16. Specialising in I2S

The same three broad categories of I2S specialisation discussed for the first domain of knowledge synthesis are also relevant here, namely

1. I2S for team leaders

2. I2S disciplinary specialists

3. I2S appreciation for other integrative applied research team members.

I2S for Team Leaders

As part of their responsibility for the whole project, team leaders must understand the importance, inevitability and complexity of unknowns, as well as the concomitant unavoidability of imperfection. They must be able to guide their teams through the challenges of: a) overconfidence, b) nihilism and despair, c) hindsight bias, and d) sanctioning incompetence and corruption. They must be able to bring into the team I2S disciplinary specialists familiar with the available research findings about unknowns in order to guide the team's work in this domain. Further, they have responsibility for decisions about which discipline, practice-based and other expertise on unknowns is required, which approaches to understanding and managing diverse unknowns will be taken and the extent to which team members will be given a say in making these determinations.

The requirement for team leaders to have I2S expertise that is comprehensive enough to address specific aspects of I2S, as described in Box 9.1, is also relevant here. In brief, this involves

• providing guidance on aims and beneficiaries
• being open to options
• harnessing and managing differences
• appreciating that formulaic processes are not realistic
• understanding authorisation
• ensuring a commitment to excellence in the further development of I2S.

I2S Disciplinary Specialists

In this domain, I2S disciplinary specialists provide the detailed knowledge about unknowns that makes it possible for integrative applied research teams to take diverse unknowns into account. The specialists' expert knowledge is used to move teams beyond standard disciplinary ways of dealing with unknowns

to increase the scope of considerations through a problem-centred approach. Whereas knowledge synthesis works within recognised disciplinary parameters, this domain entails stepping outside them. This can involve revisiting unknowns that the disciplines would normally banish from consideration, examining unknowns at the intersections of disciplines, synthesising disciplinary and stakeholder perspectives on unknowns and thinking about unknowns in new ways that do not rely on the disciplines, such as through taxonomies. This process may take fellow team members well outside their comfort zones.

I2S disciplinary specialists also provide expertise in expanding the use of reduction and banishment as the primary methods for dealing with unknowns and can help teams understand exploitation, denial, surrender and, especially, acceptance as strategies they can employ. Specialists can also help their teams understand how relevant stakeholders may use these strategies—for example, how politicians may exploit unknowns to delay making a decision or how a community group may have a fatalistic stance (surrendering to unknowns), which affects its position on a problem.

It is unlikely that individual specialists will be equally proficient in all of the relevant concepts, methods, guides and applications, but they should have a working knowledge of all of the skills described in Box 16.1 and be able to bring in colleagues to make up for their deficiencies.

Box 16.1 Skills for I2S Disciplinary Specialists

I2S disciplinary specialists must have a basic working knowledge of all of the following specific skills and particular competence in some

- appreciation of the diversity of unknowns, including different disciplinary and stakeholder perspectives and various typologies
- understanding how different systems approaches deal with unknowns
- scoping to determine the full range of relevant unknowns, taking into account their complexity
- boundary setting without defaulting to 'business as usual', but instead identifying the unknowns that are most critical for the problem under consideration
- framing to communicate the approach to unknowns accurately and effectively
- dealing with values
- methods for dealing with unknowns—namely reduction, banishment, acceptance, surrender, exploitation and denial; appreciation of when these are adaptive and maladaptive and of the inevitability of trade-offs
- understanding overall context to ensure that the most important factors relevant to unknowns are considered.

I2S disciplinary specialists are responsible for ensuring that the other team members, especially the team leaders, are aware of available options and their strengths and weaknesses. They also have an important role in helping teams choose the most appropriate options for the problems they are tackling.

Another key role for I2S specialists is to be active in expanding their discipline's array of useful theory, methods and case examples, as well as guides to relevant knowledge from outside the discipline. In the first instance this will be given a fillip through the I2S Development Drive, but this is also an ongoing role. A particular task is to ensure that the work of teams relevant to I2S is published. As members of the I2S college of peers, I2S specialists also have important work to do in fairly and thoroughly assessing how other integrative applied research teams and their I2S specialist members have dealt with unknowns.

I2S Appreciation for Other Integrative Applied Research Team Members

The other team members must have some understanding of the broader approach to unknowns, especially as a comprehensive focus on diverse unknowns will be unfamiliar to many of them. They will also need to understand that this area is less developed, so that some of the approaches may be less advanced than in standard discipline-based research and in the other two I2S domains. As discussed in Chapter 9, the team will need to have more knowledge about I2S if the integrative applied research approach involves the whole team in I2S activities such as scoping and boundary setting than if the team members contribute their disciplinary expertise, but leave it to the team leader and I2S disciplinary specialists to make and implement I2S-relevant decisions.

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The chapters in this domain have provided a systematic approach to planning and reporting consideration of diverse unknowns through the five-question framework. They have also outlined the categories of concepts, methods, case examples and guides that must be collected and developed to make I2S an effective discipline through the Big-Science-like project, the I2S Development Drive.

In the next group of chapters, the framework is applied to the third domain of integrative applied research and I2S—namely providing integrated research support for policy and practice change.