

9. The Future of Science Diplomacy

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Key concepts

Science diplomacy has no commonly agreed definition. Definitions range from:

“Science diplomacy is the use of scientific collaborations among nations to address the common problems facing 21st century humanity and to build constructive international partnerships.» (Fedoroff, 2009)

“Science diplomacy is the effort to leverage science engagement and exchange in support of broader objectives beyond scientific discovery.” (Turekian, 2012)

“The use of science to prevent conflicts and crises, underpin policymaking, and improve international relations in conflict areas where the universal language of science can open new channels of communication and build trust.” (European Commission, 2016)

“Science diplomacy has become an umbrella term for a wide array of activities falling in the intersection between research and scientific international collaboration and the diplomatic and foreign policy agenda (Rungius, Flink, and Degelsegger-Márquez, 2018).

The Royal Society & American Association for the Advancement of Science, proposed three approaches to Science Diplomacy (2010), namely:

- **Science in Diplomacy:** informing foreign policy objectives with scientific advice.
- **Diplomacy for Science:** The diplomatic apparatus facilitates international scientific collaboration.
- **Science for Diplomacy:** Scientific cooperation becomes a tool of soft power to improve relations between countries under political strain with new skill sets and more efficient and agile mechanisms and avenues with the participation of a broader range of actors.

Scientific Anticipatory Brief abstract

Global challenges share three characteristics: they all have scientific dimensions, transcend national borders, and no country or sector will be able to solve them alone. To reverse climate change, provide sustainable energy to billions of people, or end the COVID-19 pandemic and prevent the next one, strengthening the links between science and foreign policy will be imperative. The concept of **science diplomacy** was popularized in the early 21st century and has gained considerable traction among policymakers, practitioners and scholars around the world. For example, governments are redesigning the structures of their foreign ministries and updating curricula in diplomatic academies to embed science in foreign policy, expanding training for scientists to navigate global policy spheres, and creating new spaces for researchers and diplomats to interact. But as science diplomacy expands its reach, it is also being subject to intensifying scrutiny.

Over the last five years, nations retreating from multilateralism, trust in science and expertise in decline globally, and increasing technological competition between major powers have revealed the disconnect between the scientific and foreign policy domains while also challenging the mainstream discourse on science diplomacy. This is due to several factors:

Fluid concept. As there is neither a commonly agreed definition nor a consensus on the objectives, stakeholders, instruments or activities of science diplomacy, the term is neither universally embraced nor consistently used.

Siloed communities. The scientific and diplomatic communities remain largely siloed educationally and professionally, with different cultures, values, skill sets, and career paths.

Idealized vision. The mainstream discourse on science diplomacy often favors its co-operative logic but neglects competitive dimensions that are becoming increasingly important with the acceleration of commercially-oriented technological advancements.

These critiques underscore the need to update the theoretical and practical frameworks of science diplomacy in a global environment that is simultaneously becoming more interconnected and more fragmented.

Seven trends will shape the relationship between science and diplomacy in the coming years and decades:

- 1. Covid-19 as a global stress test for science diplomacy.** The pandemic has manifested the importance of science in global policy-making for the health, prosperity, security and sustainability of society and the planet. But it has also revealed the fault lines in the multilateral system, and the weaknesses of current national and international science policy interface structures and institutions.
- 2. Co-operation vs competition: balancing collaboration with strategic sovereignty.** As scientific discoveries interweave with commercial, notoriety and power issues, scientific competition will translate into geopolitical competition. Techplomacy and science diplomacy will fuse, with the private sector becoming the central actor. The Sustainable Development Goals offer a universal roadmap to balancing national and global interests (enlightened self-interest).
- 3. Double convergence of technologies with diplomacy and geopolitics.** The impacts of technological convergence (both positive and negative) on geopolitical, security, and societal issues will require new multi-stakeholder governance frameworks to ensure the safe and ethical deployment of technologies for the benefit of all society, while anticipating and avoiding their harmful applications.
- 4. A growing role for sub-national and non-state actors.** As science and technology converge with other societal actors and sectors, science diplomacy will increasingly include cities, regional governments, private companies, and civil society groups.

- 5. Diplomacy for (deep) science:** International mega-science infrastructures will combine rapidly advancing technologies with 'big slow' research requiring sustained diplomatic engagement over decades. They will serve as neutral spaces to build bridges and strengthen North-South-South scientific capacities.
- 6. Science and technology for peace and conflict resolution.** The conflicts of the future will operate both in the physical and the digital world, and exponential technologies will be deployed for peace and war. There will be a renewed need for 'good offices' and mediation in physical and cyber conflicts.
- 7. The future of the global commons.** Future technologies will challenge the very notion of geopolitics and the definition of the global commons. Science and diplomacy will be key to anticipating needs and gaps in environmental law, climate justice, and the governance of future climate-altering technologies.



Detailed table overview of trends at 5, 10 and 25 years

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Example of breakthroughs

5
years

- Double convergence of exponential technologies and geopolitics blurs the line between 'science diplomacy' and 'technology diplomacy'
- With the technological convergence, the conflicts of the future will operate both in the physical and the digital world=> Science, health, environment need to be brought to the center of diplomacy and national security
- New ways of training diplomats in technology and scientists in global policy and governance

10
years

- Multi-level science diplomacy: beyond nation-states, science diplomacy is increasingly taken up by cities, state and regional governments, transnational companies, and civil society groups
- Reconfiguration of Ministries of Foreign Affairs with more imaginative forms of statecraft (tech ambassadors not enough).

25
years

- New skills: environmental law, climate justice, governance of geoengineering
- Risk communication and greater society involvement with disruptive tech like geoengineering. Also stronger private sector engagement
- A renewed need for 'good offices' and mediation drawing on science for conflicts over natural resources, climate, etc. and as neutral convening on cyber governance