



‘Synthesis’ describes many methods – including systematic review and metaanalysis – to make better sense of knowledge. ‘Evidence gap maps’ are particularly useful to bring together supply and demand. Their aim is to make sense of scientific debate or an enormous volume of scientific literature of variable quality, employing methods to filter information so that policymakers have access to robust scientific evidence. Synthesis helps identify, critically appraise and summarise the balance of evidence on a policy problem from multiple sources (Davies, 2006).

Increasing the *supply* of synthesised research is only the first step. We need to recognise the *demand* for evidence. There is a poor fit between researcher-led syntheses and policymaker needs (with exceptions, such as regulated markets which depend upon risk analysis models). Researchers are often not conscious of the synthesis needed for policymaking, and policymakers do not always recognise the potential contribution that synthesis can make (Fox and Bero, 2014; Greenhalgh; Malterud, 2016; Davies, 2006).

Therefore, the second step is to increase policy relevance by making sure that the research question is responsive to the needs of policymakers. We emphasise the need to understand how policymakers *phrase a research question* when making difficult trade-offs between competing interests and values (see Chapter 6).

## Managing Expert Communities

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*Skill 2: Communities of experts, sharing a common language or understanding, are fundamental to applying knowledge to complex problems. Effective teams develop facilitation skills to reduce disciplinary and policy divides.*

The JRC draws on psychological insights to promote collaboration across a ‘community of knowledge’ to harness the ‘wisdom of crowds’ (Sloman and Fernbach, 2017). To achieve the wisdom of crowds requires community management skills. Crowdsourcing is dependent on convening power, and communities cannot operate effectively without well-managed mapping strategies to combine the expertise of individuals and groups. The aim is to develop interdisciplinary and interpolicy networks committed to adapting expertise to the needs and reality of policymaking, making closer science–policy ties the norm. Success depends on generating a common sense of purpose, followed by a greater sense of trust and connection between members. As members share ideas and experience, they develop a common way of doing things that can lead to a shared understanding of the problem. Chapter 7 explains in detail our approach and advice in this area.

## Understanding Policy and Science

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*Skill 3: Seek to better understand the policy process, which can never be as simple as a ‘policy cycle’ with linear stages. Effective teams adapt their strategies to a ‘messier’ context.*

As discussed in Chapter 1, policymaking is far from an orderly linear process described by a cycle metaphor.

The nature of policymaking has profound implications for researchers seeking to maximise the impact of their evidence. First, it magnifies the ‘two communities’ problem, covered in



more detail in Chapter 1. In this (simplified) scenario, science and politics have fundamentally different goals, rhythms and expectations of data and of each other. See Chapter 1 for an elaboration of these contradictions.

These problems would be acute even if the policy process were easy to understand. In reality, one must overcome the two communities problem *and* decipher the many rules of policymaking. A general strategy is to engage for the long term to learn the ‘rules of the game’, understand how best to ‘frame’ the implications of evidence, build up trust with policymakers through personal interaction and becoming a reliable source of information and form coalitions with people who share your outlook (Cairney et al., 2016; Weible et al., 2012; Stoker, 2010, pp. 55–57).

More collaborative work with policymakers requires contextual awareness. Researchers need to understand the political context and its drivers, identify and understand the target audience, including the policymaking organisations and individual stakeholders who are influential on the issue, and understand their motives and how they respond to their policy environment. Although *effective policymakers* anticipate what evidence will be needed in the future, *effective researchers* do not wait for such demand for evidence to become routine and predictable.

Chapter 5 shares our detailed advice on how to gather policy intelligence in a science for policy institution.

## Interpersonal Skills

*Skill 4: Effective actors are able to interact well with others in teams to help solve problems.*

Successful policy is built on interaction: policy-relevant knowledge transpires from a myriad of interactions between scientists, policymakers and stakeholders. Skills for social interaction – sending and receiving verbal and nonverbal cues – are central to policymaking success (Klein et al., 2006, pp. 79; Reiss, 2015). They allow us to get along with peers, exchange ideas, information and skills, establish mutual respect and encourage input from multiple disciplines and professions (Larrick, 2016). They are easier to describe in the abstract than in practice, but we can identify key categories:

1. *‘Emotional intelligence’*: The personality traits, social graces, personal habits, friendliness and optimism that characterise relationships.
2. *Collaboration and team building*: Scientists and policymakers who are able to navigate complex interpersonal environments are held in high esteem. Boundary-spanning organisations are characterised by a dynamic working environment full of individuals with different personalities and experiences. Self-directed collaborative working

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environments are replacing many traditional hierarchical structures, which makes it critical to have actors able to communicate and collaborate effectively and show new forms of leadership (Bedwell et al., 2014).

3. *The ability to manoeuvre*: Scientists and policymakers are constrained by their environments but can also make decisions to change them (Damon, Lewis, 2015; Chabal, 2003). Effective actors understand how and why people make decisions, to identify which rules are structures and which rules can be changed.
4. *Adaptability*: Interpersonal skills are situation specific; what may be appropriate in one situation is inappropriate in another (Klein et al., 2006).

Such skills seem difficult to teach, but we can combine the primary aim of training workshops, to raise awareness among scientists and stakeholders about how their behaviour may be perceived and how it influences their interaction with others, with the initiatives of individual organisations, such as ‘360 degrees’ reviews of managers to help them reflect on their interaction with colleagues.

Chapter 5 addresses in part elements related to interpersonal skills for effective scientific support.

## Engaging with Citizens and Stakeholders

*Skill 5: Well-planned engagement with stakeholders, including citizens, can help combine scientific expertise with other types of knowledge to increase their relevance and impact.*

Bodies such as the European Commission identify stakeholder engagement as a key part of their processes (Nascimento et al., 2014; European Commission, 2015, 2017). However, engagement comes in many forms, with the potential for confusion, tokenism and ineffective participation (Cook et al., 2013; Cairney and Oliver, 2017; Cairney, 2016a, pp. 100–102).

Modern policymaking institutions foster civic engagement skills and empowerment, increase awareness of the cultural relevance of science and recognise the importance of multiple perspectives and domains of knowledge. They treat engagement as an ethical issue, pursuing solidarity through collective enterprise to produce values that are collectively decided upon and align policymaking with societal needs (European Commission, 2015). Skills for citizen and stakeholder engagement are crucial to policy legitimacy. Engagement is a policy aim as well as a process, prompting open, reflective and accessible discussion about desirable futures.

In that context, the JRC aims to help researchers and policymakers develop skills, including

- *Policy deliberation*: Focus on long-range planning perspectives, continuous public consultation and institutional self-reflection and course correction.
- *Knowledge coproduction*: Focus on intentional collaborations in which citizens engage in the research process to generate new knowledge.
- *Citizen science*: Engage citizens in data gathering to incorporate multiple types of knowledge.
- *Informality*: Encourage less structured one-on-one interactions in daily life between researchers and publics.



Chapter 8 discusses related tools and approaches in detail. Chapter 7 sheds some light on the principles of working with stakeholders and Chapter 10 on how to navigate interests while collaborating and sourcing external knowledge.

## Communicating Scientific Knowledge

*Skill 6: Research impact requires effective communication skills, from content-related tools like infographic design and data visualisation to listening and understanding your audience.*

Poor scientific communication is a key feature of the ‘barriers’ between evidence and policy (Oliver et al., 2014; Stone et al., 2001). Research results are often behind ‘paywalls’ or ‘coded’ for the academic community in jargon that excludes policymakers (Bastow et al., 2013). If policymakers do not have access to research, they are not able to make evidence-informed decisions. Policymakers use the best available information. If scientists want policymakers to choose the best evidence, they need to communicate more clearly, strategically and frequently with policymakers (Warira et al., 2017).

Evidence-based ideas have the best chance of spreading if they are *expressed well*. Effective researchers recognise that the evidence does not speak for itself and that a ‘deficit model’ approach – transmit evidence from experts to nonspecialists to change their understanding and perception of a problem – is ineffective (Hart and Nisbet, 2012). Rather, to communicate well is to know your audience (Cairney and Kwiatkowski, 2017).

‘Communication’ encompasses skills to share and receive information, in written and oral form, via digital and physical interaction, using techniques like infographic design and data visualisation, succinct writing, blogs, public speaking and social media engagement (Estrada and Davis, 2015; Wilcox, 2012). Some go further than a focus on succinct and visually appealing messages, to identify the role of ‘storytelling’ as a potent device (see skill 8 and Davidson, 2017; Jones and Crow, 2017).

Chapter 15 shares our approach and advice in this area.

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## Monitoring and Evaluation

*Skill 7: Monitoring and evaluating the impact of research evidence on policymaking helps improve the influence of evidence on policymaking.*

Senior policymakers in the European Commission have worked hard to embed better regulation into the DNA of the European Commission, installing a priority driven, evidence-based and transparent policy process.



However, there are nascent metrics to gauge the ways in which, for example, government reports cite academic research, which could be supplemented by qualitative case studies of evidence use among policymakers. There remains a tendency for studies to define impact imprecisely (Alla et al., 2017). Therefore, at this moment, we describe evidence impact evaluation as a key skill for researchers seeking to monitor their effectiveness, but we recognise that each research organisation needs to develop its own methodology, which can be based on principles that must be adapted to specific objectives and institutional contexts.

Chapter 14 presents the approach of the JRC in that area.

## Achieving Policy Impact

*Skill 8: Effective evidence-informed support to policymaking goes beyond simply communicating research evidence, towards identifying options, helping policymakers understand the likely impact of choices, distinguishing facts and values in the debates and providing policy advice from a scientific viewpoint.*

A key feature of the JRC annual conferences (Cairney, 2016b, 2017a) is the desire by many scientists and scientific advisors to remain as ‘honest brokers’ rather than ‘issue advocates’; they draw on Pielke’s (2007) distinction between (a) explaining the evidence-informed options and (b) expressing a preference for one. However, the idea of an ‘honest broker’ is often at odds with the demand by policymakers for evidence-informed recommendation or, at least, the demand that knowledge brokers consider the political context in which they are presenting evidence, or even adapt to it.

Nonetheless, we need to develop skills that scientists are willing to use. For many researchers, an appeal to objectivity – or, at least, the systematic means to reduce the role of cognitive bias on evidence production – is part of a scientific identity. A too-strong call for persuasive policy advice may cause many experts to retreat from politics. They may feel that the use of persuasion in policy advocacy is crossing an ethical line between honest brokerage and manipulation. Many scientists do not accept the argument that an appeal to scientific objectivity is a way to exercise political power (Jasanoff and Simmet, 2017). Nor would all scientists accept the argument by Cairney and Weible (2017, pp. 5) that ‘policy analysis is inherently political, not an objective relay of the evidence ... The choice is not whether or not to focus on skilful persuasion which appeals to emotion, but how to do it most effectively while adhering to key ethical principles’.

Consequently, the development of skills to achieve policy impact must be pragmatic, to incorporate a scientist identity and commitment to ethical principles that emphasise impartial policy advice. We accept that our encouragement of scientists to become better-trained storytellers will be a hard sell unless we link this training strongly to a meaningful discussion of the ethics for participating in policymaking. Indeed, the current pursuit of policy-relevant scientific advice is quite modest, about making sure that scientists are ‘in the room’ to ensure that inferences are correctly drawn from the evidence and that politicians are clear when they are moving beyond the evidence. The skills of scientists in explaining and applying scientific methods, and articulating a ‘scientific way of thinking’ (if such a general way of thinking



exists), helps ensure that decisions are well-founded and that policymakers can consider how they combine facts and values to make decisions.

Chapters 5 and 10 share our detailed advice on how to deal with the expectations about scientists' conduct when working in a policy context and navigate the science-policy interface.

## Conclusion

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Better evidence-informed policies require eight skills that can help address the science-policy gap. If we initially think of these skills in the abstract, as key elements of an ideal-type organisation, we can describe how they contribute to an overall vision for effective science for policy: policymakers justify action with reference to the best available evidence, high scientific consensus and citizen and stakeholder 'ownership', and researchers earn respect, build effective networks, tailor evidence to key audiences, provide evidence-informed policy advice (without simply becoming advocates for their own cause) and learn from their success. Table 2 highlights the proposed impact of each skill in an ideal-type organisation, compared with less effective practices that provide a cautionary tale.

In recommending eight skills, we argue that 'pure scientists' and 'professional politicians' cannot do this job alone. Scientists need 'knowledge brokers' and science advisors with the skills to increase policymakers' demand for evidence. Policymakers need help to understand and explain the evidence and its implications. Brokers are essential: scientists with a feel for policy and policymakers understanding how to manage science and scientists. In Chapter 6, we describe how our internal facilitators in-between the two realms strengthen the collaboration between individual scientists and policymakers.

At the outset, the aim of the skills framework was to map the complementary skills desired for scientists working at the science-policy interface and develop corresponding training modules. At the JRC, we took a conscious decision to use the training not only for upskilling of staff but also to support the mindset change underpinning the sensemaking part of the JRC vision, i.e., '... *making sense of collective scientific knowledge for better EU policies*'. The individual needs of organisations will determine to what extent each of eight skills are required in their specific work context. At the JRC, a review of existing training modules helped us to identify the gaps in our training offering as we want to offer staff trainings covering the full range of skills framework primarily through in-house training or alternatively point them to external training providers. Along the same lines, we have integrated the complementary skills into our job profiles, hence ensuring that future recruits possess skills to support evidence-informed policies.

**Table 2** Eight skills and their potential impact

| Skill                              | The ideal type                                                                                                                                                                                    | The cautionary tale                                                                                                                                                                                     |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Synthesising research              | Researchers will present a concise, timely and policy-relevant synthesis. Policymakers will be able to justify action with reference to the best available evidence.                              | Researchers will provide too much information, too late, and with unclear relevance. Policymakers will be engulfed by information, unable to learn before they act or too able to cherry-pick evidence. |
| Managing expert communities        | Researchers will speak with a coherent and authoritative voice. Policymakers will act with confidence, built on scientific consensus.                                                             | Researchers will speak over and undermine each other. Policymakers will lack confidence, or play experts off each other.                                                                                |
| Understanding policy and science   | Researchers will know how and when to present evidence. Policymakers will have access to the most relevant and useful researchers.                                                                | Researchers will become ineffective and dispirited. Policymakers will not know who the most relevant and useful researchers are.                                                                        |
| Interpersonal                      | Researchers will form effective networks and earn respect. Policymakers will know and trust researchers.                                                                                          | Researchers will become marginalised. Policymakers will not trust the researchers who claim to 'speak truth to power'.                                                                                  |
| Engaging citizens and stakeholders | Researchers will help enhance the substance, credibility and legitimacy of knowledge. Policymakers can combine key evidence and public views to make sustainable political choices.               | Researchers remain in silos. Citizens and stakeholders are excluded and any evidence-based policy on which policymakers could rely lacks credibility and legitimacy.                                    |
| Communicating scientific knowledge | Researchers tailor messages to their audience, generating emotional interest and memorable presentations. Policymakers understand the evidence on policy problems and effectiveness of solutions. | Researcher evidence gets lost and receives no attention. Policymakers do not understand or pay attention to the evidence on policy problems and have limited awareness of effective solutions.          |
| Monitoring and evaluation          | Researchers and policymakers learn, partly through trial and error, which of their strategies work.                                                                                               | Researchers and policymakers stick to the same strategy without knowing if their evidence makes an impact.                                                                                              |
| Achieving policy impact            | Researchers combined evidence advocacy and political awareness to achieve policy impact. Policymakers receive policy-relevant advice on which they can act with greater confidence.               | Researchers become marginalised and rarely trusted in day-to-day politics. Policymakers receive evidence but remain unsure about its relevance and risk of inaction.                                    |