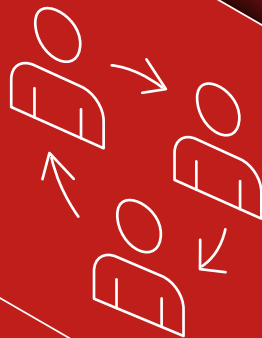




SCHOOL OF
INTERNATIONAL
FUTURES



Review of Sciencewise and proposed future approaches

November 2020

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Executive summary

UK Research and Innovation (UKRI), an arm's-length body overseen by the Department of Business, Energy and Industrial Strategy (BEIS), was established in 2018. UKRI includes the UK's seven Research Councils, Innovate UK and Research England.

In September 2019 UKRI published its vision for public engagement, committing to creating a coherent and strategic approach for engaging society in the work of the organisation.

The strategy asks four questions:

- 1. What is the best way of incentivising and supporting the researchers we fund to do more and better public engagement?**
- 2. What is the best way of measuring the impact of public engagement?**
- 3. How can we more systematically involve society in discussions and debates about research and innovation priorities?**

4. What role could public engagement play in the work of the businesses that we support?

In the context of this strategy, UKRI asked the School of International Futures to help its public engagement team consider the potential future models of Sciencewise, a public deliberative engagement programme that UKRI inherited from BEIS in 2018. This would include an evidence-based assessment of Sciencewise to date, and the strengths and weaknesses of the current model.

Background to Sciencewise

Sciencewise was established in 2004 as a resource for the UK Government to incorporate public voices and views into policymaking around innovations in science and technology. Since then it has been managed by BEIS and its predecessor departments. It has delivered more than sixty dialogue projects in partnership with

policy colleagues across a range of science and technology themes.

The programme was paused between 2016-2017 as discussions were held over its future. It was relaunched in 2017, with a significantly reduced budget for operations. In 2018, Sciencewise was one of a number of programmes that moved from BEIS to UKRI as part of the creation of the new organisation. Having been through a number of iterations, today Sciencewise:

The programme was paused between 2016-2017 as discussions were held over its future. It was relaunched in 2017, with a significantly reduced budget for operations. In 2018, Sciencewise was one of a number of programmes that moved from BEIS to UKRI as part of the creation of the new organisation. Having been through a number of iterations, today Sciencewise:

Enables policy makers to develop socially informed policy on issues of science and technology and their societal implications, by:

- Helping decision-makers formulate policy with a deeper understanding of public views, concerns and aspirations.
- Supporting high quality, best practice public dialogue.
- Bringing credibility and independence to government-led public dialogue.

Sciencewise conducts deliberative dialogues involving the public in response to specific requests from a commissioning policymaker. These primarily fit either within one of the UK Government's four current Industrial Strategy Grand Challenges, or in the area of genomics and genome editing.

Sciencewise provides up to 50% of the funding for any project, helps the commissioner frame the project according to the Sciencewise Guiding Principles and Quality Standards, works with the commissioner to run a competitive process to identify a supplier and evaluation partner drawn from its procurement roster, provides ongoing support and advice to the commissioner throughout the dialogue, and publishes the results of the work on its website.

The team is led by Involve, BEIS and UKRI. Colleagues from Involve, a commissioned organisation, provide the dialogue expertise and lead on generating commissions. A small number of other organisations are commissioned to deliver and evaluate the dialogue itself. UKRI staff lead on budget and procurement and BEIS staff focus on the connection to policy priorities in central government.

The next phase of Sciencewise

When inheriting Sciencewise in 2018, UKRI extended the previous model of Sciencewise through to April 2021 to give time for UKRI

to develop its own strategy for public engagement and cement its relationship with central government.

In advance of the recommissioning in 2021, UKRI now wants to reflect and make changes for the long-term future of Sciencewise within the wider context of UKRI's own public engagement strategy as well as the strategic relationship between UKRI and its key stakeholders, including central government, civil society and the private sector.

Options for the future of Sciencewise

Drawing on all the evidence collected for this review, and on discussions with the UKRI team and the programme's stakeholders, three main options arise for the future of Sciencewise:

1. **Make minor improvements to the existing Sciencewise model:** retain the existing aims, priorities and operational structures with some minor tweaks to streamline procurement and introduce a wider range of models for deliberation and dialogue.
2. **Amplify and build on what makes Sciencewise valuable:** start with the strengths of Sciencewise - particularly its stewardship of deliberation as a method and its relationships with central government - and move towards a fit-for-purpose strategy, operating model

and programme of work to amplify and magnify these assets.

3. **Repurpose the resources:** bring the specific ring-fenced programme of Sciencewise to an end and look at how the resource might be repurposed.

Each of these is a viable option, given the necessary time and resource; the choice depends on UKRI's appetite to invest in change and in the delivery of impact. Below, we outline the upsides and downsides. We make a recommendation and provide more detail about its implications.

The review and option development process

UKRI asked the School of International Futures (SOIF) to: assess what is working well and what could be improved in the current model; explore lessons from international good practice; consider trends that will impact on the future of public engagement and science and technology; and provide a recommendation on the way forward. Box 1 sets out the activities that SOIF undertook in order to gather evidence and develop options before making its recommendation for the future model of Sciencewise.

Box 1 Summary of activities to gather evidence and develop options

1. Interviews with more than 25 Sciencewise stakeholders including team members (UKRI, Involve and BEIS), project commissioners, delivery and evaluation suppliers, BEIS programme sponsors and others. This included interviews with policy colleagues who explored the possibility of commissioning a Sciencewise dialogue but who subsequently chose not to proceed with commissioning.
2. Two workshops with further stakeholders including members of the Sciencewise management team and Dialogue Engagement Specialists who had not been interviewed.
3. A review of previous reports, evaluations, dialogue documents and think pieces within the Sciencewise library. A full bibliography is given in Annex B of the report.
4. Engagement with our own advisory group of experts from public engagement, evaluation and science and technology innovation.
5. Development of 20 short-form and six long-form international case studies that both benchmark and stretch Sciencewise. These were drawn from a list of over 70 options and cover 15 countries and five continents. Particularly relevant insights to inform UKRI's future model of Sciencewise are highlighted throughout the report and the full list is provided in Annex D.
6. A half-day workshop bringing together the full range of stakeholders to explore the context that Sciencewise may find itself in by 2030, including what this means for a Sciencewise ten years from now and the resulting design features that Sciencewise would need from 2021. Outputs of this event, which informed the options and recommendations, are found in Annex C.
7. Development and exploration of different potential priorities for the programme, shared and discussed with the UKRI team to inform options for what Sciencewise can and should achieve within UKRI.

Assessing the options and making a recommendation

Taken together, these activities provide the evidence base for assessing UKRI's options around Sciencewise. Our recommended option has also been framed by the priorities, position and views of UKRI.

At a strategic level, Sciencewise has unique strengths that UKRI should significantly amplify and leverage:

- **The Sciencewise commitment to deliberation:** defined here as the active dialogue and discussion between the public, experts and policymakers. Deliberation brings specific benefits that cannot be achieved through other public engagement or social research methods.

Deliberation does not have to be face-to-face, but it has to actively design against self-selection. It needs to allow for iteration and discussion, over time, with multiple interactions so that shared understanding grows. Participants need to be part of a collective discussion, integrating their unique responses to shared information and walking alongside each other on a shared journey with common inputs and very different responses and lenses.

The participants in Sciencewise public dialogues are far more than mere data points and dialogues are much richer

than a simple two-way discussion. The opportunity to delve deeply and thoughtfully into issues, over time and with detailed background information, provides everyone in the room with a chance to surface assumptions. Deliberative dialogues intentionally build the trust needed for difficult questions of equity, power, and consequences (intended and unintended) to be surfaced and then properly debated. The experience sits in the minds of all participants and, particularly in the case of experts and policymakers, can inform and influence choices long into the future.

- **Sciencewise's connection to policy making and policy makers:** informed policymaking is part of leveraging the full potential of innovation and research. There is a risk that a Sciencewise wholly focused on URKI and the UKRI community will lose its influence over the public voice which is critical in shaping innovation and research.

There are also a number of areas of weakness in the current manifestation of Sciencewise:

- Lack of clarity about the purpose and focus of Sciencewise means that it does not carry the heft or impact it could. Potential commissioners do not know what Sciencewise can offer and so do not seek out its resource and support. Some stakeholders consider that one of the roles of Sciencewise is to provide insight

and challenge into policymaking while others consider that this sits outside the programme's remit.

- Absence of an informed map of strategic priorities in science and technology means that Sciencewise's choice of dialogues, particularly recently, risks seeming opportunistic and haphazard – and topics might be missed. Some of these are priorities for the public and others might be new and emerging topics that deserve attention and dialogue (examples given included facial recognition and artificial technology).
- Lack of investment in long-term ongoing engagement around pressing or particularly impactful science or technology means that work is often short term in its impact and may influence a specific request without having systemic influence.
- Absence of its own work programme means that Sciencewise is reliant on appetite from others for action, even if there are pressing issues where this appetite does not yet exist.

The evidence we have gathered shows real potential for UKRI to harness the historic and legacy value of Sciencewise, building a new approach and programme as part of wider efforts to transform the relationship between the public and science, technology and research.

Recommended option: Option 2 - Amplify and build on what makes Sciencewise valuable:

SOIF therefore recommends that UKRI adopts the second of the three possible options outlined above, taking action to amplify Sciencewise's strengths around deliberation, and its relationships with central government. To do this it will need to retain Sciencewise as a clearly defined and ring-fenced programme. It should build on its rich history so that it can:

- Be a proactive, visible and innovative leading advocate of deliberation, enabling this necessary and valuable aspect of how the public, experts and policymakers collaborate on big questions.
- Focus on topics from across the UKRI agenda including but not limited to science and technology. These topics should be strategic priorities where the influence of the public over success is significant and / or highly uncertain or where the area of innovation itself is potentially disruptive or likely to have adverse impact.
- Engage at all stages of the research process, from upstream choices about what to fund, through downstream development of policy and regulation to a final assessment of implementation.

The benefits of this recommendation are potentially significant although there are some drawbacks to overcome.

Benefits

- There is a real opportunity to build a deliberative capacity used by the research and policy communities in a way that is transformative.
- There is appetite from senior leadership in UKRI (including the incoming CEO), and from potential partners to retain and grow the deliberative priorities
- Deep dialogue between the public, experts and policymakers is a necessity for the challenges and opportunities today and tomorrow.

Drawbacks:

- The current resources, including skills, will require reconfiguration
- Maximising impact may require additional resource
- Longstanding relationships and ways of working will need to change

Building knowledge around the value of deliberation requires investment, activity and patience. This is particularly true when coming up against timelines that are in tension with the timescales for deliberation as currently delivered.

The other options

Below are high level assessments of the other two options:

- **Option 1 – Make minor improvements to the existing Sciencewise model:**

Benefits: making minor improvements requires relatively little resource and will limit the need for potentially difficult conversations and negotiations between UKRI and other partners. Commissions will continue to come in and dialogues to be delivered.

Drawbacks: our research - particularly interviews and comparison to international best practice - shows that Sciencewise has limited impact beyond specific dialogues. It is not resourced to achieve a transformation in knowledge or increase appetite for public dialogue among current commissioners (policymakers and researchers).

- **Option 3 – Repurpose the resource:**

Benefits: brings the resource into the broader UKRI public engagement programme to be used flexibly as guided by that strategy.

Drawbacks: our research and experience suggest that the unique value of Sciencewise – its connection to central government and commitment to deliberation – will be lost even if there is intention to retain them. This is because additions to top line UKRI priorities are unlikely to be defended if there is subsequent desire to move the resource elsewhere.

There are also significant reputational and relational risks - particularly with the wider public engagement community and with central government sponsors - in losing these connections.

Achieving an amplified Sciencewise in practice

In setting out the frame for making our recommendation, UKRI specified four key features:

1. How projects are identified and commissioned (including methods and tools used)
2. The relationship between UKRI, project managers, suppliers, and government
3. The responsiveness and impact of dialogue delivery
4. The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

There are specific actions and changes that UKRI would want to make in each of these areas in order to maximise the impact of Sciencewise over the next ten years. The recommendations below capture the key changes in each area; they are not exhaustive and are not in any specific order of priority.

How projects are identified and commissioned (including methods and tools used):

- Broaden the areas of work from Science and Technology to reflect the full agenda of UKRI, driving the uptake of deliberative processes across all the research sectors within UKRI.
- Develop a clear set of strategic priorities, and focus the development of relationships and securing of commissions on these priorities for the long term.
- Draw on insight into public attitudes, including work that others are doing, and use this to help stimulate project identification.
- Substantially increase involvement upstream in the research process, at the point when priorities, funding streams and programmes of work are being set.
- Create long-term programmes of work around these themes, with multiple projects, some commissioned and some driven internally.
- Include self-commissioned future- and horizon-scanning in the work programme, in order to collect and make sense of weak signals of public attitude and to change and map cross-cutting public values for science and technology.

- Invest in the development of deliberative methods, particularly those that reduce resource / time requirements while enabling the integrative, multi-perspective, deep and on-going exploration of a topic that deliberation uniquely delivers.

Central to this should be an exploration of digital methods in the light of COVID-19's impact on the rapid expansion of reliance on digital tools.

The relationship between UKRI, project managers, suppliers, and government:

- Increase capacity to generate commissions in-house, including adequate resource to create, nurture and sustain relationships with research councils, policymakers, civil society and the private sector.
- Widen the pool of providers and evaluators to include a much more diverse set of organisations and methods (informed by the development work outlined above)

The responsiveness and impact of dialogue delivery:

- Elevate groups and voices where there has been historic lack of representation, visibility or presence. In some instances, this will mean having 'unequal' representation to combat lack of voice in other parts of the science and technology process.
- Introduce new measures of success and impact that focus on social benefit, public value and long-term change in the process of science and technology. This may include investing in research to develop, test and implement new methods, including qualitative and narrative-based metrics.
- Set expectations that a Sciencewise dialogue involves a commitment to being open with its findings

The recognition and reputation of Sciencewise and / or dialogue among key relevant parties:

- Retain deliberation as the prioritised method, perhaps strengthening aspects of the Quality Standards to reflect the unique value of this type of multi-stakeholder, multiple-interaction collaborative process
- Become a thought leader in the application of deliberative methods across the life cycle of science and technology, providing robust evidence of

the benefits of deliberation and actively justifying the resource / time investment required (while also working to develop new methods as set out above).

Institutional structure

If UKRI chooses to amplify Sciencewise there are choices it can make about developing the structure and form for the future. These range from training the current model through to an ambitious new organisation:

- **Commissioning the work:** UKRI could choose to retain a model similar to the current approach and commission a management partner as well as providers for the various tasks.
- **Increasing capacity within UKRI:** UKRI could increase its own in-house capacity to deliver the additionally recommended functions (e.g. self-generated work) and / or existing roles and responsibilities. Within this, UKRI would likely commission individual pieces of work or functions when specific expertise is required.
- **Creating a new organisation:** UKRI could choose to create an ambitious new stand-alone body that delivers the functions and contributions set out above. Our review of international case studies includes a number of examples of this model, including the Danish Board of Technology, the Norway Board of Technology, the Rathenau Instituut and others.

Delivering transformation

SOIF does not underestimate the effort, both practical and political, that UKRI will need to invest to leverage the potential of Sciencewise. UKRI will need to work closely with key stakeholders, including BEIS, to outline the vision for Sciencewise and agree its transformative journey, including how the 2021 commission will start this process. The extent to which UKRI can respond to each suggestion will be based on the resources it chooses to invest in the programme and it is outside the scope of this review to provide specific cost estimates.

Some of the detailed suggestions above will require greater effort than others and while there is an opportunity now to make some changes before the programme refreshes in 2021, these may not be sufficient to secure the buy-in and to develop the detail needed for more radical changes. Financial constraints may also limit the scale and the pace of change. Finally, the ongoing development of UKRI's wider public engagement strategy may mean that the recommendations are met in some other guise than Sciencewise.

It might therefore make sense to 'tweak' Sciencewise for the next few years while further developing and locating the transformation that is possible. There are three approaches we suggest UKRI consider. We purposefully start from the most ambitious as our experience suggests that

this offers the greatest chance of successful transformation:

- **Transform from 2021:** UKRI could use the arrival of a new CEO, the unprecedented experiences of COVID-19, the delivery of this review and the 15th anniversary of the launch of Sciencewise to commission a fundamentally new approach to the programme. This could echo the scale of ambition originally set out in 2004, at a time when there were crises of science, research and technology that are dwarfed by the complexities we face today and will face over the next 10 years.
- **Test and iterate:** UKRI could set out the problem it is trying to address and then commission experiments against this problem statement. There may be scope to introduce challenges or prizes, to resource academic research into the question and to identify research and policy colleagues actively seeking to learn and iterate. This would be possible with either of the strategic orientations we have suggested, as well as with others that UKRI may develop.
- **Tweak then transform:** UKRI could commission a 'tweaked' version of the Sciencewise programme for the next two to three years, broadening its provider base, reframing, and refreshing the Quality Standards and building an

audience and community around its chosen focus. It could use the wider Public Engagement programme and community to test and iterate around its preferred model.

In considering the pace and scale of change UKRI may want to explore strategic partnerships with other organisations who have a similar commitment to widening the diversity of evidence and research methods used by science and technology research, innovation and implementation in order to maximise the breadth of views that are incorporated.



1. Background to Sciencewise

Sciencewise was established in 2004 in the wake of policy challenges including BSE and GM crops. As one longstanding stakeholder said, “You had a few things happen in the previous decade (to founding), you had Mad Cow, GM crops and then around 2000 there was a House of Lords report on science and society and there was a recommendation that scientists should be more open to the public.” The programme has been through a number of shapes and sizes, including a refocus in 2008 on public dialogue and a formal closure for less than a year in 2016-2017. The programme restarted in March 2018 and by 2019 had completed its move into UKRI as part of the creation of this new arm’s-length public body incorporating all of the UK’s research councils, Innovate UK and Research Councils UK. Today, Sciencewise:

Enables policymakers to develop socially informed policy, with a particular emphasis on science and technology, by:

- Helping decisionmakers to formulate policy with a deeper understanding of public views, concerns and aspirations.
- Supporting high quality, best practice public dialogue.
- Bringing credibility and independence to government-led public dialogue.

In practice, this means that Sciencewise conducts deliberative dialogues around specific themes, responding to the requests of a commissioning policymaker. The questions might sit across more than one government body but the commission will only come from one. In addition to co-funding the dialogue, Sciencewise helps to define the project according to its Guiding Principles and Quality Standards, selects a supplier and evaluation partner from its

procurement roster (in partnership with the commissioner), provides the commissioner with support and advice during the process, and publishes the results of the work on its website.

The team is led by Involve and UKRI and supported by BEIS. Colleagues from Involve, a commissioned organisation, provide the dialogue expertise and lead on generating commissions. UKRI staff support the process, including leading on budget and procurement. BEIS staff support the connection to policy priorities in central government. UKRI's programme lead spends about 30% of their time on Sciencewise and there is a full-time programme manager; the remaining staff have Sciencewise as part of their portfolio of work. The budget for the current Sciencewise programme (2017-2019) was £1 million per year for dialogue projects, and £200,000 for the provision of management support for the core programme. The 2019-2021 delivery is an extension of this project. The budget set in 2017 is a significant reduction from budget for the previous Sciencewise programme (2012-2016).

In the current delivery model:

- The programme of work is determined by the individual commissions, usually nurtured and supported by the Involve part of the Sciencewise team
- Dialogues and evaluation of the dialogues are delivered by one of a small number of partners who are part of the Sciencewise delivery and its evaluation-commissioning frameworks
- The use and dissemination of findings beyond the publication of the findings on the Sciencewise website is led by the commissioning department.
- Relationships are focused on specific commissions; the team nurtures relationships with policy colleagues to generate commissions, often over long periods of time. Once dialogues are complete these relationships can drift.

Having published its public engagement vision in September 2019, UKRI now has the opportunity to reflect on the future of Sciencewise within the wider context of UKRI's own public engagement strategy as well as within the strategic relationship between UKRI and its key stakeholders (including central government, civil society and the private sector).

1.1 The review process

UKRI initially commissioned the School of International Futures to explore the question

How can Sciencewise best foster effective public dialogue around science, research, and technology?

UKRI specified key features of the programme within this:

1. How projects are identified and commissioned (including methods and tools used)
2. The relationship between UKRI, project managers, suppliers, and Government
3. The responsiveness and impact of dialogue delivery
4. The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

In response to evidence gathered over the course of the project, SOIF's exploration evolved into a more first principles review and a consideration of the future of the programme. The question became

What is the most appropriate iteration of Sciencewise after 2021, given the evolving role of UKRI in the UK's science, technology and research system?

This included consideration of three options and their implications for the operational questions set out above. Box 2 outlines the three options considered.

Box 2: Options for the future model of Sciencewise in UKRI

1. **Make minor improvements to the existing Sciencewise model:** retain the existing aims, priorities and operational structures with some minor tweaks to streamline procurement and introduce a wider range of models for deliberation and dialogue.
2. **Amplify what makes Sciencewise unique:** starting from the unique strengths of Sciencewise - its stewardship of deliberation as a method and its relationships with central government - develop a fit-for-purpose structure, operating model and programme of work that amplify and magnify these assets.
3. **Repurpose the resources:** bring the specific ring-fenced programme of Sciencewise to an end and look at how the resources might be repurposed.

SOIF drew on a range of activities in order to make our final recommendationⁱ:

- Interviews with over 25 Sciencewise stakeholders including team members (UKRI, Involve and BEIS), project commissioners, delivery, and evaluation suppliers, BEIS programme sponsors and others. These includes interviews with policy colleagues who had explored the possibility of commissioning a Sciencewise dialogue but subsequently chose not to proceed with commissioning.
- Two workshops with further stakeholders including members of the Sciencewise management team and Dialogue Engagement Specialists who had not interviewed.
- A review of previous reports, evaluations, dialogue documents and think pieces within the Sciencewise library.
- Engagement with our own advisory group of experts from public engagement, evaluation and science and technology innovation.
- Development of 20 short-form and six long-form case studies that both benchmark and stretch Sciencewise. These were drawn from a list of over 70

options and cover fifteen countries and five continents.

- A half-day workshop bringing together the full range of stakeholders to explore the context that Sciencewise may find itself in by 2030, including what this means for a Sciencewise ten years from now and the resulting design features that Sciencewise would need from 2021.

The assessment of the three options for the future of Sciencewise was framed by two parameters, agreed in collaboration with UKRI colleagues:

- Commissioned work will continue to form part of the Sciencewise portfolio
- The final recommendation may not be implemented immediately, so there may also need to be an interim stage of the programme

1.2 This report

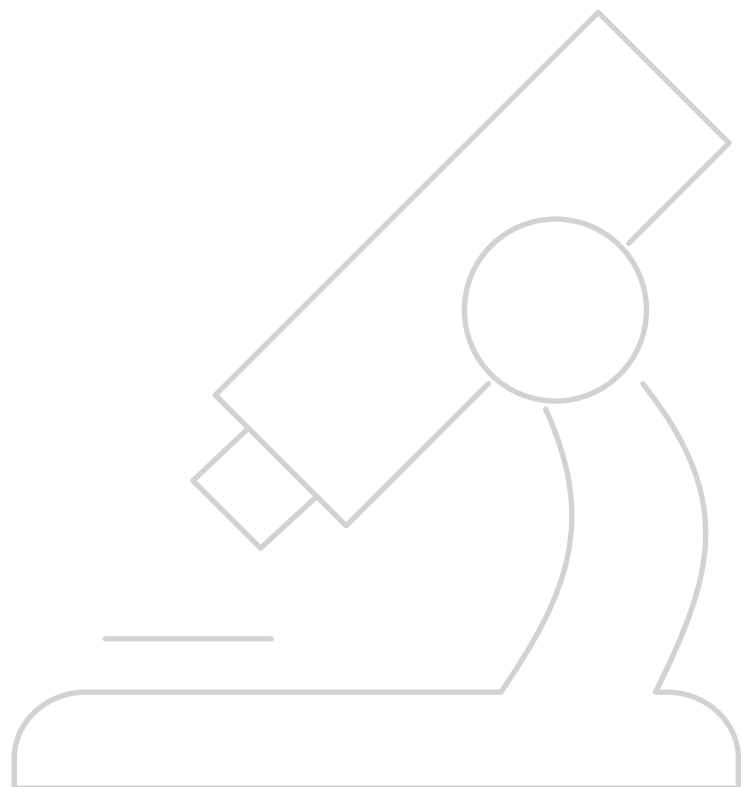
Within this report we set out:

- The strengths of the current model of Sciencewise including its assets (Section 2)
- The challenges in the current model following the questions originally set out by UKRI (Section 3)

i. The initial brief from UKRI did not ask for input from the public. However, we felt that this was an important angle and suggested a one-day street survey process. COVID-19 has made this impossible. We encourage UKRI to engage with members of the public, starting with people who have been involved in dialogues, in order to get a complete picture from stakeholders as part of the further development this report recommends.

- The trends that will impact on UKRI's remit and public engagement (Section 4)
- The three options considered for the future of Sciencewise and a recommended option (Section 5)
- High-level options for implementing change (Section 6)

Annex A summarises the current manifestation of Sciencewise against the specific questions set out by UKRI. Annex B presents a list of interviewees and workshop participants. Annex C lists the documents that form the literature review. Annex D brings together the three proposed options and the assessments against these. Annex E sets out the findings from the half-day design workshop. The details of case studies referenced throughout can be found in Annex F.



2. Strengths and assets of Sciencewise

The findings in this Section reflect an analysis and synthesis of the evidence gathered by SOIF from interviews, workshops, case studies and literature reviews.

Sciencewise is unique across the world: nowhere else does government have a dedicated resource, with central government as one of the lead partners, that promotes and delivers world-class deliberative processes around the most pressing questions of science and technologyⁱⁱ. In particular, it gives UKRI strategic capacity to:

- Connect to and influence complex, high-risk areas of science and technology policy that may impact significantly on the public

- Prioritise and demonstrate the value of deliberation, and especially its explicit capacity to give prominence to voices and opinions that are less often heard. The deeper understanding of nuanced insight that comes from this type of engagement is particularly important in the face of pressure to simplify, speed up and digitise

Sciencewise also has two other assets that that inform our final recommendation:

- A strong reputation and good relationships with those who know about Sciencewise
- A catalogue of evidence about public values on specific topics, and science and technology more broadly

ii. As part of our case study process, SOIF conducted a scan of other organisations that provide dialogue to government. The most relevant and / or stretching are included in our case studies. Our broad scan gives confidence in the unique nature of Sciencewise.

2.1 Delivering impact

Sciencewise is currently assessed against two metrics, according to which it has had some success.

1. The number of dialogues delivered
2. The impact of these dialogues on the policy area leading the commission

2.1.1 Number of dialogues

While the number of dialogues has never been at the level originally hoped for, stakeholders ‘feel’ that 60+ dialogues across science and technology is a ‘good’ number to have accomplished in the past 15 years. Over the 2012-15 period, Sciencewise co-funded and supported the implementation of 27 dialogue projects which was a significant increase in activity compared to earlier Sciencewise funding cycles (15 projects during 2008-2011 and 7 pre-2008).

There is a sense that dialogues were sometimes focused on policy areas that would have significant impact on the public and / or that the success of their implementation would be heavily influenced by public sentiment and behaviour. At other times, including more recently, there is some feeling that dialogues are occasionally delivered in order to use the budget and to show that dialogues have happened rather than ensuring that they are happening in the most pressing or strategic areas of science and technology policy.

2.1.2 Impact on policy areas

Sciencewise has influenced some significant science and technology policy decisions of its day through deliberation, including genomics, clean energy and nano-technology.

There are dialogues where clear lines can be drawn from the dialogue process to policy decisions and previous reviews call attention to a number of these including:

- **The Genomics Medicine dialogue in 2018-2019:** endorsed by the UK’s Chief Medical Officer as valuable and timely, this may form a new understanding of the social contract in the next NHS Constitution, as well as being robust enough to form a part of the academic literature on the topic moving forward.
- **The Geological Disposal Facility dialogue in 2016:** praised for being a great example of how a carefully framed, designed, and delivered public dialogue

“ Dialogue evaluation reports and follow-up impact tracking work from this programme and previous iterations show very clearly that outputs have informed policy development and that policy leads place value in and use the findings from dialogue projects.”

Does Dialogue Work

process can add value to open policy making without delaying the policy process.

- **The Human Tissue Sharing dialogue**

in 2017: credited with informing future guidance, but also influencing the direct clinical practice of the experts involved.

Qualitative evidence from Sciencewise and others says that deliberative processes make a real difference to the decisions and choices that policymakers and scientists make in the short and medium term.

There are also impacts on policymakers and scientists themselves, often greater than the impact on the public. A commissioner said “We wouldn’t normally do it [dialogue] and was way outside of our comfort zone but because of the Sciencewise expertise it gave us confidence”

In addition to impact on specific policy, Sciencewise’s connection to policymaking and policymakers more generally is itself an asset. Informed policymaking is a critical part of leveraging the full potential of innovation and research and being able to provide input and insight is critical. As one supplier said, Sciencewise provides “an opportunity for national strategic impact...which makes it relevant, important, interesting and worth being paid for by the taxpayer.”

The impact of deliberation on policy: An example from Expert and Citizen Assessment of Science and Technology

Expert and Citizen Assessment of Science and Technology (ECAST) deliberations in the U.S. provided direct input into NASA’s 2014 Asteroid Redirect Mission. NASA ultimately moved forward with the option preferred by participants in the deliberation and the deliberations also introduced the concept of planetary defence as a core concern of citizens, which NASA later responded to within its own mission and organisation.

“One of the key learnings that [the commissioning department] reflected back was simply being in the room with members of the public and how powerful it was to see how a deliberative process worked and that has a longer term and broad impact”

Sciencewise Supplier

2.1.3 Setting the standards for what good looks like

In addition to the two stated aims, Sciencewise also sets standards for what good looks like, particularly for the public engagement and policy community. Sciencewise deliberative dialogues are considered best practice by the public engagement community. The quality of dialogues is perceived to be strong, and the outputs are considered high quality and of value to the policy teams commissioning the work.

“In all the instances I have been involved in the policy teams have been happy with what they have received and [Sciencewise] has a reputation for doing it well”.

Sciencewise team member

The Sciencewise Guiding Principles are seen by this same community as the benchmark for quality deliberative dialogue and are often used to frame non-Sciencewise processes in central and local government. As one supplier said “Sciencewise principles ...have become accepted in the UK as good practice standard particularly for deliberative dialogue”.

2.2 Championing deliberation

A second feature of Sciencewise is its unwavering commitment to deliberation as a valuable and valued method. Deliberation, defined here as active dialogue and discussion between the public, experts and policymakers It brings specific benefits that cannot be achieved through other public engagement or social research methods.

Deliberative dialogue surfaces evidence and insight not otherwise available

All of the stakeholders we spoke to outside of the UKRI team, including commissioners who did not pursue the Sciencewise route (but did commission dialogues), felt that patient and deep discussion of the type afforded by deliberation is crucial for investment decisions, policymaking and regulation around emerging new science and technology where evolution may be uncertain and implications are complex.

The participants in Sciencewise public dialogues are far more than mere data points and dialogues are much richer than a simple two-way discussion. The chance to

“The value of the methods is their deliberative form, assembling micro publics with one eye to representativeness – texture and depth is the point not representativeness”

Academic

delve deeply and thoughtfully into issues over time and with detailed background information provides everyone in the room with a collective opportunity to surface assumptions. There is time to build the trust needed for difficult questions of equity, power, and consequences (intended and unintended) to be surfaced and then properly properly. Experts, policymakers and the public collectively explore a complex question, its implications and potential. The experience and the messages heard sit in the minds of all participants and, particularly in the case of experts and policymakers, can inform and influence choices long into the future.

Deliberation also allows for unheard voices to have equal if not greater power in the conversation.

A number of the case studies we explored show how these benefits result from deliberative processes. Box 3 gives some illustrative examples.

“ When specialists get into a room with people they wouldn't normally engage with on scientific research they are bowled over by that process – and observing a dialogue in action can be life changing for both the public and the experts”

Sciencewise Supplier

“ The policy makers are included in the group feeling and those that go and observe are almost always really impressed at the quality of dialogue the public is able to have with relatively little information”

Sciencewise Supplier

“ Deliberation involves the public and looks beyond the usual suspects of stakeholder groups – e.g. the viciously pro or anti forces who make the most noise and have the money and citizen power to make a big noise”

Sciencewise Advisory Group member

Box 3: Additional values of deliberation; examples from across the case studies

Deliberation can have wide-ranging benefits beyond answering specific policy questions within a discrete timeframe. These examples are provided for illustration and stimulation rather than as recommendations. For more information on individual case studies, see Annex F.

- **Imagining alternative visions of the future to inform the science, technology and research that must happen to create desired societal outcomes:** CIMULACT used deliberative foresight techniques to generate visions for people's desired futures. These were then translated into recommendations for research topics.
- **Defining desirable societal outcomes and identifying potential ones:** The Sloan Foundation funds public dialogue alongside economic modelling of climate change interventions to help explain the nuanced rationale behind public beliefs and behaviours. The Wellbeing in Germany project used deliberation to define the metrics that policies are measured by. The Rathenau Instituut uses deliberation to define the impact of policy choices on society.
- **Informing and participating in general media conversation and public debate:** The Rathenau Instituut provides background for articles, appears on TV and radio, and publishes regularly through its own channels. Singapore Youth Conversations brings findings to people through social and traditional media.
- **Putting problem-solving power in the hands of communities:** The Resilience Dialogues and CARE ALP programmes connect communities to experts in order to address urgent local problems created by climate change.
- **Adding to the evidence base about deliberative dialogue and social research:** the ECAST network treats each dialogue as a research project on methodology and is in the process of publishing peer-reviewed literature on findings. The Rathenau Instituut sits in the Dutch academic employment system and participates in peer-reviewed literature as well as publishing for parliament and the public.
- **Making choices about what does and does not happen:** La Commission Nationale Du Débat Publique starts every public discussion with the question 'to build or not build?'
- **Creating relationships:** During the Wellbeing in Germany project, organisers learned that dialogue has value in itself. People really appreciated getting together with people they did not know and with representatives of central government in order to discuss common priorities.

2.3 A strong reputation and good relationships

Relationships across the programme are generally strong and positive, in part because of the supportive and collaborative approach of the Sciencewise team, particularly the Dialogue Engagement Specialists (DES). As one commissioner said “We began developing the programme to research this area and since then it’s been a mad, challenging long and wonderful experience of running a dialogue programme with Sciencewise which is on-going.”

The community around Sciencewise can feel quite closed and small, with a feeling that there has been little injection of new thinking for some time. Many of the people and organisations involved in Sciencewise have been involved since it began, know each other, and work with and for each other in different ways. In some cases, DESs are associates of more than one organisation involved with Sciencewise. These longstanding relationships mean that people in different roles can pick up the phone to each other and resolve any tensions or problems that may arise.

Relationship challenges have emerged between commissioners and Sciencewise

when there are different views of the purpose of dialogue. These are rare in practice, as usually dialogue does not progress to commissioning if there are significant differences in purpose and aim. The Sciencewise Guidelines provide clear boundaries for what is and is not considered to be a Sciencewise programme. When the difference does not emerge until the dialogue is in process, however, there is a feeling that Sciencewise has little flex and remains wedded to its own way, particularly at the point of reviewing business cases and selecting dialogue suppliers.

Delivery and evaluation suppliers state that, as organisations, they enjoy working with Sciencewise. The topics are interesting, the questions strategic, and there is space and time to do high-quality, in-depth work that can influence national policy. Being affiliated with Sciencewise is also a strong endorsement of experience when bidding for other work, particularly other dialogue and public engagement work for government.

Around individual dialogues, suppliers feel that Sciencewise is a learning organisation, willing to consider what works and what can be improved around specific projects.

2.4 Library and catalogue of evidence, and insight about public values

Sciencewise has conducted over 50 dialogues across high-profile areas including: ageing well; artificial intelligence and data; clean growth; the future of mobility; genomics and genome editing; and agriculture. Each of these dialogues has a report of the dialogue outcomes, an evaluation and, in many instances, a case study detailing the process of the dialogue. In some of these areas Sciencewise has conducted more than one dialogue, giving it strategic insight into public values and attitudes over a number of specific considerations and in some cases over time in that area of science.

In addition, Sciencewise has commissioned a number of think pieces and reviews, including, but not limited to:

- Public dialogue in science and technology: an international overview
- Sustainable participation? Mapping out and reflecting on the field of public dialogue on science and technology
- International Comparison of Public Dialogue on Science and Technology

Taken together, Sciencewise has created a repository of information about public attitudes to areas of science and technology that are priorities for central government.

“ Sciencewise has built up a very good body of experimental practice on dialogue and they contribute to a richer picture of dialogue”

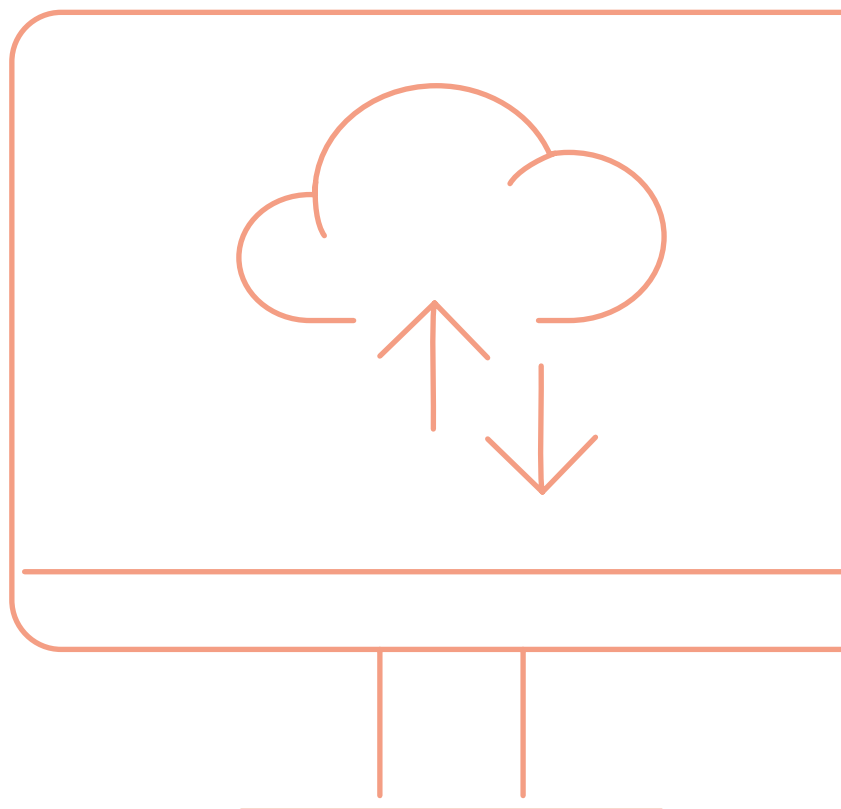
Academic

In 2012, Research Councils UK, the precursor to UKRI, commissioned a review of the insights held across the dialogues it had commissioned through Sciencewise. Eight consistent outcomes were identified:

1. Conditional support for the area of research being discussed
2. Desire to see equitable distribution of both potential benefits and potential risks
3. Welcoming business participation in the research process, while noting society rather than business should set public research agendas
4. Desire to see research focused on clearly articulated societal needs
5. Preference for targeting incremental solutions on societal challenges
6. Valuing ‘naturalness’ – that is, scepticism about the value of high-tech solutions to complex social and environmental problems
7. Focus on value for money (both in terms of the research itself and its envisaged applications)

8. Considering anticipatory regulation of emerging technologies simultaneously with research into the innovation of these technologies.

This type of analysis of common themes is only possible with a catalogue of evidence that has the breadth and longevity of that held by Sciencewise.



3. Potential areas for improvement

The findings in this Section draw on an analysis and synthesis of evidence gathered during the review from interviews, workshops, case studies and literature reviews.

The review identified a number of challenges that UKRI should address if it chooses to retain a specific Sciencewise programme:

- **Lack of clarity about the purpose and focus of Sciencewise** means that it does not carry the heft or impact it could. Potential commissioners do not know what Sciencewise can offer and so do not seek out its resource and support. Some stakeholders consider that one of the roles of Sciencewise is to provide insight and challenge into policymaking while others consider this to sit beyond the programme's remit.
- **Absence of an informed map of strategic priorities** in science and technology

means that Sciencewise's choice of dialogues, particularly recently, risks seeming opportunistic and haphazard – and topics might be missed. Some of these are priorities for the public and others might be new and emerging topics that deserve attention and dialogue (examples given included facial recognition and artificial technology).

- **Lack of investment in long-term ongoing engagement** around pressing or particularly impactful science or technology means that work is often short-term in its impact and may influence a specific request without having systemic influence.
- **Absence of its own work programme means that Sciencewise is reliant on appetite from others for action**, even if there are pressing issues where this appetite or need does not exist.

In addition, there are some specific areas for improvement. These are set out in detail below, against the four areas that UKRI asked us to consider:

1. How projects are identified and commissioned (including methods and tools used)
2. The relationship between the UKRI, project managers, suppliers, and government
3. The responsiveness and impact of dialogue delivery
4. The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

For those wanting a quick overview, Annex A draws together our assessment of the strengths and challenges against these themes.

3.1 How projects are identified and commissioned (including methods and tools used)

Challenges

- Resources to generate and nurture interest or to translate into projects are not fit for purpose
- Dialogues can seem random or ad hoc because there is not strategic map of policy areas
- Significant practical and cultural barriers make it difficult for policymakers to commission deliberative processes
- Commissioners and providers find the procurement processes cumbersome and excessively bureaucratic
- Methods need to be broadened, but without losing primacy of deliberation

The challenges in identification and commissioning reflect previous evaluations.

3.1.1 Project identification

A number of challenges around project identification reduce the strategic and systemic impact of Sciencewise:

- **Resources to generate and nurture interest or to translate interest into projects are not fit for purpose:** the evidence from interviews and workshops suggests that Sciencewise’s capacity to influence the most strategic areas of science and technology policy is weaker than it was before the 2017 pause. This is in large part due to the loss of relationships and connections during the pause and the reduction in resources for identifying and nurturing projects and associated relationships.

The reduction in funds led to fewer people and less time available to identify opportunities, nurture relationships, support policymakers in developing an understanding of deliberative dialogue and translate this understanding into commissioned deliberative projects. As one central government colleague reflected, after 2017 there was “very little spare time in the Involve resource to work with policy teams to create understanding and scope for dialogues”.

While the Involve team have the task of identifying projects, the BEIS and UKRI teams are expected to support access and retain an awareness of emerging policy opportunities. But this capacity is

limited both by resources and, particularly in UKRI, by lack of relationships across central government. Interviewees said that neither BEIS nor UKRI have the capacity or remit to actively generate leads.

Sciencewise is often dependent on serendipitous discussions that bridge this gap between Sciencewise awareness of policy priorities and a policymaker’s awareness of Sciencewise. All of the commissioners we spoke to said that they had found out about Sciencewise in almost accidental ways – mentioning the work they were thinking about to colleagues, asking for guidance or suggestions, googling for options and, in one case, a chance conversation at a social event.

- **Lack of a strategic map of policy areas:** Sciencewise dialogues can seem random or ad hoc. The limited resources for identification and the lack of any evidence-based map of the most salient or fertile policy areas mean that UKRI is unable to target and direct Sciencewise towards strategic or well-timed overtures to potential policy commissioners.

There is no regular scanning of upcoming major policy development. It is not clear how the dialogues Sciencewise chooses link to the high-level strategic policy discussions of the key stakeholder bodies including BEIS, the research councils and

other central government departments. If that link does exist, it is not visible to those interviewed to date, nor does it yield and level of demand or commissions to give confidence that Sciencewise is active in all the areas it could and should be.

Sciencewise currently has no social intelligence-gathering processes or tools that it could use to create a list of potential areas for work. Policies can move up the priority list in departments in response to public sentiment and increased levels of visible discussion around a topic and the programme has no way to notice and respond to this. Our review found nothing evidently in place to evaluate or assess whether a particular policy might be a 'hot-button' issue for the public. This leaves the team with little evidence or information to draw on when working with policy officials to attempt to convince them of the utility of a dialogue process.

3.1.2 Project commissioning

A number of barriers, both practical and structural, exist around securing commissions from policy colleagues:

- **Scepticism about the value of dialogue:**

Most policy makers have had little to no encouragement or evidence about the value of involving the wider public in developing and implementing a programme of work. Public engagement is not baked into the policymaking process. Some of the scepticism around deliberation is specific to that method: there is a perception that a small group of the public cannot represent the full range or even a useful range of views, priorities, behaviours and preferences, when compared with more traditional surveys and focus groups. The latter are thought by some to have greater validity and empiricism, but this is not the case; in fact, they serve different aims. One commissioner reflected that their experience suggested colleagues felt the more people that were involved, the more legitimate and empirical the findings would be.

There are often differences between the commissioners and others in the policy process on the value of deliberation. For example, as one supplier reflected, "Sometimes you have junior policymakers really on board and then we have to bring the senior people on board."

- **Lack of resources for policymakers to engage with particular concerns about time:** dialogues of any kind, but particularly deliberative processes, are resource intensive – financially and in terms of the time required by policymakers to design and deliver them, even with the financial and in-kind support from Sciencewise. Cuts to public funds over the past few years have stretched resources. Policy colleagues told us that they have experienced a reduction in investment in these types of activities. One interviewee reflected that public engagement was a ‘nice to have’ and when budgets were squeezed it was taken out of the mix of options for policy development and evidence-gathering.
- **A fear that the outcomes of dialogue may not align with policy goals:** there is a fear from policymakers and their political leaders that the findings of a dialogue process may not be what policymakers or politicians want to hear. Further pressure is added by the assumption that deliberative outcomes demand a response – and that the response has to be that views are taken on board. In some cases, there is a feeling that the public just will not know the right answer, and/or that public views will be highly parochial and self-interested.
- **Politicians feel they have enough ways to gauge public sentiment:** policy and provider colleagues reported being told by politicians that political leaders know enough of what the public thinks, feels and wants through what they hear and see in their surgeries, through their in-boxes and ultimately at the ballot box. Further processes, even on specific topics, are considered unnecessary and duplicative.
- **Power and roles:** The policymakers / commissioners and suppliers that we spoke to reflected that engaging with the public can threaten power dynamics as the public becomes a shared and equal partner, at least for the duration of the dialogue process.

“It’s all about power and whether people are willing to let go and give over some of their power and because people won’t talk about that up front it causes problems – you need to say to people that if you are going to do deliberation it’s all about giving up power and it’s very experiential and we’re not very good at that”.

Sciencewise Supplier

There is also some concern from the interviewees that the programme is now even further from policy makers than it

was, which may make it harder to stay abreast of opportunities and introduce dialogue into the policy process. As one Sciencewise team member said, “It’s very hard to find out who does what in departments – it’s very much who knows who and on an informal basis.”

The procurement process remained a barrier to commissioning and to the level of flexibility that might be expected over a dialogue project. It remains as much of a barrier as it has been in previous evaluations. The process was felt to constrain approaches, limit innovation and prevent flexibility at all stages of the work, from initial dialogue design through to delivery. There were specific challenges reported by the team and by delivery suppliers:

- The Sciencewise team felt the procurement process was a barrier to translating potential dialogues into commissioned work. This was true even with policy colleagues who are aware of public sector procurement processes. Having done the work to convince a policymaker to try dialogue, they would then have to introduce laborious processes. This could, and has, resulted in dialogues being de-prioritised in the commissioner’s workload or to a failure to translate the decision into action.
- Even after dialogues are initiated, it proves nearly impossible to flex or adjust the plan: if, for example, the oversight

group suggests additional engagement activity for a specific demographic. This lack of agility is also seen as a barrier to commissioning. One supplier gave the following example: “there is a procurement rule that you can only extend a budget by 10% without going through procurement processes and that is a constraint to responding to the evolution of the project.”

- More than one delivery supplier felt that the bidding process privileged bigger organisations with brand names because the bureaucratic requirements, particularly around the bids and the bidding process, were overly burdensome for small organisations; in some cases, this caused them not to bid for projects. As one small supplier said, “We find it hard to compete against the bigger [suppliers]. The bidding process is onerous, and we can’t fill them out and we struggle to compete for the bigger work.”

There were also several delivery suppliers who felt that at times the selection processes appeared arbitrary, and perhaps not as objective as they could have been. There were comments that feedback about failed bids did not provide clarity about what UKRI and the policy commissioners had been looking for or had found absent in the specific bids. Delivery suppliers echoed the team’s feedback that there was little flexibility once a dialogue was underway, which

meant that shifting or adding to the process was difficult.

The UKRI team, particularly the current programme manager, were, however, seen as helpful, doing what they could to streamline and support the process; and there is awareness that the procurement frustrations are outside the gift of the UKRI team to address.

3.1.3 Methods

While deliberation already has specific value and supports deep engagement, all stakeholders felt there was value in broadening the methods used by Sciencewise. This might include bringing in additional deliberative methods and

non-deliberative methodologies that complement and augment deliberation. Deliberative methods are perceived as time- and resource-intensive by policymakers and by some in UKRI, and policymakers do not have the time and resources to run deliberative processes. There are also concerns about representation as the number of lay people participating is relatively small.

Using additional methods could enable high quality public dialogue to take place in instances where there is interest from the policy team but insufficient resource. Other quicker, simpler methods might increase the voice of the public in policymaking where a deliberative process is not possible.

Mixing methods: an example from Singapore Youth Conversations

Singapore Youth Conversations have developed a 5-stage process which blends in-person and online dialogue methods, including using Zoom during COVID. The process includes:

- Sensemaking via social listening, digital polling, and community conversations. This is reported to the cabinet office and used to design the next stages.
- Augmentation of face-to-face work with engagement across social media channels that young people use, including Facebook, Instagram, YouTube.
- Mobilisation of findings into government and empowerment programs.
- Amplification of the message across media channels. For example, a Facebook live explaining what was heard in a dialogue, with the minister in question responding.
- Communicating the outcomes directly to dialogue participants via email.

Media and social media is integrated throughout to get people involved in the dialogues, and the creation of a standalone website and initiatives to experiment and respond to specific concerns. For example: a COVID stories platform generates content then shared by the prime minister on his own social media; or the Meh Go Where site which uses a more light-hearted approach to get help to youth feeling down because of the situation.

Potential to incorporate digital tools

There is significant discussion about the value and potential of digital methods, which has taken on much greater prominence given that this review has been conducted during COVID-19 lockdown. There is real appetite to explore and innovation digital deliberative methods, caveated with cautions about aspects of deliberation that may be lost in a virtual world. As one supplier said, “I hope there will be more digital innovation and experimentation e.g. around consensus building,” and there is potential to learn from others, particularly in East Asia and other non-European contexts.

However, some we spoke to, including those leading some of the organisations we spoke to for case studies, suggested caution about whether digital methods could replicate or exceed face-to-face deliberation.

“I haven't seen any really good digital processes where you get the depth of engagement and bonds... Sharing information and talking about it and collecting views can be done but the sense of solidarity and the group feeling of learning from each other and understanding something is more difficult on-line”

Sciencewise Supplier

Others, particularly from case study organisations, cautioned about an attempt to retrofit digital and quantitative approaches onto a problem they were not designed to solve. They believe hybrid in-person and asynchronous approaches may yield the best results in terms of creating the conversational, two-day dynamic that face-to-face dialogue uniquely fosters, and that these can be supported by online platforms. As one academic said, “Social media will give you quantity and heat but not the depth – social media is not a substitute for richer social public engagement.”

3.2 The relationship between UKRI, project managers, suppliers, and Government

Challenges

- Limited collaboration between suppliers, inhibiting innovation that could build a supportive community around deliberation
- Concerns about having a management partner who also competes with delivery and evaluation providers

Overall, relationships were seen as strong, collaborative and positive with only minor recommendations for improvements couched in the context of strong, effective and longstanding relationships.

There was appetite, particularly from suppliers, to foster and encourage collaboration while also recognising the need for competition at some point.

“ It’s sad that [the process] is putting competition between the providers for the proposals and bids and the success is a bit random. We’re not encouraged to collaborate, and it is really hard to collaborate in the bidding process”

Sciencewise Supplier

Delivery and evaluation partners expressed some disquiet about having a competitor (Involve) as the programme manager. While Involve does not deliver dialogues for Sciencewise, it competes against other organisations on the delivery and evaluation lots for work with other clients and funders. There was some concern that as Involve’s own delivery work expanded, their role in evaluating bids from potential delivery and evaluation partners for individual dialogues would not be appropriate. There was also some feeling that being programme manager of such a well-respected programme in government gave them a significant advantage over other organisations when bidding for government dialogue projects outside Sciencewise.

3.3 The responsiveness and impact of dialogue delivery

Challenges

- Sciencewise has little agency over how to leverage and use findings for impact
- Learning across dialogues is not as strong as it could be
- Impact measures do not evidence the value of the programme, particularly at the strategic level

There are some challenges around ensuring take-up of the findings and insights from dialogues.

One delivery supplier includes ‘route-to-action’ workshops in their approaches, building in discussion with the policy team

“ It is a challenge to get people to recognise and take on board the full findings of a dialogue but I think that the interesting thing that Sciencewise has done is around having a process where you can work with people so that they can be intelligent customers and then provide them with a quality of evidence that is hard to replicate in other ways”

Sciencewise Team Member

as well as a final report as a way to share the insights emerging from the dialogues.

There are also issues around wider impact. While all dialogues result in a public report, the extent to which government draws attention to the findings and makes use of them in broader discussion is down to the policy department. There is frustration, particularly from suppliers, Sciencewise team members and the public dialogue academics we spoke to, over the extent to which findings were leveraged and used to influence policy either in the specific project or more widely. For example, there was a feeling from one interviewee that Sciencewise could make much more use of the media. This commissioner gave the example of the anti-microbial resistance (AMR) dialogue process which could have had much greater impact globally if the findings had been actively shared and communicated broadly and beyond the policy team.

There was some sense from these interviewees that these issues arose from Sciencewise not having permission to leverage these findings for influence and that there was a lack of resource or capacity to do this. Sciencewise colleagues and stakeholders worry that if the programme were to do something with the findings, there might be significant backlash from policymakers and politicians whose risk levels would be raised and this would significantly reduce commissions and therefore the number of dialogues run by government.

3.3.1 Assessing impact

There were also some big challenges around assessing impact – which are not unique to Sciencewise. UKRI may want to improve the measures of impact at both the strategic (overall) level and when looking at specific commissions.

Assessing overall impact

Though all the stakeholders we engaged felt Sciencewise is doing and has done an acceptable job of supporting dialogue in the policymaking process around science and technology, more could be done.

Challenges assessing impact

The impact of Sciencewise is currently measured by output (how many projects are delivered) and outcomes (what impact these dialogues have on the given policy process). Both of these metrics present challenges:

- The number of projects delivered provides no understanding of whether these projects are the right ones strategically. Were they the projects where deliberation and dialogue are most valuable or most necessary for policies to work? There are mixed views on this from stakeholders; some feel that the projects are in the right place while others feel that some projects were commissioned to meet spend expectations.
- Impact on a policy or policymakers is very hard to assess. Policymakers at all levels may not or will not credit

dialogue processes as drivers for their decisions, even privately. Some of this is understandable as there are many drivers that will influence any one policy decision; impact can happen so far down the line so that its genesis is forgotten. As one central government sponsor said, “You can’t immediately show impact because it’s not linear.” An advisory group member said: “We often talk about impacting senior leader and ministerial decisions but there are lots of discussions about this because it’s hard to see and sometimes may not be seen to impact the decision but did and was in the mix but didn’t come out on top.”

- Those we spoke to across our conversations suggested that challenges in evidencing may also lead to a lack of willingness from policymakers to suggest that a dialogue has influenced a policy process.

“ it’s very very hard to demonstrate cause and effect with these issues and we have found instances where policy makers don’t want to admit whether or not they are influenced”

Sciencewise Advisory Group Member

Given the challenges associated with tying dialogue processes to specific impact on policy, there is a question as to whether impact on a policy is the most appropriate and useful metric of success.

In discussions with the UKRI team there was a real emphasis on numbers: number of dialogues; number of people involved; number of policymakers or research programme managers who think public voice is relevant in their work.

Possible approaches to impact measurement were explored in interviews and case studies.

Another reflected, “The challenge is that I don’t know if we can have a comparison of policy with deliberation and without at the same.”

Some suggestions for how to consider impact include:

- Giving civil servants and other commissioners who are arguing for deliberation the information they need to argue their case.
- Measuring language like “this is useful for me” rather than identifying a specific policy implication or change
- Looking longer term at the outcomes from policies, against the values, priorities and insights that emerged from deliberation

Overall, however, everyone we spoke to – from leaders of other institutions through to the Sciencewise team – acknowledged that impact was very difficult to measure and there as some need to accept the value of deliberation on the basis of evidence about the value of engagement, dialogue and inclusion. As a central government commission said, “I am satisfied that there are dialogues going on and they are in the right area and they have specialist advice and are being concluded in an appropriate time scale with an evaluation process on the back of it”

Ways to measure impact: an example from the Rathenau Instituut

Rathenau have borrowed an impact model from NGOs and development organisations. They define a whitespace, asking what is at hand, why is it important, what the desirable societal outcomes are, and what the interventions are that make that outcome more likely. They then ask what the effect of the interventions has been. The team also asks, ‘Was the debate better informed because of our work?’ They track if they get the right information into the hands of politicians in a timely fashion and if politicians reference their arguments or figures in the debate. Our interviewee acknowledged that it is hard to measure impact. Rathenau can only measure what they do themselves and then look for the ripples in the political and media conversation.

Specific evidence about dialogues

Evaluation teams may observe policymakers’ thinking evolve and shift during dialogue processes, only for this shift to be forgotten in follow-up interviews. This is in part due simply to time passing, but there remains skepticism in some corners about the evidence in support of dialogue processes, so policymakers may feel that they will be criticized internally or externally for being influenced by the experience.

“ You need a sophisticated multi-perspective framework for thinking about impact from something like Sciencewise that is short, medium and long term and thinks about the topic specifically and more diffusive changes in attitudes and in many examples you have to rely on counterfactual.”

Academic

There is also the need to understand when dialogue has prevented or stopped something from happening. This can be as important as things that do go ahead, and yet it is nearly impossible to measure unless an explicit plan or activity is visibly stopped.

There is some drive, particularly from evaluation and delivery suppliers, to give further leverage to finding from dialogue processes, for example by requiring a response from government or transparency about what happens to the outputs of the dialogue.

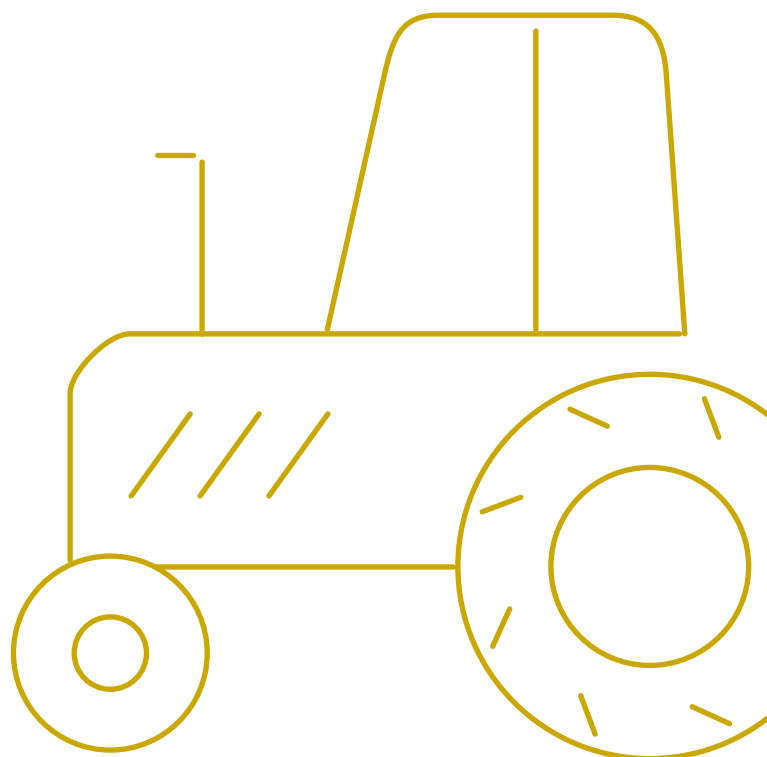
3.4 The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

Challenges

- While individuals are well known, there is little understanding of Sciencewise as an entity
- Sciencewise is relatively unknown outside its friends and peers

The relationships that Sciencewise has tends to be with individuals and there was little sense of Sciencewise as an entity, either from commissioners or from suppliers. When individuals moved on, the connection to Sciencewise often ended. Sciencewise's reputation within government was perceived to be diminished during the 2016-2017 pause when existing relationships floundered and in some cases were lost. No new relationships were developed and awareness of the programme dissipated.

In addition, outside the direct community that Sciencewise engages with, there is little direct knowledge of Sciencewise. For example, during the case study process, Sciencewise was unknown to our case study interviewees, even when their organisations had similar missions.



4. Trends influencing the UKRI agenda and deliberative dialogue

The previous Section explored the history of Sciencewise over the past fifteen years and the key strengths and weaknesses of the current delivery model. This provides useful context for considering options for its future operating model. It is also important to consider how the external context in which Sciencewise will be operating might change, as this will shape the demand for high quality deliberative engagement between the public and the science and technology ecosystem. These trends may inform the areas of science and technology that UKRI could choose to prioritise in a future model of Sciencewise.

The trends outlined in this Section are not exhaustive but reflect those that have been highlighted during this review, as well as SOIF's own understanding and research, through workshops with Sciencewise stakeholders, through discussions, and

through development of the case studies.

Some of these are macro trends that will impact globally, and shape everything and anything including science, technology and public engagement. There are also trends emerging from within the science and technology ecosystem, as well as those that will shape the nature of public engagement, including UK government's appetite.

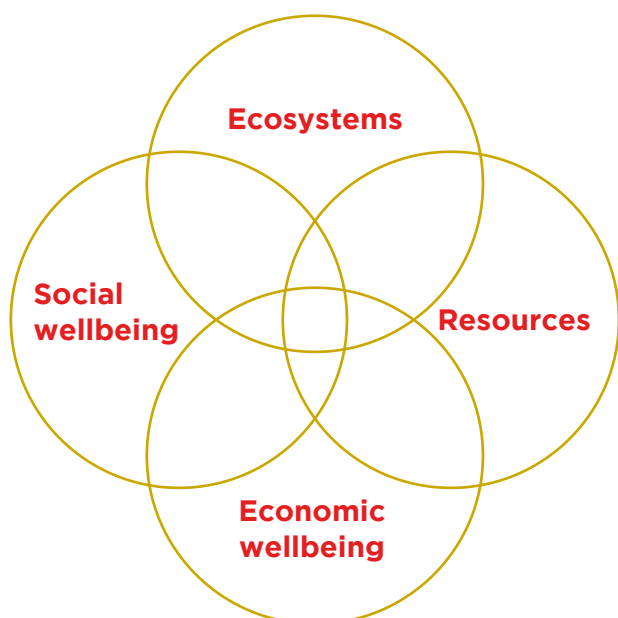
These trends are set out because they frame the context for the next phase of Sciencewise. They suggest the nature of the world in which UKRI will be operating, as well as some of the big questions that will impact on and be shaped by the diversity of views in the public. They show why it is crucial that the public is involved in decisions around research and policy. It is clear that there will be an ongoing and ever-increasing need to integrate public voice into policymaking, including around science

and technology policy. This will include choices around what is researched, how it is researched, what is included as legitimate data, and about the policies, regulation and laws that surround implementation.

4.1 Macro trends

There are global trends that will shape the context and the delivery of science, technology and public dialogue within the UK. The list below is not exhaustive; it is prioritised based on trends that are likely to be drivers of science, technology and public dialogue. The data is from before COVID-19 and so does not take into account the impact of this pandemic. Figure 1 shows four high level areas of change.

Figure 1 High level trends affecting the UK over the next 10 years



World Model developed by Tony Hodgson. International Futures Forum/H3Uni, CC BY-NC-ND. <http://www.h3uni.org/practices/world-game/>

- **Ecosystems are changing, requiring both adaptation and mitigation from humanity:** biodiversity is plummeting in the 'sixth great extinction'. 1 million animal and plant species are threatened with extinction within decades, with 10, 000 species per year disappearing. This is more than ever before in human history. Global warming is continuing and may be accelerating and there will be an increase in the size and severity of extreme weather events, with more intense rainfall and storms, and longer and hotter droughts. This will also affect global food security as well as increasing already growing water stress.
- **Ways of living will change as the types of resources, the way they are supplied and how they are used shifts:** changing diets and lower yields require innovation in food production and changes in consumption. The rate of improvement in agriculture yields has slowed to about 1% per year since 1990, despite improved efficiency. Causes include land degradation, salinisation of groundwater and pest resistance. Overall, agriculture production needs to increase by 60-70% in 2050 to sustain a global population of 9 billion, unless diets change.

Trade levels are falling, a trend which has been exacerbated by the shock of COVID-19 and the importance of data as a commodity is growing. The contribution to growth of GDP from data flows nearly

matched the value of global trade in physical goods and services in 2017.

- **Global Inequality is continuing to grow:** the wealth of the top 1% increased from 28% of the world's total wealth in 1980 to 33% in 2018. If trends continue, the top 0.1% will own more wealth in 2050 than all of the global middle class together. The world is likely to have its first trillionaire in 2026, and its second in 2027, while millennials overall are less likely to be middle-income than their parents, indicating a hollowing-out of the middle class.

The Global Human Development Index (HDI) increased from 1990 to 2017, indicating overall increased longevity, higher education levels and greater livelihood opportunities. Sub-Saharan Africa and South Asia's HDI grew more than that of other places in the world. Since 1900, the global average life expectancy has more than doubled to above 70 years. In 2019, Central African Republic is lowest with 53 years and Japan is highest with about 83 years. However, since 2011, US life expectancy has fallen, and the increases in life expectancy have tapered down in European countries like Germany and France. Global upward mobility is low, and lowest in developing economies. Fewer than half of adults born in the 1980s exceed the education level of their parents.

- **Trust in institutions is falling:** globally, the quality of institutions is improving but trust in them is low. Western countries lead in terms of trust in Governance Indicators (e.g. regulatory quality, rule of law and corruption control). Sub-Saharan Africa is last on all accounts except in voice and accountability, where the Middle East and North Africa region takes last place. There is a record high in trust inequality between the more trusting informed public and the far-more-sceptical mass population; but the employer-employee relationship remains very strong across the board.
- **The Fourth Industrial Revolution will radically shift the way people work and live:** as work by Klaus Schwab (Executive Chairman of the World Economic Forum) and others shows, a technological revolution fuelled by advances from AI and robotics, biotechnology, materials and nanotechnology is expected to transform many aspects of our lives and the way that we live and function as societies. This will provide new opportunities for dialogue as policy is developed and adapts to meet new challenges, but also has the potential to drive inequality and fundamentally shift the needs and concerns of citizens.
- **There is increasing interest in systemic approaches to change:** the Sustainability Development Goals provide a global interlinked framework for change and in a

Brooking's survey, "Global Development Disrupted", 94 development leaders indicated the need to focus funding on root system causes and not on symptoms demonstrated (which would risk short-term time horizon projects and siloed funding).

Taking all the facts together, it is clear there will be major uncertainties and changes over 2020, creating a changing context for science and technology, as well as urgent challenges and opportunities the science, technology and research community must respond to. As one interviewee said, "Risk has come back. It had ebbed away. It comes and goes. BSE raised it, then Fukushima raised it and then it goes quiet and then what happens? We were not prepared for a risk that was on someone's risk register and now we are stuck in our homes."

4.2 Influences on science and technology

There are also trends specific to what is happening and will happen in science and technology over the next 10 years. Many of these are particularly relevant given that it is unlikely that public attitudes have shifted significantly from the cross-cutting themes identified in 2012 in the review of dialogues commissioned by the RCUK.

4.2.1 Innovation in science and technology

The focus on innovation in science and technology and the extent to which innovations deliver equitable value across society are being shaped by a number of trends:

- **The expanding impact of science and technology:** science and technology innovations reach well beyond their specific research fields and into unexpected aspects of daily life. The technologies that are here or nearly here (such as geoengineering, nanotechnology, and AI) is largely invisible, hard to understand and challenging to control compared to something more tangible like the mobile phone. They will require new forms of governance, responding to the challenge of regulating and scrutinising what is purposefully beyond human comprehension (e.g. algorithms further developed through machine learning) and what cannot be contained or traced (e.g. regulating the use of data). We need to think deeply about the implication of technologies now because once decisions are baked in, they become impossible to reverse.
- **On-going politicisation of science and technology:** science and technology, and the trust in the experts in these spaces, continue to be part of wider political signalling. There is an increasing divide

between those who retain confidence that these processes are accurate, fair, and equitable and those who dismiss expertise and go as far as labelling it 'fake news.' Anecdotally, the UK's handling of COVID-19 has exacerbated this divide.

There is a language of public values in technology that did not exist 10 years ago – a new era. Science and technology are not neutral but depend on and reflect society and its values and systems, as colleagues at the Rathenau Instituut and elsewhere are discussing.

- **Increased concerns about who is really going to benefit from science, and technology:** there are growing questions about where the benefits of science and technology accrue, including debates about in-built biases and negative, unequal, or unintended consequences in emerging technologies and some areas of science. This echoes the 2012 finding that across all reviews that there is a “desire to see equitable distribution of both potential benefits and potential risks”.

There are debates and concerns in particular about the implications of the 4th industrial revolution and the development of AI and other tools. Purposeful and unconscious biases hard-wired into their processes may benefit those who already have power and the role of social media in amplifying

destructive voices and views is also an issue.

Again, this reflects sentiments from 2012: Valuing 'naturalness' – that is, scepticism about the value of high-tech solutions to complex social and environmental problems – should sit alongside anticipatory regulation of emerging technologies.

- **Non-state actors:** large technology companies, bio-tech firms and others develop innovations that fundamentally impact on daily life. At the same time, China in particular continues to grow in power, reach and global leadership, including in science and technology. UK Government may have some control of the private sector through regulation and legislation but lacks full effective control over what might emerge, evolve, and influence life in the UK.

The 2012 analysis of public dialogues also showed that participants wanted to see “research focused on clearly articulated societal needs.” While they “welcomed business participation in research process. However, society rather than business should set public research agendas”. Again, this is unlikely to have shifted very much.

4.2.2 Topics that may be the focus of research and innovation

A few themes are likely to dominate emerging science and technology over the next five if not ten years. Sciencewise already has some insight into these areas. These include:

- **Climate change and global warming:** the risks posed by failing to prevent a 1.5 let alone 2 degree rise in global temperatures are well documented and all-encompassing. They include global food shortages, increased frequency and severity of extreme weather, water wars, migration and refugee crises. Innovation in mitigation will be required to limit the temperature rise and the impact of this increase. This requires policies that influence public behaviour. As one commissioner said, “Net zero changes the game. We are in a 100% abatement world and there is no wiggle room and there is really nothing you can choose not to do even if expensive and controversial. This will have to engage with the public, carbon capture, transport use and modes, hydrogen boilers, and the public is going to have to change our behaviours. It’s not enough to just have the policy.”

Sciencewise is already building its expertise in public views about areas of climate change. It has conducted dialogues on contentious areas of clean growth that will require significant

behaviour change from the public, including the requirement to shift energy sources, changes in the food system, the attainment of low carbon milestones and other key agendas.

Sciencewise’s work on the future of mobility is also part of this agenda, particularly when it comes to autonomous vehicles.

- **COVID-19 and other potential pandemics:** there will continue to be significant attention to COVID-19 specifically. The long-term health implications of COVID-19, including as yet unrealised mental and physical health impacts from the response measures, will be a focus of research for some time to come. There is also likely to be more attention paid to predicting, identifying promptly, and responding to new potential pandemics as they emerge.
- **Big data, artificial intelligence and machine learning:** the combination of unprecedented amounts of data with the capacity to analyse and learn in ways that the human mind cannot undertake, will continue to influence every aspect of life from health to social welfare, security, access to resources. Sciencewise is already exploring this area, including the big questions around ethics and public benefit.

4.3 Trends in public engagement

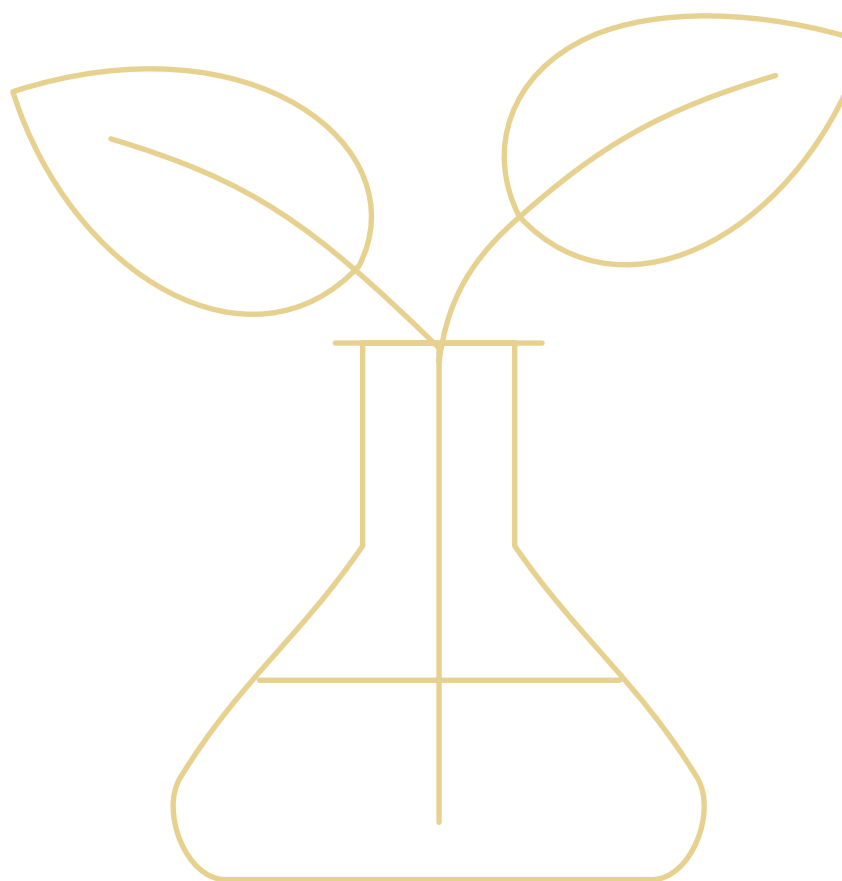
In addition to trends in the science and technology ecosystem, there are changes that impact on public engagement and public dialogue.

- **Trust of citizens in politics:** traditional approaches to engagement with political and decision-making processes no longer seem fit for purpose for many across society. Party politics is unattractive and long-standing institutions hold little relevance for a growing part of society. This should not be confused with complacency. People are losing trust in their institutions. The longstanding Edelman trust barometer found that 72% believe government does not understand emerging technologies enough to regulate them effectively and 45% feel their views are not represented in British politics. The latest Public Attitudes Tracker from BEIS found that 46% of respondents do not trust government to provide accurate information about climate change.
- **New opportunities for co-creation and co-production resulting from innovation in technology:** innovations in technology are also applicable to deliberation as a method. They create the potential for new methods in co-production and the way in which public sentiment is captured and analysed in order to be integrated

into decision-making on science and technology. They also create real opportunities for the public to co-create and / or disrupt the evolution of science and technology.

- **A growing need to understand different perspectives:** division and diversification of views means that it is not simple or easy to get a sense of what ‘the public’ wants, values needs, and will do in response to new forms of science and technology; there is a real need to understand the multiplicity of views and perspectives across a very pluralistic public.
- **Growing government appetite for new approaches to policymaking:** UK government continues to demonstrate a growing recognition of and appetite for new and more participatory approaches to policymaking, including units such as the Policy Lab and Government Digital Services. This includes integrating public voice, as well as other approaches to ensure that policy is robust, resilient and participatory. For instance, The Integrated Review of foreign policy, defence, security, and international development is understood to be exploring how to leverage engagement as part of a new approach to cross-government strategy. Dialogue may be just one approach under consideration. The incoming Chief Executive Officer of UKRI has a long-term

interest in inclusiveness and engagement in science, but alongside opportunities to leverage this appetite there are also risks if dialogue is not seen as an integral and important part of these approaches.



5. Assessing the options

The strengths set out in Section 2 and the challenges set out in Section 3 provide the evidence for a recommendation for the next phase of Sciencewise. Based on the evidence of this review, discussions with the UKRI team and the programme's stakeholders, three main options arise for the future of Sciencewise in its current context:

1. **Make minor improvements to the existing Sciencewise model:** retain the existing aims, priorities and operational structures with some minor tweaks to streamline procurement and introduce a wider range of models for deliberation and dialogue.
2. **Amplify and build on what makes Sciencewise valuable:** start with the strengths of Sciencewise - particularly its stewardship of deliberation as a method and its relationships with central government - and move towards a fit-for-purpose structure, operating model and programme of work to amplify and magnify these assets.

3. **Repurpose the resource:** bring the specific ring-fenced programme of Sciencewise to an end and look at how resource might be repurposed.

Each of these is a viable option; the choice depends on UKRI's appetite to invest in change and in the delivery of impact. There are upsides and downsides to each of these choices, which we outline below.

In making our recommendation - to amplify and build on what makes Sciencewise valuable - we have considered both Sciencewise's strengths and assets, and areas where it might improve, as set out in Sections 2 and 3.

5.1 Make minor improvements to the existing Sciencewise model

In this model, Sciencewise retains its current approach, including the relatively narrow focus on improved policy making, refining its metrics and definitions of success. This is an iteration of the current model rather than a transformation driven by emerging and future needs.

Here, Sciencewise would retain a focus on the policy audience as commissioner and make some changes including widening the provider base and facilitating collaboration as well as promoting competition in its delivery model, leveraging its existing body of work for wider impact, creating a list of priority policy areas based on their own analysis and mapping of upcoming policy developments.

There are both benefits and drawbacks to this approach:

- **Benefits:** making minor improvements will require relatively little resource and will limit the need for potentially difficult conversations and negotiations between UKRI and other partners. Commissions will continue to come in and dialogues be delivered.
- **Drawbacks:** our research, particularly interviews and comparison to international best practice, show that Sciencewise has limited impact beyond specific dialogues, and it is not resourced to achieve a transformation in the appetite for public dialogue from the current commissioners (policymakers and researchers). A number of the areas for improvement from this review echo findings from previous reviews, particularly the 2015 public review and the 2018 interim review that followed. This suggests that small tweaks will not deliver the transformation that UKRI seeks to achieve.

Box 4: Potential implications of minor improvements (option 1)

How projects are identified and commissioned (including methods and tools used)

- Increase resources for nurturing relationships and translating into commissions and put some of this resource into the BEIS or UKRI teams to bring projects closer to policy priorities
- Develop complementary digital methods that retain the value of deliberation but respond to the challenge of time and resource that policymakers face

The relationship between the UKRI, project managers, suppliers, and Government

- Consider a revised management model, perhaps with more than one organisation providing programme management
- Broaden the pool of potential deliberation suppliers and evaluators

The responsiveness and impact of dialogue delivery

- Develop a few more qualitative metrics of success and invest in tools to measure these

The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

- Invest in marketing, showcasing the impact of deliberative processes on policy areas, including the benefits against other policy pressures (e.g. time and money)
- Actively share the value of Sciencewise on national and international platforms and stages

5.2 Amplify and build on what makes Sciencewise unique

This is the recommended model for UKRI to take forward. It harnesses the significant value that Sciencewise has created since its inception more than 15 years ago and sets an ambitious programme of work aimed at transforming the relationship between the citizen and the UKRI agenda, responding to the trends set out in Section 4.

There are both benefits and drawbacks to this approach:

- **Benefits:** The benefits are potentially significant. There is a real opportunity to build a capacity for the research and policy communities that is transformative. There is appetite from senior leadership in UKRI (including the incoming CEO), and from potential partners. Deep dialogue between the public, experts and policymakers is a necessity for facing challenges and opportunities today and tomorrow.

Our interviews suggest that there is also appetite from the central government sponsors to retain deliberation as the prioritised methodology. This is growing and, in many ways, is more evolved in cities and local areas, particularly around climate change. As one advisory group member said, “Cities now are real locus for activity e.g. the transforming cities fund and high street cities and huge

investment into city centres and how you would involve the public in what options you would like to see over years.”

The desire to continue a focus on deliberation exists in the Sciencewise advisory group and the wider public engagement community.

- **Drawbacks:** This approach will have implications for resources including the skills mix within the Sciencewise programme. Time and money will be required to develop an internal work programme and to build the knowledge and relationships needed for an internal programme.

Building knowledge around the value of deliberation requires investment, activity and patience. This is particularly true when coming up against timelines that are in tension with the timescales for deliberation as currently delivered.

“ Do not change the methods to be more attractive to the nay-sayers - champion the strength of the approach as it is...stand up for the qualitative and underlie that it is a perfectly valid means of accessing insight on a topic.”

Sciencewise Commissioner

Box 5: Potential implications of an amplified Sciencewise (option 2)

How projects are identified and commissioned (including methods and tools)

- Broaden the areas of work beyond science and technology to reflect the full agenda of UKRI, driving the uptake of deliberative processes across all the research sectors within UKRI.
- Develop a clear set of strategic priorities and focus the development of relationships and securing of commissions on these priorities for the long term.
- Draw on insight into public attitudes, including work that others are doing, and use this to help stimulate project identification.
- Substantially increase involvement upstream in the research process, at the point when priorities, funding streams and programmes of work are being set.
- Create long-term programmes of work around these themes, with multiple projects, some commissioned and some driven internally.
- Include self-commissioned future- and horizon-scanning in the work programme, in order to make sense of weak signals of public attitude and to change and map cross-cutting public values for science and technology.
- Invest in the development of deliberative methods, particularly those that reduce resource / time requirements while enabling the integrative, multi-perspective, deep and ongoing exploration of a topic that deliberation uniquely delivers.
- Explore digital methods in the light of COVID-19's impact on the rapid expansion of the reliance on digital tools.

The relationship between the UKRI, project managers, suppliers, and Government

- Increase capacity to generate commissions in-house, including adequate resource to create, nurture and sustain relationships with research councils, policymakers, civil society and the private sector.
- Widen the pool of providers and evaluators to include a much more diverse set of organisations and methods (informed by the development work outlined above).

Box 5: Potential implications of an amplified Sciencewise (option 2) continued

The responsiveness and impact of dialogue delivery

- Elevate groups and voices where there has been historic lack of representation, visibility or presence. In some instances, this will mean having ‘unequal’ representation to combat lack of voice in other parts of the science and technology process.
- Introduce new measures of success and impact that focus on social benefit, public value and long-term change in the process of science and technology. This may include investing in research to develop, test and implement new methods, including qualitative and narrative-based metrics.
- Set expectations that a Sciencewise dialogue involves a commitment to being open with its findings.

The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

- Retain deliberation as the prioritised method, perhaps strengthening aspects of the Quality Standards to reflect the unique value of this type of multi-stakeholder, multiple-interaction collaborative process.
- Become a thought leader in the application of deliberative methods across the life cycle of science and technology, providing robust evidence of the benefits of deliberation and actively justifying the resource / time investment required (while also working to develop new methods as set out above).

5.2.1 Institutional structure

If UKRI chooses to amplify Sciencewise there are choices it can make about developing the structure and form for the future. These range from training the current model through to an ambitious new organisation:

- **Commissioning the work:** UKRI could choose to retain a model similar to the

current approach and commission a management partner as well as providers for the various tasks.

- **Increasing capacity within UKRI:** UKRI could increase its own in-house capacity to deliver the additionally recommended functions (e.g. self-generated work) and / or existing roles and responsibilities. Within this, UKRI would likely commission

individual pieces of work or functions when specific expertise is required.

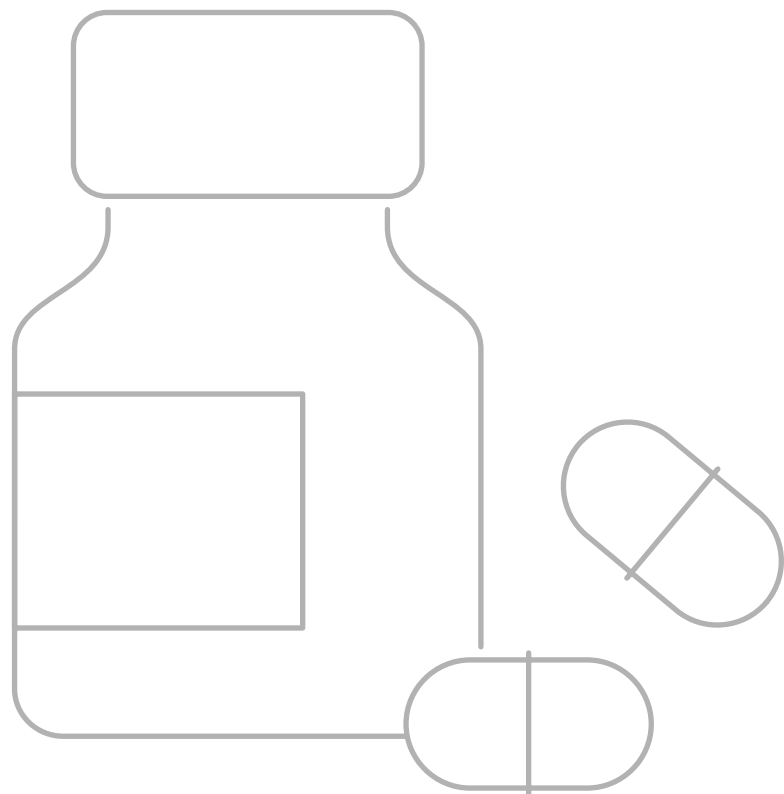
- **Creating a new organisation:** UKRI could choose to create an ambitious new stand-alone body that delivers the functions and contributions set out above. Our review of international case studies includes a number of examples of this model, including the Danish Board of Technology, the Norway Board of Technology, the Rathenau Instituut and others.

5.3 Repurpose the resources held in Sciencewise

UKRI could choose to repurpose the resources that currently sit within Sciencewise and wrap these into the ongoing public engagement programme across the organisation. This would mean an end to the more than fifteen years of a named programme that prioritised and enabled the use of deliberation in science and technology policy, and would potentially reduce confusion about what is Sciencewise and what is the wider UKRI public engagement programme.

There are both benefits and drawbacks to this approach:

- **Benefits:** brings resource into the broader UKRI Public Engagement programme to be used flexibly as guided by that strategy.
- **Drawbacks:** our research and experience suggest that the unique value of Sciencewise – its connection to central government and commitment to deliberation – will be lost even if there is intention to retain them. This is because additions to top line UKRI priorities are unlikely to be defended if there is subsequent desire to move the resource elsewhere. There are also significant reputational and relational risks - particularly with the wider public engagement community. Given the relationship with BEIS, there are risk associated with decision-making about the use of these resources.



6. A road map for change

The choices that UKRI takes on the future model of Sciencewise may not be put in place immediately. UKRI should be clear about the choice it is making for the future of Sciencewise and commit to a way forward and timeline for action.

Given the review, and other changes in the wider context, now is an opportune time to make a choice on the next phase of Sciencewise.

Different options will require greater change than others and while there is an opportunity now to make some changes before the programme refreshes in 2021, this may not be sufficient to secure the buy-in and develop the detail needed for more radical changes. Financial constraints may also limit the ambition and pace of change.

Therefore, it might make sense to ‘tweak’ Sciencewise for the next few years while further developing and locating the longer term transformation that is possible. There

are three approaches we suggest UKRI might consider:

- **Transform from 2021:** UKRI could use the arrival of a new CEO, the unprecedented experiences of COVID-19, the delivery of this review and the 15th anniversary of the launch of Sciencewise to commission a fundamentally new approach to the programme. This could echo the scale of ambition originally set out in 2004, at a time when there were crises of science, research and technology that are dwarfed by the complexities we face today and will face over the next 10 years.

“Now is so important to provide a really crunchy sense of direction, otherwise Sciencewise will get lost”

Sciencewise Advisory Board Member

- **Test and iterate:** UKRI could set out the problem it is trying to address and then commission experiments against this problem statement. There may be scope to introduce challenges or prizes, to resource academic research into the question and to identify research and policy colleagues actively seeking to learn and iterate. This would be possible with either of the strategic orientations we have suggested as well as with others that UKRI may develop.
- **Tweak then transform:** UKRI could commission a 'tweaked' version of the Sciencewise programme for the next two to three years, broadening its provider base, reframing, and refreshing the Quality Standards and building an audience and community around its chosen focus. It could use the wider Public Engagement programme and community to test and iterate around its preferred model.

“ you really need to commit in your heart of hearts to make it happen otherwise you undermine it from the outset... we spent 2 years working hard to gain the sense of momentum where now it is quite an active programme. The concern around this review is that it would lead to further disruption when we have just spent time getting it moving”

Central Government Sponsor



Annex A: Summary of the evaluation

This Annex summarises findings of our evaluation against the question:

How can Sciencewise best foster effective public dialogue around science, research, and technology?

1. How projects are identified and commissioned (including methods and tools used)
2. The relationship between the UKRI, project managers, suppliers, and government
3. The responsiveness and impact of dialogue delivery
4. The recognition and reputation of Sciencewise and / or dialogue among key relevant parties

| Area of focus | Strengths | Weaknesses | Emerging questions |
|---|---|--|--|
| Project identification, commissioning and delivery | <p>Policy areas addressed are high profile, high impact, and part of the wider grand challenges</p> <p>Number of dialogues completed during the lifetime of Sciencewise is admirable</p> <p>Policy areas addressed are seen to be the 'right' ones given the stated remit</p> <p>Commissioners feel supported through the commissioning process</p> | <p>Resources to generate and nurture interest or translate into projects are not fit for purpose</p> <p>Lack of strategic map of policy areas means Sciencewise dialogues risk being seen as random or ad hoc</p> <p>Significant practical and cultural barriers exist for policymakers</p> <p>Commissioners and providers find procurement processes cumbersome and excessively bureaucratic</p> <p>Challenges in identification and commissioning still reflect those identified in previous evaluations and must be addressed in any new model.</p> <p>Methods need to be broadened, but without losing primacy of deliberation</p> | <p>Which policy areas should Sciencewise consider (and is there anything that does not fall under science and technology anymore)?</p> <p>What is a 'good' number of projects to have commissioned?</p> <p>Should Sciencewise commission its own work?</p> |

| Area of focus | Strengths | Weaknesses | Emerging questions |
|--|--|---|--|
| <p>Relationships between UKRI, Project Managers, Suppliers and Government</p> | <p>High quality trusted relationships across all stakeholders</p> <p>Shared purpose for involvement – a collective commitment to increasing public voice in the policy process</p> <p>Move to UKRI provides opportunity to broaden the commissioner base</p> <p>Move to UKRI has clarified role of UKRI and Project Managers</p> | <p>Limited collaboration between suppliers, inhibiting innovation that could build a supportive community around deliberation</p> <p>Concerns about having a management partner who also competes with delivery and evaluation providers</p> | <p>With whom should Sciencewise develop and nurture relationships in the future?</p> <p>What is the nature of the relationship between Sciencewise and government, particularly central government?</p> <p>What are the potential collaborations in service of the public voice in policymaking?</p> |
| <p>Responsiveness and impact of dialogue delivery</p> | <p>Dialogue Engagement Specialists provide expert support in delivering projects</p> <p>Individual dialogues impact on the specific policy in the short and medium term</p> | <p>Sciencewise has little agency over how to leverage and use findings for impact</p> <p>Learning across dialogues is not as strong as it could be</p> <p>Impact measures do not evidence the value of the programme, particularly at the strategic level</p> | <p>What ownership or agency might Sciencewise have over project findings?</p> <p>How might Sciencewise evidence impact on specific policies?</p> <p>Are specific policies the right focus for Sciencewise projects?</p> |
| <p>Recognition and reputation of Sciencewise and/or dialogue among key relevant parties</p> | <p>Strong reputation with those who know about Sciencewise</p> <p>Highly skilled, credible team in UKRI and in Involve</p> <p>Confidence that Sciencewise adds real value to policymaking, evidenced through ongoing funding</p> | <p>While individuals are well known, there is little understanding of Sciencewise as an entity</p> <p>Sciencewise is relatively unknown outside its friends and peers</p> | <p>What is the purpose of Sciencewise and what reputation is it seeking to have?</p> <p>Who are the relevant collaborators, partners, and stakeholders in the future?</p> |

Annex B: Stakeholders involved

Below is the list of people who were involved in the project through interviews and workshops. To preserve anonymity their involvement is not specified.

| Name | Organisation |
|----------------------|--|
| Adrian Ely | University of Sussex SOIF Advisory Group |
| Andrea Westall | Economist, Strategy and Policy Consultant Visiting Senior Research Fellow, The Open University SOIF Advisory Group |
| Andrew Young | The GovLab |
| Anna McGillivray | Ursus Consulting |
| Anna McKeon | Traverse (OPM Ltd) |
| Anthony Whitney | Department for Business, Energy, and Industrial Strategy |
| Anthony Zacharzewski | DemSoc |
| Ben Fowkes | Delib |
| Brigid Feeny | Department for Business, Energy and Industrial Strategy |
| Cat Drew | Design Council |
| Charlotte Allen | Head of Central Social Research, Defra UKRI Advisory Group |
| Claudia Chwalisz | Organisation for Economic Co-operation and Development |
| Colin Megil | Pol.is |
| Diane Beddoes | Involve |
| Emily Fu | Britain Thinks |
| Fionnuala Ratcliffe | Involve |
| Froi Legaspi | Citizens UK |
| Graham Bukowski | UK Research and Innovation |
| Graham Smith | University of Westminster |
| Hally Ingram | Involve |
| Harry Bradwell | Department for Business, Energy, and Industrial Strategy |
| Harshbir Sangha | Department for Business, Energy, and Industrial Strategy |
| Henrietta Hopkins | Hopkins van Mill |
| Jack Stilgoe | University College London |
| James Taplin | Innovate UK |
| James Wilsdon | Professor of Research Policy, the University of Sheffield UKRI Advisory Group |
| Jason Chilvers | University of East Anglia |
| Jess Bland | Technology and foresight expert SOIF Advisory Group |

| Name | Organisation |
|-----------------------------|---|
| Joe Marshall | Chief Executive Officer, National Centre for Universities and Business UKRI Advisory Group |
| Judith Petts | Vice Chancellor, University of Plymouth Co-chair of the Sciencewise Advisory Group |
| Julian McCrae | Engage Britain |
| Julie Jenson-Bennett | School of International Futures |
| Katrina Nevin-Ridley | UK Research and Innovation |
| Kieron Stanley | Department for Environment and Rural Affairs |
| Lars Kløver | Danish Board of Technology |
| Lesley Miles | Chief Strategy Officer, the Royal Society UKRI Advisory Group |
| Luke Jones | Department for Business, Energy, and Industrial Strategy |
| Marianne Shelton | UK Research and Innovation |
| Melanie Smallman | University College London |
| Michael Rignall | Department for Business, Energy, and Industrial Strategy |
| Miriam Levin | Department of Culture Media and Sport |
| Nicholas Pidgeon | Cardiff University |
| Patrick Corcoran | Department for Transport |
| Patrick Middleton | Deputy Director of Communications and Engagement, UK Research and Innovation Co-chair of the Sciencewise Advisory Group |
| Paul Manners | University West England, Bristol |
| Peter Glenday | School of International Futures |
| Philip Tovey | Department for Environment and Rural Affairs |
| Philippa Lang | UK Research and Innovation |
| Prof. Anna Middleton | Faculty of Education, Cambridge |
| Rhuari Bennett | 3KQ |
| Roland Jackson | Senior Associate, Involve UKRI Advisory Group |
| Sanjan Sabherwal | Policy Lab |
| Sarah Castell | Ipsos Mori |
| Simon Burrell | Involve |
| Stephon Dunne | Centre for Data Ethics and Innovation |
| Steve Robinson | Involve |
| Steven Hill | Research England |
| Theo Bass | UK Research and Innovation |
| Tom Saunders | UK Research and Innovation |
| Tony Whitney | Department for Business, Energy and Industrial Strategy |

Annex C: Outputs of stakeholder workshop

On 11 May, SOIF hosted a half-day strategy session with more than 30 people from across the Sciencewise community as well as some outside provocateurs. Participants considered three questions to inform the future model of Sciencewise:

1. Trends in 2030
2. Strategic features of Sciencewise in 2030 considering these trends
3. Strategic and operational features of Sciencewise in 2021 considering the 2030 ambition.

As part of the workshop, participants were able to share their views on these questions through a polling tool. Below are the outputs of those polls. They should be treated as qualitative evidence - people's thoughts on the day and in the moment - rather than deeply considered and debated views.

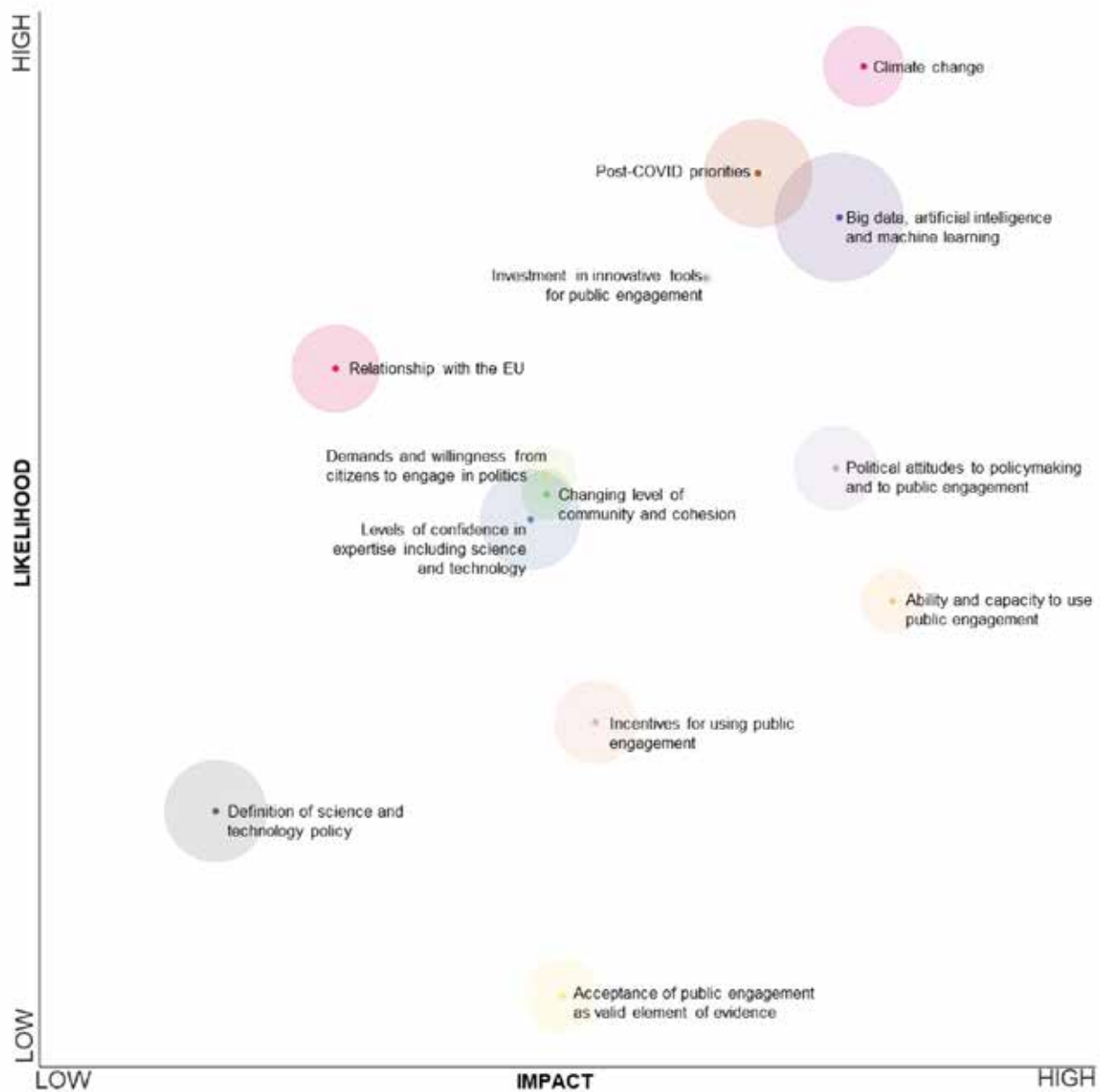
Trends

The figure below shows the result of voting on trends in 2030. Participants offered views on two criteria:

- **Impact:** how much will this trend affect public dialogue and science, research, and technology policy?
- **Likelihood:** how probable or possible is it that this trend is going to play out - and what does unexpected look like?

In this diagram, the location of the circle is the average vote and the size of the circle reflects the scale of the difference of opinion on these topics, so that a bigger circle means a greater divergence of views.

Figure 2 11 May stakeholder workshop assessment of trends



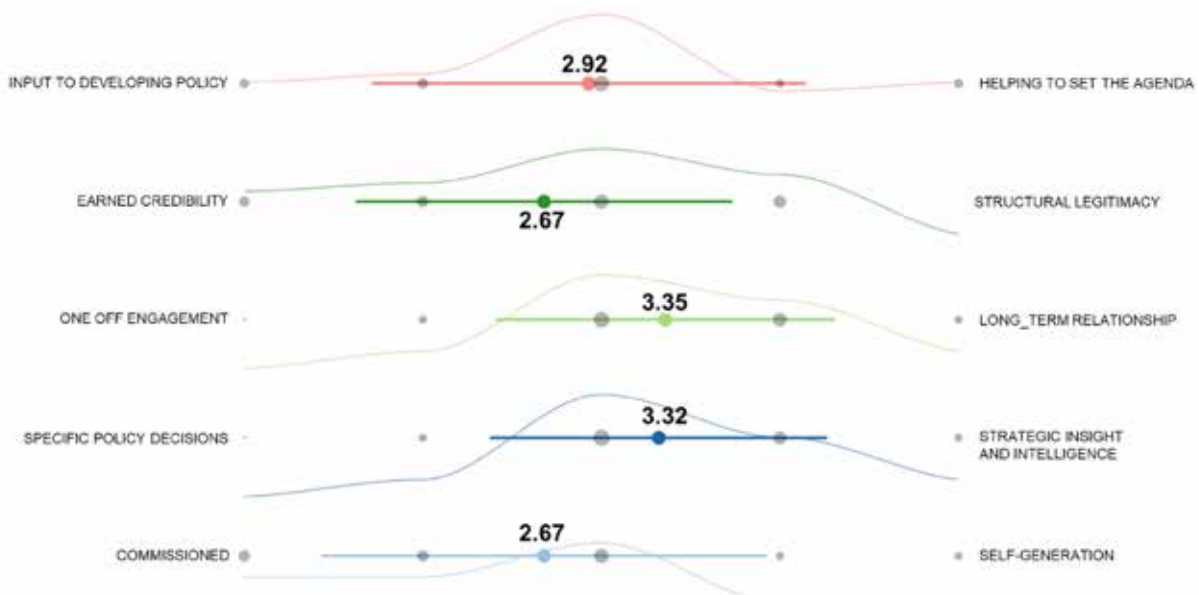
Features of Sciencewise in 2030

Within this context participants were asked to consider a set of features for Sciencewise in 2030. These features were developed from the evidence gathered up to the time of the workshop. Participants were given a set of characteristics and asked to suggest where they felt Sciencewise should be on each scale from 1 to 5 (where 1 was low and 5 was high). These included:

- Purpose and focus: is Sciencewise influencing specific policy decisions or is it providing intelligence and insight that may sit across a range of areas?
- Legitimacy and credibility: does Sciencewise's credibility stem from its history and reputation or is there a structural underpinning to its license to operate?
- Depth of engagement: does Sciencewise maintain an ongoing long-term relationship with policy makers or does it delivery and move on?
- Autonomy of work programme: what level of autonomy does Sciencewise have in deciding its activities, and to what extent does it need to respond to commissions?
- Role in policy making: does Sciencewise help set the research agenda around science and technology or does it engage much further down the developmental line?

The size of each grey circle shows the relative number of votes for that location on the scale; the solid line shows the deviation and the larger circle / numbers show the average of all votes. The longer the line the greater the divergence. In most cases there is a big spread of appetite, with the average vote being in the middle indicating a mix of views.

Figure 3 Where on each of the spectrums could Sciencewise sit by 2030

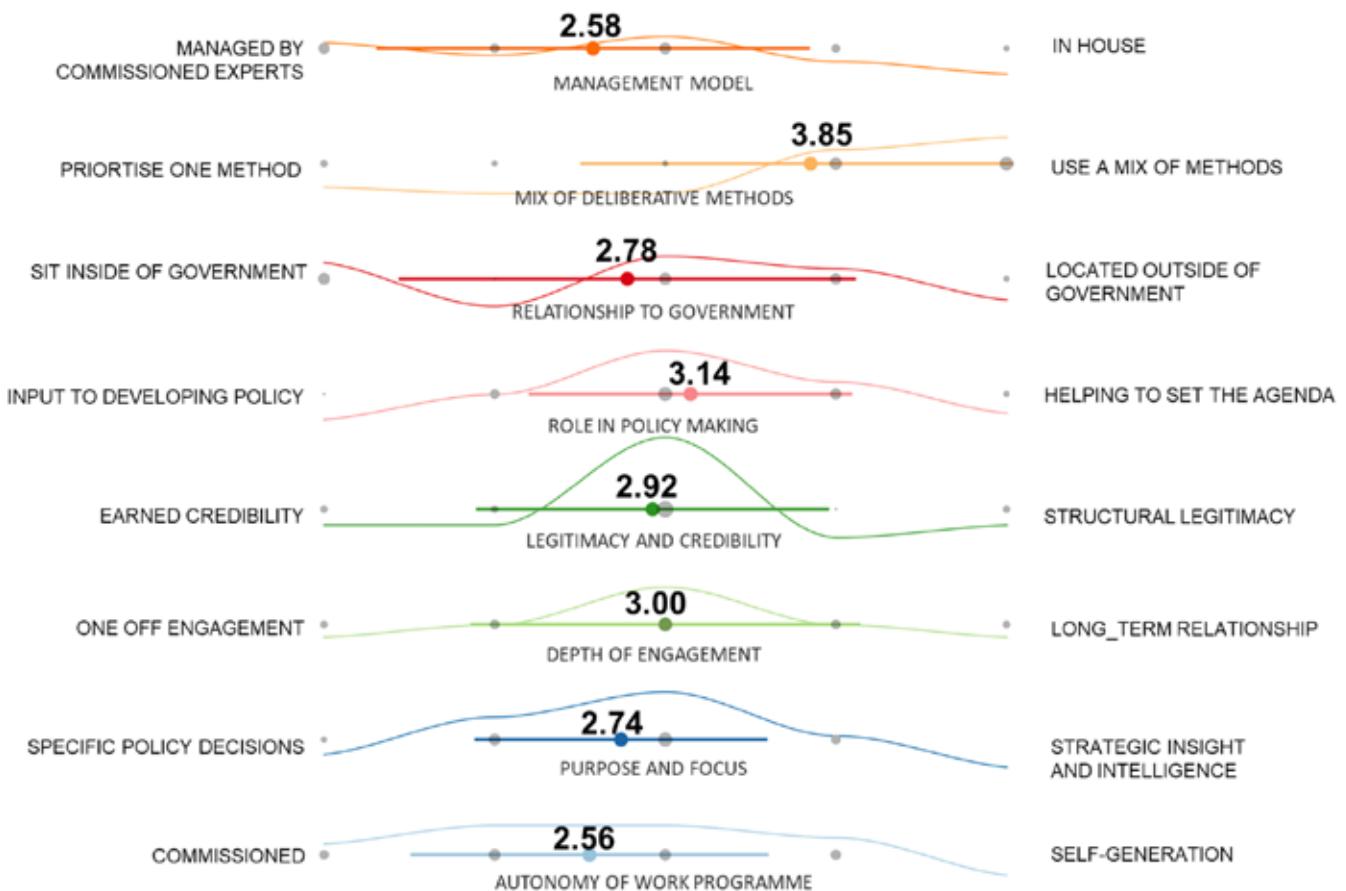


Features of Sciencewise in 2021

Within the context of 2030, participants were then asked to consider a set of features for Sciencewise in 2021. These features were developed from the evidence gathered up to the time of the workshop. Participants were given a set of characteristics and asked to suggest where they felt Sciencewise should be on each scale from 1 to 5. These repeated the strategic questions posed for 2030 and three operation questions for 2021:

- Management model: is Sciencewise managed by experts commissioned in some way or by an in-house team?
- Mix of deliberative methods: does Sciencewise prioritise one form of deliberative process or does it have a mix of methods?
- Relationship to government: does Sciencewise sit inside of government, at arm's length or outside of government, perhaps in civil society?

Figure 4 Where on each of the spectrums could Sciencewise sit by 2021



Annex D: List of options and implications

This annex brings together the benefits and drawbacks of each of the three options that UKRI have for the future of Sciencewise. The options are:

- **Make minor improvements to the existing Sciencewise model:** retain the existing aims, priorities and operational structures with some minor tweaks to streamline procurement and introduce a wider range of models for deliberation and dialogue.
- **Amplify and build on what makes Sciencewise valuable:** start with the strengths of Sciencewise - particularly its stewardship of deliberation as a method and its relationships with central government - and move towards a fit for-purpose structure, operating model and programme of work to amplify and magnify these assets.
- **Repurpose the resource:** bring the specific ring-fenced programme of Sciencewise to an end and look at how resource might be repurposed.

| | Make minor improvements to the existing Sciencewise model (option 1) | Amplify and build on what makes Sciencewise unique (option 2) | Repurpose the resources held in Sciencewise (option 3) |
|-----------------|--|---|--|
| Benefits | <p>Making minor improvements will require relatively little resource and will limit the need for potentially difficult conversations and negotiations between UKRI and other partners. Commissions will continue to come in and dialogues to be delivered.</p> | <p>The benefits to this recommendation are potentially significant. There is a real opportunity to build a capacity for the research and policy communities that is transformative. There is appetite from senior leadership in UKRI (including the incoming CEO), and from potential partners. Deep dialogue between the public, experts and policymakers is a necessity for facing challenges and opportunities today and tomorrow.</p> <p>Our interviews suggest that there is also appetite from the central government sponsors to retain deliberation as the prioritised methodology, as well from the existing Sciencewise advisory group and the wider public engagement community.</p> | <p>Brings the resource into the broader UKRI Public Engagement programme to be used flexibly as guided by that strategy.</p> |

| | Make minor improvements to the existing Sciencewise model (option 1) | Amplify and build on what makes Sciencewise unique (option 2) | Repurpose the resources held in Sciencewise (option 3) |
|------------------|---|--|---|
| Drawbacks | <p>Sciencewise has limited impact beyond specific dialogues, and is not resourced to achieve a transformation in the appetite for public dialogue from the current commissioners (policymakers and researchers). A number of the areas for improvement from this review echo findings from previous reviews, particularly the 2015 public review and the 2018 interim review that followed. This suggests that small tweaks will not deliver the transformation that UKRI seeks to achieve.</p> | <p>This approach will have implications for resources including the skills mix within the Sciencewise programme. Time and money will be required to develop an internal work programme and to build the knowledge and relationships needed for an internal programme.</p> <p>Building knowledge around the value of deliberation requires investment, activity and patience. This is particularly true when coming up against timelines that are in tension with the timescales for deliberation as currently delivered.</p> | <p>The unique value of Sciencewise – its connection to central government and commitment to deliberation – will be lost even if there is intention to retain them. This is because additions to top line UKRI priorities are unlikely to be defended if there is subsequent desire to move resource elsewhere.</p> <p>There are significant reputational and relational risks particularly with the wider public engagement community and with central government sponsors.</p> |

This table overleaf brings together the implications of options 1 and 2 for Sciencewise. It reflects what is discussed in the main body of the document.

This table brings together the implications of options 1 and 2 for Sciencewise. It reflects what is discussed in the main body of the document.

| | Potential implications of minor improvements (option 1) | Potential implications of an amplified Sciencewise (option 2) |
|---|---|--|
| <p>How projects are identified and commissioned (including methods and tools used)</p> | <p>Increase resources for nurturing relationships and translating into commissions and put some of this resource into the BEIS or UKRI teams to bring projects closer to policy priorities</p> <p>Invest in marketing, showcasing the impact of deliberative processes on policy areas, including the benefits against other policy pressures (e.g. time and money)</p> <p>Develop complementary digital methods that retain the value of deliberation but respond to the challenge of time and resource that policymakers face</p> | <p>Broaden the areas of work beyond science and technology to reflect the full agenda of UKRI, driving the uptake of deliberative processes across all the research sectors within UKRI.</p> <p>Develop a clear set of strategic priorities and focus the development of relationships and securing of commissions on these priorities for the long term.</p> <p>Draw on insight into public attitudes, including work that others are doing, and use this to help stimulate project identification.</p> <p>Substantially increase involvement upstream in the research process, at the point when priorities, funding streams and programmes of work are being set.</p> <p>Create long-term programmes of work around these themes, with multiple projects, some commissioned and some driven internally.</p> <p>Include self-commissioned future- and horizon-scanning in the work programme, in order to make sense of weak signals of public attitude and change and map cross-cutting public values for science and technology.</p> |

| | Potential implications of minor improvements (option 1) | Potential implications of an amplified Sciencewise (option 2) |
|--|--|--|
| | | <p>Invest in the development of deliberative methods, particularly those that reduce resource / time requirements while enabling the integrative, multi-perspective, deep and ongoing exploration of a topic that deliberation uniquely delivers.</p> <p>Explore digital methods in the light of COVID-19's impact on the rapid expansion of reliance on digital tools.</p> |
| <p>The relationship between the UKRI, project managers, suppliers, and Government</p> | <p>Consider a revised management model perhaps with more than one organisation providing the programme management</p> <p>Broaden the pool of potential deliberation suppliers and evaluators</p> | <p>Increase capacity to generate commissions in-house with adequate resource to create, nurture and sustain relationships with research councils, policymakers, civil society and the private sector.</p> <p>Widen the pool of providers and evaluators to include a much more diverse set of organisations and methods (informed by the development work set out above)</p> |

| | Potential implications of minor improvements (option 1) | Potential implications of an amplified Sciencewise (option 2) |
|---|--|--|
| The responsiveness and impact of dialogue delivery | Develop a few more qualitative metrics of success and invest in tools to measure these | <p>Elevate groups and voices where there has been historic lack of representation, visibility or presence. In some instances, this will mean having ‘unequal’ representation to combat lack of voice in other parts of the science and technology process.</p> <p>Introduce new measures of success and impact that focus on social benefit, public value and long-term change in the process of science and technology. This may include investing in research to develop, test and implement new methods, including qualitative and narrative-based metrics.</p> <p>Set expectations that a Sciencewise dialogue involves a commitment to being open with its findings</p> |
| The recognition and reputation of Sciencewise and / or dialogue among key relevant parties | <p>Invest in marketing, showcasing the impact of deliberative processes on policy areas, including the benefits against other policy pressures (e.g. time and money)</p> <p>Actively share the value of Sciencewise on national and international platforms and stages</p> | <p>Retain deliberation as the prioritised method, perhaps strengthening aspects of the Quality Standards to reflect the unique value of this type of multi-stakeholder, multiple-interaction collaborative process</p> <p>Become a thought leader in the application of deliberative methods across the life cycle of science and technology, providing robust evidence of the benefits of deliberation and actively justifying the resource / time investment required (while also working to develop new methods as set out above).</p> |

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