



USING SCIENCE FOR/IN DIPLOMACY  
FOR ADDRESSING GLOBAL CHALLENGES

# Global resilience through knowledge-based cooperation: A New Protocol for Science Diplomacy

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## Abstract

The world is currently dealing with one of the most severe health, economic and social crises in recent memory. Scholars are converging on the perspective that traditional means of addressing these crises have served their time. On the additional backdrop of a global political landscape in transition, realising a post-COVID-19 pandemic recovery will require new modes of international collaboration with scientific knowledge and expertise figuring more prominently. A smart approach to science diplomacy—to global resilience through knowledge-based cooperation—does not prescribe the content, but rather focuses on the process of science-based international exchange. The new Protocol for Science Diplomacy presented in this policy brief inspires the alignment of shared, cosmopolitan interests and their application to cross-border societal challenges. It comprises a set of twelve procedural and infrastructural principles with which actors can create a space for constructive and productive science diplomacy interactions. These principles are: Sensitivity; Inclusiveness; Transparency; Deliberation; Reciprocity; Complementarity & Manoeuvrability; Legitimacy; Alignment; Evaluation; Capacities; Capabilities; Trust. Our Protocol for Science Diplomacy sets new ground rules for international scientific and policy collaboration that enable us, inter alia, to make meaningful steps towards tackling the UN Sustainable Development Goals (SDGs) by their 2030 deadline. As such, it offers a roadmap for science diplomacy in the next decade and beyond.

### Why a 'Protocol'?

The term 'protocol' is widely used in international policymaking and diplomatic circles. The Montreal Protocol on Substances that Deplete the Ozone Layer and the Kyoto Protocol to the United Nations Framework Convention on Climate Change, among others, testify to its use in international policymaking. In this domain, protocols often describe additions to existing treaties or agreements. In diplomatic circles, protocol denotes the "body of customs governing the procedure and choreography of diplomatic intercourse" (Jönsson 2016, 83). In its ambition, our Science Diplomacy Protocol is inspired by both strands.



**Networks and dialogue**



**Knowledge resources and dialogue**



**Governance framework**



**Trainings for science diplomats**

## Science Diplomacy for societal challenges

As 2021 gets underway, large parts of the world are grappling with one of the most severe health, economic and social crises of our lifetimes. COVID-19 is laying bare the interdependence, complexity and fragility of our societies (Young 2020). As the President of the European Commission has argued, the crisis also reminds us that "never before has [the] enduring promise of protection, stability and opportunity been more important than it is today" (von der Leyen 2020). SARS-CoV-2 is a novel virus, but it has thrown into sharp relief a series of longstanding global challenges, well articulated by the UN's 2030 Sustainable Development Goals, that are increasingly difficult to address by traditional means in today's world (Beck 2009; Haas 2016; Kuhlmann and Rip 2018).

Vaccine nationalism; recent assaults on democracy in Washington DC; the departure of the UK from the European Union; geopolitical and security tensions with Russia and China; policy failures over climate change—all of these challenges reflect a fragmentation of national interests instead of a cooperative pooling of expertise and capacity. Faced with competing claims to knowledge and truth, realising the European Union's ambitious post-pandemic recovery plan—NextGenerationEU—will require new modes and methods of (funding) international collaboration, in which the role of scientific knowledge and expertise in tackling these challenges is more prominent (European Commission 2020).

### Selected outcomes of S4D4C's empirical research programme

Aukes, E., Ordóñez-Matamoros, G., & Kuhlmann, S. (2019). Meta-Governance for Science Diplomacy – towards a European framework. *STePS Working Paper Series*, 2019, 1-16. doi: <https://doi.org/10.3990/4.2589-2169.2019.01>

Degelsegger-Márquez, A., Flink, T., & Rungius, C. (2019). *What it takes to do science diplomacy: Practices, identities, needs and challenges of science diplomacy practitioners. Baseline analysis and needs assessment*. Vienna: S4D4C. Available at: <https://www.s4d4c.eu/what-it-takes-to-do-science-diplomacy-practices-identities-needs-and-challenges-of-science-diplomacy-practitioners-baseline-analysis-and-needs-assessment/>

Rungius, C., Flink, T., & Degelsegger-Márquez, A. (2018). *State-of-the-art report: summarizing literature on science diplomacy cases and concepts*. Vienna: S4D4C. Available at: <https://www.s4d4c.eu/s4d4cs-state-of-the-art-report-on-science-diplomacy/>

Young, M., Flink, T., & Dall, E. (Eds.). (2020). *Science Diplomacy in the Making: Case-based insights from the S4D4C project*. Vienna: S4D4C. [https://www.s4d4c.eu/wp-content/uploads/2020/03/S4D4C\\_REPORT\\_Science-Diplomacy-in-the-Making.pdf](https://www.s4d4c.eu/wp-content/uploads/2020/03/S4D4C_REPORT_Science-Diplomacy-in-the-Making.pdf)

Young, M., Rungius, C., Aukes, E., Melchor, L., Dall, E., Černovská, E., Tomolová, E., Plumhans, L.A., Ravinet, P., Flink, T., Elorza Moreno A. (2020). *The 'Matters' of Science Diplomacy: Transversal Analysis of the S4D4C Case Studies*. Vienna: S4D4C. [https://www.s4d4c.eu/wp-content/uploads/2020/09/S4D4C\\_REPORTS\\_The-Matters-of-Science-Diplomacy\\_Sept2020.pdf](https://www.s4d4c.eu/wp-content/uploads/2020/09/S4D4C_REPORTS_The-Matters-of-Science-Diplomacy_Sept2020.pdf)

A smart approach to science diplomacy – to global resilience through knowledge-based cooperation – does not prescribe the content of science-based international exchanges and related processes, e.g. funding instruments. Rather, it outlines the characteristics of the process by which science diplomacy actors decide on what mechanism is best applied in their specific situation.

As we have explored elsewhere (Aukes et al. 2020):

- a. Grand societal challenges require diplomatic efforts and science-based knowledge,
- b. Science-based knowledge production is diverse and evolving,
- c. Diplomacy means reconciling a variety of interests, and
- d. Science diplomacy requires both science literacy and diplomacy literacy.

Building on these points, the Madrid Declaration on Science Diplomacy, the policy report *Calling for a Systemic Change*, and a forthcoming S4D4C policy brief advocating more intensive evaluation of science diplomacy activities (S4D4C 2019; Melchor et al. 2020; Flink 2021; see text box for further S4D4C sources), we now present a new Protocol for Science Diplomacy,

designed to inform a new procedural turn in scientific-diplomatic interactions. The Protocol envisages science diplomacy as less about soft power being deployed in pursuit of national interests, and more about shared, cosmopolitan interests being aligned and applied to cross-border societal challenges (Beck 2009). The Protocol should be deployed as a set of practical guidelines, primarily aimed at science diplomatic exchanges in which the European Union (including Member States and strategic partners), intergovernmental organizations, science and knowledge institutions, and civil society and philanthropic organizations partake.

## Principles of a new Science Diplomacy Protocol

Science diplomacy occurs at the intersection of foreign policy, problem articulation (e.g. the UN SDGs), scientific knowledge, technology and innovation, and is characterised by fluidity. Its definition, stakeholders and job descriptions are not fixed. This new Protocol for Science Diplomacy should be applied in collaborative situations based on shared interests. This will help to create a constructive and productive interaction space. The protocol proposes principles of agency and governance that are applicable to various configurations of stakeholders and topics pertaining to the challenges societies face today.

The new Protocol for Science Diplomacy outlines a set of twelve procedural and infrastructural principles that need to be considered in the design and delivery of transformative science

diplomacy interactions. Not all are applicable to every situation, but it will be useful to consider several of the principles in most situations. Depending on the specific situation, it is possible that several of the principles need to be balanced against each other and some trade-offs between them are inevitable. The choice of which principles to combine in tackling a specific societal challenge highlights the importance of ensuring such interactions remain flexible and contextually sensitive.

*Note: each principle is explained by means of a definition and key questions, as well as illustrated with a fictive case. Each fictive case is an excerpt of a full example on the S4D4C website (<https://www.s4d4c.eu/>). Each principle presented here is provided with a link that directs you to the full principle description.*



## Procedural principles

### SENSITIVITY



Science diplomatic activities should respect the specific political, socio-economic and environmental context they are designed for and be able to adapt to changes in them.

#### Key questions:

- Who are the main stakeholders?
- What is the specific (geo-)political, scientific and natural-environmental context?

#### Fictive case:

*A rather elaborate science diplomacy scheme has been running successfully over many years in a stable albeit complex context as the political realities in participating countries are rather diverse.*

Science diplomacy schemes encouraging scientific activities in other countries can be at risk of becoming politically instrumentalized. However, they also represent an additional channel into countries with whom relations are not perfect. This can be solved by implementing additional measures that prevent the inappropriate, unintended use of science diplomacy schemes. How to deal with such risks is a matter of situational evaluation based on cultural, political and economic aspects. Click [here](#) to find more about this principle.

### INCLUSIVENESS



Science diplomatic activities should be aware of different degrees of inclusiveness vs. exclusiveness as well as that inclusion is a political, strategic choice and a component of the diplomatic game, too. Where useful, one should involve a broadly representative portion of the relevant scientific, political and diplomatic communities.

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## TRANSPARENCY



Science diplomatic activities should be appropriately visible to enable monitoring and accountability activities by observing communities, thereby increasing the legitimacy of the activity.

### Key question:

- Which aspects of the activity should be openly accessible? To whom?

### Fictive case:

*Especially in international relations that are asymmetrical in terms of socio-economic and governance performance, it takes great scientific-diplomatic efforts to construct a stable, accountable quality management system for jointly setting up, evaluating and managing international research projects.*

Transparency is key in international joint programming, especially if the socio-economic and political situations of the participating countries are diverse. Each step of a programme including its documentation should be as openly available as possible, so that stakeholders can easily verify them. Click [here](#) to find more about this principle.

## DELIBERATION



Science diplomatic activities should encourage mutual understanding of actors' perspectives, needs and objectives, as well as of problem definitions and associated solutions, the disciplinary and interdisciplinary knowledge required (incl. probing for other relevant scientific disciplines) and common narratives for the support of science diplomacy processes.

### Key questions:

- Which different perspectives exist concerning the planned activity?
- How can consensus be achieved about the problem definition, scope and acceptability of solutions?

### Fictive case:

*During a sequence of international negotiations, several representatives of international institutions (policymakers, NGOs, experts, etc.) discuss how to tackle water-related challenges on the global level. The negotiations are initially fruitless because most participants' perspectives of what the water problem at hand is differ.*

Deliberation about what societal challenges-related problems exist in specific situations often reveals different, sometimes opposing perspectives. Without knowing and revealing what problem definitions actors hold or what they see as acceptable solutions, discussions about potential science diplomacy schemes may grasp at nothing, because proposed solutions are seen as inappropriate. Click [here](#) to find more about this principle.



## RECIPROCITY



Science diplomatic activities should foster an attitude of understanding and cooperativeness leading stakeholders to trust that each actor participating in the activity contributes to addressing grand challenges in roughly equivalent ways according to their relative abilities, be it through knowledge or other resources.

### Key questions:

- What are you willing to contribute and what do you expect your peers to contribute to the activity?
- How do you achieve equivalent contributions?

### Fictive case:

*In an inter-ministerial government meeting on research cooperation a foreign ministry representative asks, "what, really, do we get in return for all the funding we put into research cooperation with this country? It seems to me that this is basically just foreign aid money, after all, we're not seeing major scientific breakthroughs coming out of it."*

Research cooperation with other countries is much more than two (or more) countries investing funds. It provides communication channels and exchange mechanisms that go beyond only promoting scientific breakthroughs. Rather, it presents an opportunity for a sustainable long-term relationship as well as improving the capacity building and the conditions for enhanced scientific reciprocity between countries. Click [here](#) to find more about this principle.

## COMPLEMENTARITY & MANOEUVRABILITY



Science diplomatic activities should build on stakeholders' strengths to balance out others' weaknesses and embed them in governance arrangements that leave enough room to manoeuvre for these strengths to flourish.

### Key questions:

- Who are the relevant stakeholders for the planned activity?
- What are they good at and which weaknesses can be complemented?

### Fictive case:

*In an international joint programming initiative to be developed, an asymmetrical setting is envisioned concerning the question how many and which resources each country should contribute. While Country A has more financial resources and more advanced management systems to provide, Country B also contributes its considerable regional expertise. Although their levels of scientific quality are similar, the areas of expertise of the participating countries are by design supposed to differ and complement each other – and so do the interests of involved actors as to the purpose of the joint undertaking.*

Science diplomacy activities can be designed such that they emphasise the strengths of countries and their representatives in the research and innovation domain. The rules set for science diplomacy activities should be transparent, clear and flexible, while allowing countries' representatives to use room to manoeuvre wherever possible. Click [here](#) to find more about this principle.



## LEGITIMACY



Science diplomatic activities should strive for the mutual acceptance of shared "rules of the game" in the interaction space, respecting the expertise and framings of participating stakeholders. Science diplomacy activities should enable 'democratic quality' of proposed and implemented mechanisms, processes and solutions.

### Key questions:

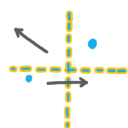
- How does the planned activity contribute to or threaten stakeholders' core values?
- Through which processes can the planned activity increase its legitimacy?

### Fictive case:

*To put the fight against a virus on the international agenda, country A's national academy of sciences suggests to endorse 'Global Health' for the agenda of the upcoming G20 summit to secure support for substantial supply of funds and research frameworks on multinational level from important partner countries.*

Tackling societal challenges at the international policy level cannot do without being supported by sufficient countries and actors. Topics such as "Global Health" may need to be discussed in settings broader than dedicated health or science committees, making meetings such as those under the auspices of the G20 all the more important. Click [here](#) to find more about this principle.

## ALIGNMENT



Science diplomatic activities should address problems on the lowest, i.e. most local and concrete, appropriate policy/instrumental level while coordinating all involved scales (temporal, spatial and administrative), governance dimensions (horizontal and vertical) and communities.

### Key questions:

- On which level is the activity best suited to be implemented?
- How can all influential stakeholders be aligned to maximize the activity's impact?

### Fictive case:

*The environmental adaptation policy department of country A's central funding agency has now been allocated more budget to finance adaptation research on sea-level rise. It intends to start negotiating a joint funding scheme with country B, which faces similar challenges regarding sea-level rise and has expertise in adaptation techniques.*

Cross-boundary science diplomacy schemes often require very diverse political and research systems in the participating countries to be attuned to each other. Alignment of these systems for a successful science diplomacy interaction relies on knowledge about them as well as continuous communication with all domains involved. Click [here](#) to find more about this principle.

## EVALUATION



Science diplomatic activities should be reflective and facilitate learning throughout the process. As common practice in policymaking at large, evaluating the activities undertaken also needs to become an everyday matter in science diplomacy. This process should include, among others, not only reflecting on the frames, ambitions, interests, outcomes of the involved countries and other actors, but also comparing various similar science diplomacy activities to gauge the efficacy of the one in question.

### Key questions:

- What does the performance of the activity teach us?
- Are we satisfied with the activity's performance?

### Fictive case:

*Focused treatment tests for a vaccine or medicine against the Zika virus were first performed directly by prominent scientists of a leading research institution. Soon after a comprehensive evaluation they realized that these processes were more efficient if performed by a broader international collaboration program that also involved scientists located in the global south.*

Comprehensive evaluation and constant monitoring of specific problem contexts can reveal crucial weaknesses in national, regional, and international research programmes. In case of societal challenges it can be important not only to diversify the disciplinary knowledge, but also to bring in researchers from other parts of the world with different perspectives on the matter at hand. Click [here](#) to find more about this principle.

## Infrastructural principles

### CAPACITIES



Science diplomatic activities should create, reinforce and/or draw on suitable and sufficient institutional, organizational, and management resources (e.g. budgets, staff etc.), political will, reliable and inclusive knowledge resources, and gatekeeping proficiency.

#### Key questions:

- Which institutional, organizational and other conditions does the activity require that are already in place?
- Which conditions still need to be realized?

#### Fictive case:

*To promote cross-border collaboration and network-building, the board of a joint scientific infrastructure launches new interaction mechanisms such as international teams, deliberation and dialogue structures based on sharing distinct perspectives of relevant actors.*

Besides for scientific knowledge production, countries often establish joint scientific infrastructures to intensify and improve their relations. Although scientific collaboration through such infrastructures cannot be expected to develop overnight, the right interaction mechanisms can lead to constructive and communicative relationships. This may, in turn, rub off on the involved countries. Click [here](#) to find more about this principle.

### CAPABILITIES



Science diplomatic activities should empower individuals to become trained 'translators', 'multilingual' in the sense of speaking the language of science and diplomacy and enable them to opportunistically or incidentally interact with communities beyond their daily circles both in the domain of science and/or diplomacy.

#### Key question:

- Is the existing human capital, including skills and knowledge, appropriate for the planned activity?

#### Fictive case:

*In the context of a nuclear accident in country A, The chief scientific adviser from country B is required to engage with her peers in country A and, at the same time, explain the scientific evidence to diplomats and policy makers in layman's terms while being aware of both countries' cultural differences.*

The individual capabilities of a chief scientific advisor are critical during crisis events. Their skills in communicating scientific evidence to diplomats and policymakers across borders are an asset in complex, cross-cultural communication. Click [here](#) to find more about this principle.

## TRUST



Science diplomatic activities should produce mutual recognition and credibility on an individual level as well as clear 'rules of the game' on the process level, thereby stabilizing the process and contributing to the legitimacy of the process and involved individuals alike.

### Key questions:

- How well developed are trust relationships between potential stakeholders of the envisioned activity?
- What needs to be done to improve these relationships?

### Fictive case:

*A science attaché from country A deployed to her embassy in country B, and a science attaché from country B deployed to her embassy in country A, interact for the first time during a coffee break of a scientific conference in country B. Because of their good mutual feeling and also the good diplomatic relationships between both countries, they decide to keep in touch to discuss ideas for an annual collaboration.*

As in other interpersonal relationships, science diplomacy activities are often founded on trust developing between individual diplomats from different countries. What begins as an innocent, informal talk over a cup of coffee during an official government event may result in an extended annual collaboration to showcase and explore contemporary scientific interests. Click [here](#) to find more about this principle.

## 2030, SDGs and a new wave in Science Diplomacy

As the COVID-19 crisis has revealed, international efforts to produce and disseminate scientific knowledge can achieve exceptional results at remarkable speed. The development of various functional vaccines against the Sars-Cov-2 virus in less than a year, the open availability of around 200,000 scientific publications investigating the virus and its effects, and the pivotal involvement of scientific advisors in the management of the crisis prove the possibility of fruitful collaboration between scientists and policymakers in both national and international realms.

Yet there are many other ongoing societal challenges which have lingered, and not been tackled with anything like the urgency of this crisis mode. Here, the ground rules of international scientific and policy collaboration need to change if we are to make meaningful steps towards tackling the UN SDGs by their 2030 deadline. The complexities that come with knowledge-based cooperation can be daunting, but they also offer opportunities—particularly for a European Union looking to renew and reassert its progressive, values-based role in the world.

Reflecting on the lessons of the past year in her December 2020 State of the Union Address, EU President von der Leyen said, "When we felt fragility around us, we seized the moment to

breathe new vitality into our Union. When we had a choice to go it alone like we have done in the past, we used the combined strength of the 27 to give all 27 a chance for the future. We showed that we are in this together and we will get out of this together" (von der Leyen 2020).

Getting out of COVID-19 together has depended upon – and will continue to demand –knowledge-based cooperation between science, innovation, policy and diplomacy at multiple levels of national, regional and global governance. As vaccination programmes accelerate worldwide, we need to look beyond the present crisis towards the multiple, interdependent challenges of the SDGs, and the wider imperatives of resilience and preparedness that this past year has reminded us of. As a contribution to this task, the new Protocol offers a roadmap for science diplomacy in the next decade and beyond.

## References

- Aukes, E., Honarmand Ebrahimi, S., Ordóñez-Matamoros, G., & Kuhlmann, S. (2020). Towards effective science diplomacy practice. S4D4C Policy Brief #2. Vienna: S4D4C. Available at: <https://www.s4d4c.eu/wp-content/uploads/2020/01/S4D4C-Towards-effective-science-diplomacy-practice.pdf>
- Beck, U. (2009). Macht und Gegenmacht im globalen Zeitalter: Neue weltpolitische Ökonomie. Frankfurt am Main: Suhrkamp.
- European Commission (2020). Recovery Plan for Europe. Online summary available at: [https://ec.europa.eu/info/strategy/recovery-plan-europe\\_en](https://ec.europa.eu/info/strategy/recovery-plan-europe_en)
- Flink, T. (2021, forthcoming). Evaluating Science Diplomacy – discerning talk and action. S4D4C POLICY BRIEF.
- Haas, P.M. (2016). Social Constructivism and the Evolution of Multilateral Environmental Governance. In P.M. Haas (Ed.), *Epistemic Communities, Constructivism, and International Environmental Politics* (pp. 121-149). London: Routledge.
- Jönsson, C. (2016). Diplomacy, Communication and Signaling. In C. M. Constantinou, P. Kerr, & P. Sharp (Eds.), *The SAGE Handbook of Diplomacy* (pp. 79-91). Los Angeles: Sage.
- Kuhlmann, S., & Rip, A. (2018). Next-Generation Innovation Policy and Grand Challenges. *Science and Public Policy*, 45(4), 1-7. doi: <https://doi.org/10.1093/scipol/scy011>
- Melchor, L., Elorza, A., & Lacunza, I. (2020). Calling for a Systemic Change: Towards a European Union Science Diplomacy for Addressing Global Challenges. V 1.0. S4D4C Policy Report, Madrid: S4D4C. Available at: <https://www.s4d4c.eu/calling-for-a-systemic-change-towards-a-eu-science-diplomacy-for-addressing-global-challenges/>
- S4D4C (2019). The Madrid Declaration on Science Diplomacy. Madrid: S4D4C. Available at: <https://www.s4d4c.eu/s4d4c-1st-global-meeting/the-madrid-declaration-on-science-diplomacy/>
- von der Leyen, U. (2020). State of the Union Address 2020 by Ursula von der Leyen, President of the European Commission. 1 December 2020. Available at: [https://ec.europa.eu/commission/presscorner/detail/en/SPEECH\\_20\\_1655](https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_1655)
- Young, M. (2020). Building Better Science Diplomacy for Global Challenges: insights from the COVID-19 crisis. S4D4C POLICY BRIEF, June 2020. Vienna: S4D4C. Available at: <https://www.s4d4c.eu/policy-brief-building-better-science-diplomacy-for-global-challenges-insights-from-the-covid-19-crisis/>



## USING SCIENCE FOR/IN DIPLOMACY FOR ADDRESSING GLOBAL CHALLENGES

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