WEBINAR REPORT

Rapid and Living Evidence Synthesis for Environmental Action: Best Practices and Next Steps

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Webinar Report 'Rapid and Living Evidence Synthesis for Environmental Action: Best Practices and Next Steps'

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Introduction

On 27 April 2026, Science Europe hosted a webinar on 'Rapid and Living Evidence Synthesis for Environmental Action: Best Practices and Next Steps', discussing ways to improve the use of scientific knowledge in environmental decision making. The webinar was co-organised by the Foundation for Science and Technology (FCT); German Committee Future Earth (DKN); Health Research Board (HRB) of Ireland; Hungarian Research Network (HUN-REN); Potsdam Institute for Climate Impacts Research (PIK); UK Research and Innovation (UKRI); University of Cambridge; and Science Europe. It built on the previous exploratory discussion on the potential of rapid evidence synthesis, held in June 2025,[1] and was the first of three interlinked webinars on science policy that Science Europe will organise in 2026.

The world is facing an increasingly narrow window of opportunity to address the climate crisis and ensure climate-resilient development.[2] The triple planetary crisis (climate change, pollution, and biodiversity loss) overlaps with other ongoing crises, posing a grave danger to human and planetary health and well-being.[3] Scientific evidence is essential in addressing these challenges.

The use of rapid and living evidence synthesis is growing across disciplines, including climate and environmental science. These approaches offer an opportunity to synthesise the rapidly growing body of scientific evidence and deliver results to end users in a faster, more concise and responsive manner. While they, like all systematic evidence syntheses, have certain limitations, they can potentially improve science-policy interfaces, facilitate uptake of scientific evidence in practice, and help identify gaps in existing scientific knowledge as well as avenues of future scientific collaboration.[4] As such, they can be useful for research funding and performing organisations, decision makers, and other end users of scientific knowledge, such as businesses or civil society organisations.

It is important to note that a variety of definitions and practical approaches to evidence synthesis exist in the scientific community, with one scoping review having identified over 1,000 different terms.[5] Some of the frequently used terms include systematic evidence synthesis, living evidence synthesis, and rapid evidence synthesis; however, their conceptual boundaries are not always clear-cut and can overlap. As pointed out by Covington, "evidence synthesis methods are still relatively new and often not well understood. Terms and methods continue to develop and evolve with significant differences across disciplines."[6] Below, a short glossary is included for working purposes, without prejudging the conceptual complexity of evidence synthesis. The reader is advised to consider the differences and nuances of the topic as indicated by

1 Science Europe, "Report on Exploratory Webinar on the Potential of Rapid Evidence Synthesis for Environmental Action," Science Europe, accessed April 23, 2026, https://www.scienceeurope.org/our-resources/report-on-exploratory-webinar-on-the-potential-of-rapid-evidence-synthesis-for-environmental-action/.

2 ESA Climate Office, "Window Narrowing on Global Warming Goal, Warns IPCC," accessed May 20, 2026, https://climate.esa.int/en/news-events/Window-narrowing-on-global-warming-goal-warns-IPCC/.

3 UN News, "The Triple Planetary Crisis: Global Foresight Report Reveals Global Shifts," July 15, 2024, https://news.un.org/en/story/2024/07/1152136.

4 Science Europe, "Report on Exploratory Webinar on the Potential of Rapid Evidence Synthesis for Environmental Action."

5 Barbara Nussbaumer-Streit et al., "Overview of Evidence Synthesis Types and Modes," Journal of Clinical Epidemiology 187 (November 2025), https://doi.org/10.1016/j.jclinepi.2025.111970.

6 Elle Covington, Evidence Synthesis Guide 1: Understanding Evidence Synthesis (SAGE Publications Ltd, 2025), https://doi.org/10.4135/9781036222710.

speakers. Indeed, one of the conclusions of the webinar was the importance of continuing the conceptual debate on purposes and approaches to evidence synthesis, refining definitions when necessary.

Evidence synthesis: "an umbrella term for a group of research methods that combines information from different sources to reach new conclusions to inform policy, practice, and research."[7]

Systematic evidence synthesis, including systematic reviews and systematic maps, is a gold-standard method for collating and synthesising scientific evidence, designed to minimise bias, maximise transparency and reproducibility, and provide a robust basis for evidence-informed decision making. Systematic reviews answer questions about impact or effectiveness, whereas systematic maps provide a catalogue of evidence on a broad topic. Systematic reviews use a structured, transparent, and comprehensive approach to literature searching, eligibility screening, data extraction, critical appraisal of study validity, and qualitative, quantitative, or mixed-methods synthesis.[8]

Living evidence synthesis (LES, see also **living reviews**) incorporates new evidence as it becomes available, allowing the synthesis to remain up to date, while retaining necessary rigour and comprehensiveness.[9] Systematic reviews may also be living.[10]

Rapid evidence synthesis (RES, see also **rapid reviews**, RR) aims to produce evidence syntheses under resource and time constraints by adapting the synthesis methodology accordingly, while remaining transparent about the associated trade-offs, risks and biases.[11] Rapid reviews may not always adhere to the strictest standards of systematic evidence synthesis, as narrowly defined.[12]

The guiding questions for the webinar were:

- What are the latest advances when it comes to rapid and living evidence synthesis?
- How can we harness the potential of AI and the rich and diverse sources of environmental information to inform decision-making by policy makers?

7 Covington, Evidence Synthesis Guide 1.

8 We are grateful to Biljana Macura for providing this definition.

9 We are grateful to Biljana Macura for providing this definition and the following sources: J. Angus Webb et al., "A Standardized Definition of Rapid Evidence Assessment for Environmental Applications," Conservation Letters 19, no. 1 (2026): e70005, https://doi.org/10.1111/con4.70005; Collaboration for Environmental Evidence, Resources for Authors. 10. Guidance on the Conduct and Standards for 'Rapid Review' of Evidence – Environmental Evidence, March 10, 2022, https://environmentalevidence.org/information-for-authors/10-guidance-on-the-conduct-and-standards-for-rapid-review-of-evidence/.

10 Sabine M. Allida et al., "A Practical Guide to Living Evidence: Reducing the Knowledge-to-Practice Gap," European Journal of Cardiovascular Nursing 24, no. 1 (2025): 165–75, https://doi.org/10.1093/eurjcn/zvae048.

11 We are grateful to Biljana Macura for providing these definitions and the following sources: J. Angus Webb et al., "A Standardized Definition of Rapid Evidence Assessment for Environmental Applications," Conservation Letters 19, no. 1 (2026): e70005, https://doi.org/10.1111/con4.70005; Collaboration for Environmental Evidence, Resources for Authors. 10. Guidance on the Conduct and Standards for 'Rapid Review' of Evidence – Environmental Evidence, March 10, 2022, https://environmentalevidence.org/information-for-authors/10-guidance-on-the-conduct-and-standards-for-rapid-review-of-evidence/.

12 Collaboration for Environmental Evidence, Resources for Authors. 10. Guidance on the Conduct and Standards for 'Rapid Review' of Evidence – Environmental Evidence.

- How can we integrate environmental information with other types of research evidence to support policy decision making around both environmental challenges and challenges in other domains?
- How can we build capacity and capability amongst producers and users of environmental evidence syntheses?
- What are the next possible steps for decision makers, research organisations and other stakeholders?

The first panel focused on sharing some of the latest developments in evidence synthesis and included perspectives from:

- **Prof. Dr. Declan Devane**, Director, Evidence Synthesis Ireland & Cochrane Ireland; Professor of Health Research Methodology, University of Galway
- **Prof. Dr. Steven J. Cooke**, Professor and Director, Canadian Centre for Evidence-Informed Conservation, Carleton University
- **Dr. Biljana Macura**, Senior Research Fellow, Stockholm Environment Institute and Collaboration for Environmental Evidence; Editor in Chief, Environmental Evidence
- **Prof. Dr. Sarah Miller**, Queen's University Belfast, Principal Investigator of the METIUS project
- Moderated by **Dr. Jan C. Minx**, Head of the Evidence for Climate Solutions Working Group at the Potsdam Institute for Climate Impact Research (PIK Potsdam).

The second panel discussed the future opportunities and challenges in the use of rapid and living evidence synthesis by research organisations and decision makers. It featured:

- **Prof. Dr. Daniela Jacob**, Director of Climate Service Center Germany (GERICS) at Helmholtz-Zentrum Hereon and Honorary Professor at the School of Sustainability, Leuphana University Lüneburg
- **Dr. Koen Jonkers**, Head of Unit, JRC Centre for Advanced Studies (S.4), European Commission Joint Research Centre, Directorate S – Innovation in Science and Policymaking
- **Dr. Eszter Kelemen**, Senior Researcher, ESSRG Nonprofit Ltd.
- **Dr. Rupert Lewis**, Deputy Executive Chair, Natural Environment Research Council
- Moderated by **Dr. Eldrid Herrington**, Honorary Fellow, University of Cambridge Judge Business School
- **Diana Potjomkina**, Senior Policy Officer for Green Transition at Science Europe, provided welcome and closing remarks.

The main takeaways and recommendations from the discussion can be summarised as follows:

- Increase the use of scientific evidence in decision making and the broad array of projects and initiatives aiming to address the policy-evidence gap, including with the use of AI.
- Adopt a nuanced, purpose-driven approach when selecting the appropriate mode(s) of evidence synthesis; the need for comprehensiveness and methodological rigour in evidence syntheses.
- Balance supply and demand for scientific evidence (supply by scientists and research organisations, demand by policy makers and other end users).
- Generate supportive conditions and infrastructure for evidence syntheses on a systemic level, including skills, standards, procedures, funding, assessment criteria, and international collaboration.

Presentations: Latest Advances in Rapid and Living Evidence Synthesis

Insights from the health community: Lessons learned from evidence synthesis on health care

Professor Dr. Declan Devane shared the lessons the environmental evidence synthesis community might wish to reflect on from the use of evidence synthesis in health care. Rapid and living evidence synthesis has been widely used in health sciences, with similar objectives and challenges: producing reliable and useful scientific evidence, whilst maintaining the rigour.

Health care as a 'stress test' for evidence synthesis: preconditions for success

Devane pointed out that rapid and living evidence synthesis has been "robustly stress-tested" in the health field, where tight deadlines are common, and decisions have immediate consequences. During the COVID-19 pandemic, short decision making timelines meant that evidence needed to be timely to be relevant for decision makers. The successful response of the scientific community to COVID-19 was made possible by structural preconditions that were already in place: shared access to infrastructures, international collaborations, methodological standards (including cautious and methodologically rigorous use of AI), previous examples of living evidence processes, and the incentives from research funding organisations to provide evidence response. At the same time, the pandemic showed that living evidence synthesis has limits and is only viable when there is demand from policy makers and when dedicated resources are allocated; it requires preparation and continuous commitment for organisations to be able to respond when necessary, including research funding organisations. These lessons can possibly be transferred to the generation of living evidence for rapid decisions on environmental policy.

Best practice examples from evidence synthesis in healthcare

The response to COVID-19 served as a highly successful example of living evidence synthesis: it fed directly into World Health Organization (WHO) guidelines, marking the shift from evidence synthesis as retrospective work to evidence synthesis as an operational decision-support function. In another example, Evidence Synthesis Ireland maintains a successful collaboration with the Irish Department of Health, jointly scoping the questions, openly communicating about the methods including any 'shortcuts', and maintaining the dialogue. This ensures that living evidence reviews answer policy makers' needs and are used in practice. Declan Devane encouraged thinking about rapid evidence synthesis not as a 'shortcut' in itself, but as a defensible method when evidence is needed quickly for decision making, and noted that rapid reviews require explicit, pre-specified trade-offs.

Rapid evidence synthesis and co-production of knowledge

Professor Dr. Steven J. Cooke reflected on the methodological underpinnings of rapid evidence synthesis. He compared rapid and systematic reviews, encouraging a purpose-driven approach to evidence synthesis that is based on the context, consequences, and available resources in each case. It requires good quality scientific evidence and customisation to best suit the needs of the evidence user.

A critical look at systematic reviews

Cooke began with a critical view of 'systematic review,' often considered to be the 'gold standard' of evidence synthesis, and contested some of the assumptions frequently made in the academic literature: that systematic reviews are unbiased, lengthy, and provide exhaustive information to

the decision makers (please see the glossary in the introduction on the 'narrow' definition of systematic reviews). In practice, systematic evidence synthesis is not fully immune to biases, as it depends on the context, quality, and possible biases of the source materials. An average systematic review in the environmental space takes 164 working days; the speed depends on the resources available. However, according to Steven J. Cooke, systematic reviews are in principle not intended to be tailored to decision makers' needs and may not be included in the science advice pipelines.

Rapid reviews as an alternative approach to evidence synthesis

Cooke advocated for a more nuanced approach to evidence synthesis terminology and methodology, indicating that rapid reviews can be seen, broadly, as an alternative approach to synthesising evidence, tailored to a specific purpose. He shared a recent definition of a rapid review[13] (as a structured review process that attempts to maximise rigour and objectivity given assessment needs and resource constraints, being transparent about trade-offs, risks, and biases, and that can integrate multiple types of evidence. The reviews can be classified depending on urgency and impact; for urgent, high-impact files, there is a need for greater resources to achieve both speed and reduce the risk of error. On the other hand, for low-urgent, low-impact dossiers, informal evidence assessment may be more appropriate. Currently, in Canada, rapid reviews are relatively less used, possibly because of their low availability. Cooke also mentioned that in the environmental evidence space, the consequences of various 'shortcuts' taken in rapid evidence synthesis are not currently well known. However, research into these is underway.

Case study: evidence synthesis for Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) is a decision-making and regulatory body that deals with Canadian fisheries and aquatic resources, freshwater, and marine systems. In a recent example, scientific advice on sea lice had to be embedded in the institution's processes, which meant involving key stakeholders and rights holders, including Canada's Indigenous Peoples, in the co-production of evidence. Cooke highlighted how this more inclusive approach was made possible by the fact that the evidence synthesis process can take many forms and approaches, as it does not have to follow the protocols for a standard systematic review. The focus is on meeting decision makers' needs in the best possible way.

The METIUS Project: Mobilising Evidence Through AI and User-Informed Synthesis

Professor Dr. Sarah Miller, Queen's University Belfast, Principal Investigator of the METIUS project (Mobilizing Evidence through AI- and User-Informed Synthesis), presented the project and its broader place within the Evidence Synthesis Infrastructure Collaborative (ESIC). She highlighted the importance of matching evidence synthesis to end users' needs and the global movement towards fundamentally transforming the accessibility of scientific evidence.

METIUS: AI-assisted evidence synthesis on climate, environment, and beyond

The recently started METIUS project aims to use cutting-edge AI and open data tools to create real-time, accessible portals of research evidence for knowledge end users. The important principles underpinning the use of AI are trustworthiness, human oversight and transparency, providing an alternative to commercial models that do not offer scientifically sound outputs. The end goal is a flexible evidence synthesis infrastructure that can be applied across the whole

13 The originally used term was "rapid evidence assessment"; we use "rapid review" to maintain a consistent terminology within the report.

of social science and public policy; similarly to the other best practices mentioned above, METIUS works closely with policy makers, aiming to ensure that the evidence is relevant, usable, and routinely consulted. The project has four thematic work packages, the largest of which is on climate and environment, a methods package, and a package dealing with new pathways to evidence use.

Evidence Synthesis Infrastructure Collaborative

METIUS forms part of the broader Evidence Synthesis Infrastructure Collaborative (ESIC), which includes in total 45 UN entities, including the UN SDG Synthesis Coalition, as well as evidence producers, evidence intermediaries, and over 35 funders. ESIC aims to mobilise scientific evidence for real-world impact, making it easier to be found and used by government policy makers, organisation leaders, professionals, and citizens. It has a special focus on embedding evidence in decision-making processes and on shifting power to the Global South, ensuring equity across all stages of development. ESIC has started by bringing together different communities of evidence synthesis, working towards a shared vision and framework, and has developed a roadmap to guide the next steps.

Capacity needs for living evidence synthesis in environmental decision making

Dr. Biljana Macura reflected on the capacity needs for living evidence synthesis in environmental decision making. She advocated to build further on the existing initiatives, notably: the Evidence Synthesis Infrastructure Collaborative; the Joint AI Methods Group (across Cochrane, Campbell Collaboration, JBI & the Collaboration for Environmental Evidence); the RAISE Initiative for Responsible Use of AI; the Living Evidence Atlas; and the EPPI Centre's Living Evidence Synthesis Toolkit.

The implications of living evidence synthesis for environmental decision making

Moving from the traditional 'project-based' evidence synthesis, she addressed the continuously updated (i.e. living synthesis) models that can facilitate adaptive policy making through faster science–policy alignment. However, living evidence syntheses require new thinking around evidence production, knowledge brokering, evidence user engagement, and use of the evidence. They also depend on efficient workflows, including automation where appropriate, and regular engagement with evidence users to ensure that reviews continue to address relevant policy questions. Rather than funding a review as a one-off project, organisations need long-term support for updating reviews, maintaining the underlying infrastructure, and co-ordination of the people responsible for evidence surveillance, screening, synthesis, and communication.

The roles and needs of different actors in the living evidence synthesis ecosystem

- **Evidence producers** need the skills and infrastructure to update reviews efficiently while maintaining methodological rigour. This includes methodological capacity, including familiarity with automation tools where appropriate, to ensure that review updates remain transparent, rigorous and consistent. Technical infrastructure is equally important. Living reviews require platforms that support versioning and regular updates, as well as interoperable data systems for seamless data flow within and across projects. Evidence curators and automation managers then become crucial to ensure a smooth synthesis process and to translate it into actionable formats.

- **Evidence users** also need to adapt to working with continuously updated evidence rather than static reports. This includes having processes for incorporating updated findings

into decision making and working closely with evidence producers to ensure that review questions remain relevant over time. Transparency throughout this process is essential for maintaining trust.

- **Research funding organisations** have an important role in supportin living evidence synthesis. In addition to funding individual reviews, they need to invest in the long-term maintenance of living reviews, the infrastructure that supports them, and capacity-building. Sustained funding is also needed to encourage collaboration across organisations and to ensure that it can be implemented in a wider range of contexts, including low- and middle-income countries.

Panel Discussion – Rapid and Living Evidence Synthesis: Lessons and Ways Forward for Research Funding and Performing Organisations and Policy Makers

Supply and demand for evidence synthesis

Dr. Rupert Lewis discussed rapid and living evidence synthesis from his perspective both as a former policy maker and customer of scientific expertise, and as a supplier of expertise, co-ordinating science–policy interfaces. Evidence synthesis plays a key role in the interface between science and policy, helping make the tens of thousands of scientific publications that can appear annually on a given topic accessible to policy makers.

Demand for scientific evidence

For scientific evidence to be actually used, it needs to be part of the 'business process' in decision making. Policy makers need to know that evidence exists, while it needs to be timely, and to respond to questions that are genuinely relevant to the issue at hand. Through building a relationship and co-producing evidence synthesis questions, scientific experts and policy makers can ensure that the underlying issue is correctly identified and that the answer is pertinent (for example, helping choose the best option, the least damaging option, or, if evidence is unclear, a no-regret option). Scientific evidence is only a part of the total evidence that policy makers consider; there are also legal, economic, and political considerations.

Supply of scientific evidence

For suppliers of scientific evidence, it is important to be transparent about their ability to provide sound evidence within a given timeframe, and about the level of agreement or controversy within the scientific community. Lewis also mentioned including the historical dimension in evidence synthesis, which can be helpful in situations where decision makers need to significantly change an opinion that was formed on the basis of earlier evidence.

AI as an accelerator of evidence synthesis on biodiversity

Dr. Eszter Kelemen, shared her experience with the use of AI for evidence synthesis specifically on biodiversity, and learnings from work undertaken with the European Commission.

General considerations on the use of AI for evidence synthesis

Artificial Intelligence can assist with evidence synthesis on a global scale, amplifying the range of evidence being surveyed, shortening the timeframes, and enabling large-scale synthesis in situations where existing human capacity may not be sufficient. To succeed, AI-assisted evidence synthesis needs to have access to a reliable existing evidence base, be reproducible and robust, and researchers running it need to possess the necessary skills and capacities. Eszter Kelemen presented the Science Service for Biodiversity, currently under development, which aims to bridge European-level decision making with diverse knowledge holders.

First insights from providing expertise on biodiversity to the European Commission

In the work on biodiversity for the European Commission, evidence synthesis starts with scoping the question, including the context of the request and identifying the most relevant scientific disciplines or the most relevant projects. The methodology used depends on the timeline for the request: in some cases, systematic reviews may be possible; however, in many cases, the requests are urgent, mandating the use of other methods such as rapid evidence synthesis, science pairing, or policy workshops. While the project is still under development, two main areas for integrating AI have currently been identified: first, at the scoping phase, where it can help with inter- and trans-disciplinarity by identifying potentially relevant non-natural scientific disciplines; and second, at the knowledge overview phase, where the workload of human experts could be eased by inviting them to complement, debate, or validate the results of a rapid evidence synthesis performed by AI.

Developing standards for rapid evidence synthesis at the Joint Research Centre

Dr. Koen Jonkers discussed his experience at the JRC, which provides independent, evidence-based knowledge and science to the European Commission. Evidence synthesis lies at the core of the JRC's activities, and the debate on rapid evidence synthesis is relevant, given that the European Commission's policy makers are acting under increasingly tight deadlines.

Developing standards on Rapid Science for Policy

Rapid Science for Policy (RS4P), an approach used by the JRC where 'rapid' means approximately three weeks, is an emerging area that lacks common standards and a consolidated workflow. In May 2025, the JRC's Centre for Advanced Studies launched a Science Insights Team to explore, consolidate, and streamline the latest RS4P tools, methods, and practices. In November 2025, the team convened a workshop at the JRC, gathering international experts in RS4P, with the goal of identifying the latest methods, tools and best practices in the field (a report is upcoming). In addition, the team has produced approximately 20 short (two-page) evidence synthesis documents, making the latest emerging research from within and beyond JRC easily accessible to policy makers. The JRC also delivers other rapid evidence products, such as systematic reviews of meta-analysis (robust databases giving access to the latest evidence).

Challenges and solutions for RS4P

The challenges for RS4P, identified by experts, fall into three categories: methodological, institutional, and relational. The solutions for methodological challenges involve allocating sustained funding; building expert networks; developing ongoing dialogue with policy makers,

which enables shorter response times when needed; overcoming paywall restrictions and siloing of evidence through promoting open science and shared databases; and informed use of AI. Having a validated assessment framework in place will also allow monitoring of the performance of new Large Language Models, and to harness their potential for supporting RS4P work.

Institutionally, the RS4P field suffers from organisational fragmentation. Solutions for this involve establishing inter-organisational, multidisciplinary RS4P teams; developing them into contact points for both internal and external stakeholders; streamlining workflows; and standardising the formats of RSFP outputs for easier shareability.

Relational challenges could be described as the difficulty of translating technical research and scientific findings into accessible and actionable insights for policy makers and issues with maintaining open dialogue with both researchers and policy makers. Solutions are for RS4P teams to be clear on the modalities of collaboration, setting clear policy questions that relate to the existing evidence, and building trust.

A critical view on rapid and living evidence synthesis

Professor Dr. Daniela Jacob addressed the use cases and preconditions for evidence synthesis work and questioned some of the underlying conceptual assumptions.

Supplying reliable, relevant, and accessible evidence to policy makers

When it comes to supplying evidence to policy makers, Jacob stressed the importance of aligning methodology with demand and the purpose. Evidence synthesis work must be based on a reliable evidence base, and must be accessible, useful, and usable in order to respond to the policy needs. It is also important to consider whether the main purpose is to perform scientific work, in cases where the evidence is quickly changing ("rapid science for policy"), or whether the task relates to science communication, providing timely "rapid science information for policy" or analysis of quickly changing evidence."

Use cases and preconditions for rapid and living evidence synthesis

Possible use cases in the context of climate science and climate service include providing responses to specific policy makers' questions e.g. on mitigation and adaptation, developing 'what-if' scenarios, supporting the implementation of scientific knowledge, and supporting science itself. The preconditions for success include infrastructure, stable funding streams, and more generally, considering how academia needs to be structured to respond to policy demands, through rapid and living evidence synthesis, and beyond.

Open discussion

The following topics were addressed in the Q&A session:

- **The risks posed by the use of AI and opportunities for their mitigation**. The speakers commented that the use of AI does pose risks, notably when it comes to bias, the risk of missing important evidence, lack of transparency, and errors. To mitigate these risks, AI tools must be tested in advance and abide by clear standards; be used in a transparent way and only where it can be demonstrated that they do not compromise the methodological rigour or integrity of the synthesis; and be subject to strict human supervision, given the need for safety and high levels of integrity. The speakers also shared several guidelines on responsible use of AI.

- **The way in which rapid and living evidence synthesis can support global assessments, for example, for the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES), the Intergovernmental Panel on Climate Change (IPCC), and other relevant multilateral environmental agreements.** The speakers suggested that global or regional assessments could be supported by conducting additional literature studies or annual updates that can complement the regular review cycles, where relevant. AI can be used to enlarge the evidence base in the literature search and literature review phases, increasing robustness of reviews – which can sometimes be more important than increasing review speed. AI can also be used to score evidence according to certain criteria for meta-analyses, and potentially to minimise some of the human biases if a strong testing framework is in place (whilst keeping human supervision). Evidence synthesis providers could estimate the "half-life" of their evidence, as an indicator of whether evidence is well established or emergent.

- **Using rapid and living evidence synthesis to scale assessments at the regional and national level**. AI could be used to identify and assess the external drivers that may influence the local or regional assessment, embedding it in the local context-setting and adding granularity in comparison with more general global assessments.

- **The role that national research organisations could play.** It was suggested that the research community should fund evidence synthesis infrastructure, potentially with funding for both "fast-track" and "slow-track" synthesis. This infrastructure should be built collectively on an international scale, preventing duplication of efforts, and needs to include methods, skills and workflows; digital infrastructure; and institutional support. Evidence synthesis products need to demonstrate value in order to warrant continued funding. When it comes to the content, it could be interesting to research how assessments can be contextualised on the local or regional level, as mentioned above.

Conclusion and next steps

The speakers presented the latest advances on rapid and living evidence synthesis, including the ongoing work on building a global evidence synthesis infrastructure, projects exploring the use of AI, and evidence synthesis initiatives directly linked to decision-making bodies. The speakers shared examples from different fields (climate change and biodiversity), and different national and international contexts. They also raised key conceptual questions concerning different approaches to evidence synthesis and their use cases. The broad range of evidence synthesis products offers great opportunities for customisation to best suit the needs of the evidence user; the speed of the review is just one of the relevant dimensions.

Responsible and meaningful use of AI was a major topic in the discussion, with a general consensus that AI can have both positive and negative impacts, and so must be used in specific cases and stages of the process where it provides added value, and always with human supervision. Several suggestions were made on strengthening evidence synthesis infrastructure, including international collaboration (to prevent duplication of efforts and ensure interoperability of evidence synthesis products); developing skills and expert networks; and ensuring that funding mechanisms are appropriate for the task at hand.

For scientific evidence to inform policy making, supply must be aligned with demand; co-production of knowledge by scientists, policy makers, and other relevant actors such as indigenous populations can ensure that all parties' needs are respected. Overall, future development of rapid and living evidence synthesis will require both methodological refinement and conceptual reflection on how science can best meet the diverse needs of decision makers and society.

Science Europe will continue to support exchanges between research funding and performing organisations – its Member Organisations, as well as partners – on the future of evidence synthesis in general, and its application to environmental problems more specifically. This work forms part of its commitment to promoting science–policy interfaces, as a way to strengthen the role of science in addressing societal challenges.

Annex: Programme

All times are in CEST.

14.00–14.10 **Welcome and Introduction**

- Dr. Diana Potjomkina, Senior Policy Officer for the Green Transition, Science Europe

14.10–14.40 **Presentations: Latest Advances in Rapid and Living Evidence Synthesis**

- Prof. Dr. Declan Devane, Director, Evidence Synthesis Ireland & Cochrane Ireland, and Professor of Health Research Methodology, University of Galway
- Prof. Dr. Steven J. Cooke, Professor and Director, Canadian Centre for Evidence-Informed Conservation, Carleton University
- Dr. Biljana Macura, Senior Research Fellow, Stockholm Environment Institute and Collaboration for Environmental Evidence; Editor in Chief, Environmental Evidence
- Prof. Dr. Sarah Miller, Queen's University Belfast, Principal Investigator of the METIUS project

Moderator: Dr. Jan C. Minx, Head of the Evidence for Climate Solutions Working Group at the Potsdam Institute for Climate Impact Research

14.40–14.50 **Q&A Session**

14.10–14.40 **Panel Discussion: Rapid and Living Evidence Synthesis: Lessons and Ways Forward for Research Funding and Performing Organisations and Policy Makers**

- Prof. Dr. Daniela Jacob, Director of Climate Service Center Germany (GERICS) at Helmholtz-Zentrum Hereon and Honorary Professor at the School of Sustainability, Leuphana University Lüneburg
- Dr. Koen Jonkers, Head of Unit, JRC Centre for Advanced Studies (S.4), European Commission Joint Research Centre, Directorate S – Innovation in Science and Policymaking
- Dr. Eszter Kelemen, Senior Researcher, ESSRG Nonprofit Ltd.
- Dr. Rupert Lewis, Deputy Executive Chair, Natural Environment Research Council

Moderator: Dr. Eldrid Herrington, Honorary Fellow, University of Cambridge Judge Business School

15.30–15.50 **Q&A Session**

15.50–16.00 **Concluding remarks**

- Dr. Diana Potjomkina, Senior Policy Officer for the Green Transition, Science Europe