What Is a Science Diplomat?

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Summary

The COVID-19 crisis has shown how countries initially responded to a global challenge on their own, instead of relying on a multilateral science diplomacy — based response. Although, science diplomacy has received great attention for the past decade, its meaning and the nature of the diverse practitioners involved remain elusive. Science diplomacy is a transboundary field sitting across national borders, policy frameworks and stakeholders of all natures and professional backgrounds. But what is a science diplomat? What science diplomacy roles formally exist? Who can become a science diplomat? What knowledge and skills are required? This practitioner's essay proposes a typology of science diplomacy practitioners who bring science, technology, innovation, foreign policy and the international political system altogether closer in either institutionalised or non-institutionalised roles, and it also provides guidance for pursuing a career in science diplomacy. These science diplomats may promote national competitiveness but also facilitate multilateral responses to global challenges.

Keywords

science diplomacy – science diplomat – science counsellor – science attaché – science adviser – science advice – science-policy interface – knowledge diplomacy – COVID-19

1 Introduction¹

The COVID-19 outbreak has caused a profound global public health and socio-economic crisis. Although an intense international scientific collaboration has occurred to tackle the pandemic,² national governments have failed in co-ordinating an immediate multilateral response. This global challenge has brought the interface between science, policy and diplomacy to the spotlight, with science informing governments and facilitating diplomatic collaborations. However, different interface frictions, system deficiencies and stoppers have hindered a science diplomacy — based multilateral response that could have ameliorated this situation.³ This has occurred even with the field of science diplomacy (SD) receiving bigger attention since the Barack Obama administration's new diplomacy approach in the Middle East and the seminal conference by the Royal Society of London and the American Association for the Advancement of Science (AAAS) in 2009.⁴ The European Union has also contributed, with Commissioner Carlos Moedas implementing SD as an important dimension in his Open to the World policy.⁵ Yet the concrete meaning of SD and the nature of the wide range of practitioners involved remain elusive. Hence, two questions follow.

First, what is *science diplomacy*? There are different SD conceptualisations,⁶ with the Madrid Declaration on Science Diplomacy describing it as 'a series of practices at the intersection of science, technology and foreign policy'.⁷ SD is a transboundary field sitting across: 1) national borders, entailing bilateral or multilateral relationships; 2) policy frameworks, combining the policy realms of science, technology, innovation and foreign affairs — each with clear-cut definitions of competencies, actors and levels — and establishing complex and fluid interactions with joint jurisdictions; 3) stakeholders of all natures,

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2 Guimón and Narula 2020.

3 Gluckman 2020; Gual Soler and Oni 2020; Melchor, Elorza and Lacunza 2020, 19-40; 'Coronavirus' 2020; Tyler and Gluckman 2020; Young 2020.

4 Royal Society and AAAS 2010.

5 Moedas 2016.

6 Flink and Schreiterer 2010; Gluckman et al. 2017; Royal Society and AAAS 2010.

7 S4D4C 2019, 3.

involving government actors as well as international organisations, scientific institutions, non-governmental organisations (NGOs), the private sector and so forth; and 4) professional backgrounds, because it bridges two cultures with different world views: the scientist and the diplomat.⁸

Second, what is a *science diplomat*? What do they do? These questions were asked innumerable times during the author's three-year assignment as Science Adviser at the Spanish Embassy in London. They have been asked as often since his return to Spain. May these lines serve as tribute to Robert L. Loftness who, using similar words, so started his *Why Science Attachés?*⁹ article, written 65 years ago to explain the role of scientists at embassies and advocate their positive impact.

First, from a practitioner's perspective, this essay attempts to define and profile different science diplomats. Next, it introduces the required SD knowledge and skills. Finally, it explains certain challenges and recommendations for those interested in pursuing a career in SD.

2 The Science Diplomat: Definition and Taxonomy

SD is a complex space where professionals with different backgrounds gather to build collaborations and potentially seek common interests. On one side are scientists who may be active researchers taking some responsibilities as advisers or diplomats to build international partnerships and influence or represent their nation's interest (the *diplomat scientist*); on the other are diplomats who have specialised in science, technology and innovation (STI) affairs (the *scientist diplomat*).¹⁰ These are two well-defined professions that sporadically, or for a certain time, may take responsibilities in addition to their traditional ones (e.g., conducting research and innovation in the case of scientists; representing their country, defending national interests, supporting expatriates and building international relationships following the Vienna Convention on Diplomatic Relations (1961) in the case of diplomats). A third figure comprises different actors — civil servants, embassy staff, science/policy managers, innovation delegates, liaison officers, policy scientists and so forth — whose professional task is mediating between science and diplomacy, providing support to the aforementioned figures or even leading/implementing their own

8 Aukes et al. 2020, 4; Copeland 2009; Kaltofen and Acuto 2018, 8; Moomaw 2018, 78; Ruffini 2017, 27-33.

9 Loftness 1955, 124.

10 Moomaw 2018, 79-80.

actions and institutional strategies. These professionals have become full-time SD specialists.

Science diplomats could be widely defined as professionals — be they scientists or diplomats — who work to place STI affairs as an important dimension within international relations and the international policy system. Because SD transcends international scientific co-operation, science diplomats not only connect scientists working in different countries to establish collaborations, but especially strive to connect scientists with diplomats, government officials and political leaders to raise the presence and influence of STI in international affairs.

SD occurs in diverse contexts with extensive variation between countries and institutions about how individuals get recruited or trained to fulfil SD roles, how their career paths are envisioned and what political relevance is attributed to their specific area.¹¹ The author proposes a science diplomat taxonomy involving institutionalised and non-institutionalised positions (see Table 1 below). Whereas SD institutionalised roles mostly involve official states' representatives usually acting through formal diplomatic engagement (Track I diplomacy), non-institutionalised roles usually refer to non-state actors operating through non-governmental, unofficial and informal channels who only occasionally engage with government officials (Track II diplomacy). This Track I/Track II diplomacy distinction goes beyond its traditional context of conflict resolution between states¹² to include advancing communication and co-operation of already established and amiable relations between countries.¹³

2.1 *Institutionalised Positions*

This category comprises roles at embassies, ministries, government agencies, research councils, international organisations and so forth that either have a formal SD mandate and/or that actively bring science policy and foreign policy together.

2.1.1 Institutionalised Positions Abroad

These are the traditional science diplomats who are deployed in an official mission abroad, who may hold the legitimacy/responsibility of representing their country before foreign parties and who have an institutional mandate to cover STI affairs. The type of positions at embassies and how these are filled by

11 Degelsegger-Márquez, Flink and Rungius 2019, 4.

12 Diamond and McDonald 1991.

13 Bertelsen, Xing and Gregerson 2017, 448-449.

TABLE 1 The science diplomat taxonomy

Type	Workplace	Positions
Institutionalised positions	Embassies	Science counsellors and attachés
	National embassies abroad or foreign embassies at home country, and/or national representation in international organisations and large research infrastructures	Innovation attachés/delegates
		Science envoys
		Diplomatic envoys
		Liaison officers
		Tech ambassadors
	Ministries	Special ambassadors for science diplomacy
	Government departments and other public agencies with an international scope and/or international organisations	Chief science advisers
		Civil servants, officers, and managers
Non-institutionalised positions	Research centres, universities, non-governmental organisations, learned societies, and government departments and public agencies with no science diplomacy mandate	Researchers in academia/industry
		Policy scientists, science managers and consultants
		Research centres, universities, non-governmental organisations, national academies, learned societies, and government departments and public agencies with no science diplomacy mandate.

SOURCE: AUTHOR.

either scientists or diplomats vary greatly between countries.¹⁴ Some institutionalised positions are:

- **Science counsellors and attachés:** These individuals hold the senior STI responsibilities within a diplomatic mission. The literature on these roles goes back to the 1950s when the United States launched the science attaché programme that temporarily deployed scientists at US embassies to promote international scientific collaborations and improve the US image before other countries.¹⁵ Shortly after, the United States switched to a model where diplomats filled up these positions.¹⁶ Indeed, countries such as the United States, Austria and Switzerland appoint diplomats as science counsellors/attachés, whereas others such as France and Italy appoint active scientists instead. There lies in between the UK Science and Innovation Network (UK-SIN) where local professionals, usually with a scientific background, are hired as science attachés to work alongside career diplomats. China instead deploys civil servants from the Ministry for Science and Technology and rarely from research institutes or universities, barely using career diplomats for these roles.

Former French Science Counsellor in Russia and Italy, Pierre-Bruno Ruffini, describes four functions for science counsellors/attachés:¹⁷ 1) collecting and analysing information of scientific advances and strategies; 2) facilitating connections between scientific communities of both countries; 3) promoting the STI image of their country and intellectual outputs originating in their country; and 4) organising the reception of official delegations. With the growing importance of pandemics, cybersecurity, climate change and so forth in diplomacy and foreign policy making, an additional function could be 5) the delivery of science advice to the ambassador and other embassy officials if required.

- **Innovation attachés/delegates:** These officers promote innovation international funding schemes and assist STI private companies based in their home or their destination countries to establish international partnerships and joint ventures, identify market niches and/or attract foreign investment. UK-SIN delegates cover science and innovation but other national networks, such as SwissNex or the Spanish Centro para el Desarrollo Tecnológico Industrial (CDTI), are mostly focused on innovation. These officers usually have STI and/or financial backgrounds.

14 Flink and Schreiterer 2010, 670-675; Ruffini 2017, 47-84.

15 Loftness 1955; Forbes 1957.

16 Linkov et al. 2014.

17 Ruffini 2017, 48.

- **Science envoys:** Few renowned scientists can and want to serve full time in embassies but they may accept the opportunity to participate in official delegations meeting foreign government and non-government science officials and convening meetings and workshops on topics at the intersection of STI and foreign policy. Thus, the US Science Envoys programme recruits eminent leaders in academia to strengthen US bilateral STI relationships, engaging with foreign publics and advancing specific US policy objectives.¹⁸
- **Diplomatic envoys:** Career diplomats may be deployed to international organisations (e.g., the Union for the Mediterranean [UfM]) and large research infrastructures (e.g., the European Council for Nuclear Research [CERN]) to represent their government's interests.
- **Liaison officers:** These are scientists or managers deployed abroad by research councils, universities or research centres to promote international collaborations and talent circulation. They may also lobby international organisations or supranational entities such as the European Commission.
- **Tech ambassadors:** Denmark,¹⁹ France and Bolivia have deployed career diplomats or scientists to technology hubs as tech ambassadors. The importance of tech cities, start-ups, and tech giants is growing in the global economy as well as in international affairs, so tech ambassadors help countries to enhance their relationships with these stakeholders and oversee the global development of tech affairs (cybersecurity, big data, etc.). This trend partly shifts SD approaches from collaboration to competition due to a greater emphasis on strengthening the country's or region's economic and innovation capabilities.²⁰

2.1.2 Institutionalised Positions at Ministries or International Organisations

Two government departments are usually related to SD: the Ministry for Foreign Affairs (MFA), and the Ministry for Science, Technology, Innovation and/or Universities. These ministries as well as specialised international organisations, such as the UN Educational, Scientific and Cultural Organization (UNESCO), may have official SD positions.

- **Special ambassadors for science diplomacy:** MFAs may recognise career diplomats with this role. These ambassadors help in designing national strategies and co-ordinating all SD officers deployed abroad and within MFA.

¹⁸ El-Baz 2010; Linkov et al. 2014, 3.

¹⁹ Klynge, Ekman and Waedegaard 2020.

²⁰ Leijten 2017, 2.

- **Chief scientific advisers (CSAs):** Countries such as the UK, Australia, Canada, the Czech Republic, India, Ireland, Malaysia, New Zealand and also the European Commission appoint senior scientists to work as CSAs in either a secondment or part-time framework in government departments. Generally, CSAs are involved in mobilising knowledge to influence policy-making processes and may be single individuals or part of institutionalised or ad hoc expert committees.²¹ CSAs together with other professionals in the evidence-policy interface established the International Network for Government Science Advice (INGSA) in 2014.²² CSAs who provide advice to MFAs are more related to SD, international scientific co-operation and international relations. Their role entails 1) being evidence brokers to inform decision-making in national foreign policies, diplomatic summits and international crises; 2) supporting international scientific co-operation and promotion of national STI systems abroad in co-ordination with the STI ministry; and 3) co-coordinating the network of science counsellors/attachés and STI activities in embassies abroad.
- **Civil servants in ministries and managers in international organisations:** This comprises diplomats working in STI-related departments in MFAs and scientists/managers working in departments for international affairs in the STI ministry. They may assist the preparation of STI bilateral agreements, run research international funding schemes, support the science attaché network abroad and so forth.

2.2 *Non-institutionalised Positions*

These are scientists in academia or private industry, managers in agencies and research organisations with no formal SD mandate, civil society representatives and other SD facilitators. All of these may only sometimes engage in international projects that involve liaising with government officials and international organisations. Indeed, they may not even recognise some of their actions as SD. There is nonetheless a risk of conceptual stretching when considering these actors as science diplomats.

- **Researchers engaging in diplomacy:** Scientists who work full time in academia can occasionally engage with the general public, policy-makers, parliamentarians, government officials and diplomats to discuss global challenges and provide their expertise; for instance, those scientists who

²¹ Jasanoff 1990; Pielke 2007; Weingart 1999; Wilsdon 2014.

²² Gluckman 2016.

contributed to an understanding of the ozone problem or who currently advise the Intergovernmental Panel for Climate Change (IPCC).²³

- **Policy scientists, science managers and consultants:** These are experts in science management and consultancy who foster interactions between research, governments and international organisations with occasional impacts on the international policy system. They include policy scientists in governmental departments or public agencies who shape and deliver policies; heads/officers of international affairs who manage international projects and partnerships; heads/officers of public affairs who influence policy-making and regulatory processes with an international scope by providing evidence originating from their research centre, university or private company, raising their institution's profile in the public debate and building trust; and science consultants who advise governments for the design and implementation of SD strategies.

3 The Science Diplomat's Toolbox

SD approaches and conceptual understandings differ between scientists and diplomats. Two different cultures with distinguishable and sometimes opposing philosophies, interests, values and mind sets meet in this interface.²⁴

The set of required knowledge and skills to perform as science diplomats who bring both worlds together is quite broad. Depending on their backgrounds, they need to develop a specific subset (see Table 2 below). Broadly, science diplomats need to know how scientific research is conducted and have a basic understanding of the national/international STI landscapes to better engage with the scientific community. Also, they need to be familiar with policy affairs and international relationships to understand the setting in which they are working. They need to nurture skills in communication, negotiation, management, intercultural sensitivity, networking, storytelling, languages, science literacy and much more.²⁵

23 Gual Soler and Oni 2020; Moomaw 2018, 79; Ruffini 2018.

24 Copeland 2009; Ruffini 2017, 27–33.

25 Degelsegger-Márquez, Flink and Rungius 2019; Gluckman et al. 2017, 4–5; Grimes, Maxton and Williams 2017, 3–7; Gual Soler 2020; Mair et al. 2019; Pielke 2007.

TABLE 2 The science diplomat’s toolbox of knowledge and skills

The science diplomat’s toolbox		Already in your toolbox?	
		Scientist	Diplomat
Knowledge	Scientific research experience (natural sciences, physical sciences, social sciences and humanities etc.)	Yes	Not likely
	International relations and/or public policy	Not likely	Yes
	Understanding of the science, technology and innovation (STI) policy national and international landscape	Yes	To develop
	Understanding of the international policy landscape	To develop	Yes
Skills	Communication, narrative and writing skills for all audiences	To develop	Yes
	Intercultural sensitivity	To develop	Yes
	Brand ambassador and public relationships	To develop	Yes
	Languages	Likely	Yes
	Project management	Yes	Yes
	Liaise with scientific uncertainty	Yes	To develop
	Scientific literacy	Yes	To develop
	Scientific credibility and ability to harness scientific knowledge and networks	Yes	To develop

SOURCE: AUTHOR.

4 Challenges

After reviewing what a science diplomat is and the required skills, some readers may be or would like to be science diplomats working in institutionalised positions but they should be aware of certain challenges.

First, SD has no clear career path, as many different positions do not necessarily state ‘science diplomacy’ in their names. When recalling their own personal voyages, science diplomats with scientific backgrounds often share

their exposure to policy environments through life-transforming events such as those involving policy fellowship schemes, expeditions and international summits.²⁶ Networking in policy environments and engaging with potential mentors can prove useful for better understanding your interests and where you can best fit in.

Second, scientists are not usually trained in international law, diplomacy, public administration, governance or policy-making. Taking another master's or executive programme to get formal education may be useful for understanding the world you are stepping into.

Third, institutionalised positions may operate between two government departments. This is a delicate position as you may need to combine separate interests and understandings, and navigate potential frictions.

Fourth, do not expect that you will be heard and be influential from day zero. Building trust and your own reputation takes time, hard work, establishing fruitful collaborations, arranging meetings with the scientific community and respecting chains of command.

Fifth, scientists tend to be more negative about SD than diplomats. Scientists may mistrust SD practices and professionals because of the risk of manipulation of science for political gain; the lack of immediate research career incentives if involved in SD; the impression that SD does not provide instant improvements in national STI systems, research funding or researchers' career conditions; or the fact that leaving behind an academic career may still be perceived as a failure. Conversely, diplomats welcome these interface professionals as they help them gain access to scientific knowledge and contacts.

5 Recommendations

As someone trained as a scientist who has worked at an embassy,²⁷ the author puts forward the following recommendations to current and potential science diplomats, who may adapt them to their specific context:

- ***It is a figure-it-out position within a team!*** There is no manual of instructions to read when you start working in SD. You need to realise what is expected from you and have an entrepreneurial and proactive attitude (e.g., design an innovative programme never before tried in your institution). Speak with your colleagues in other destinations and engage with your government headquarters to share best practices and conceive common strategies.

²⁶ Berkman 2019, 64-67; Gual Soler 2015; Rao 2018; Turekian 2013.

²⁷ Elorza Moreno et al. 2017, 7-8.

- *Science is just one piece in the puzzle but try to embed it everywhere!* In diplomacy, there are different interests at play and science is just one of many. Sometimes you will be frustrated when your advice or project is not followed or approved due to other interests. Learn from the experience to better understand the whole picture and how science fits in it, and to improve your persuasion skills for future opportunities. Also, consider how to connect the embassy departments (trade, economy, education, transportation, agriculture, culture) with the scientific community to raise the importance of science in their portfolios (e.g., arranging joint events or meetings with scientific experts). Finally, try to import scientific practices (e.g., critical thinking, peer-review) to your current setting as they may improve established processes and policy-making.
- *Identify your foreign counterparts for bilateral and multilateral synergies!* You work in an international setting for bringing countries together. Monitor the latest breakthroughs in research and science policy in your destination country and explore collaboration opportunities between governments (STI bilateral agreements, joint research funds, science governance practice exchange). Make sure you defend your national interests while being as open and collaborative as possible with your foreign counterparts. Also, engage with the thriving global community of science diplomats to learn from others, publish in specialised journals and seek synergies.
- *Be humble, communicative, trustworthy and keep your eyes open!* Be humble when approaching other professionals, as they may be open for collaboration or know of someone who shares your interest. Use common language that avoids jargon and improve your narrative skills to leave behind scholarly explanations. Build your trust and reputation to enhance the image of your institution by keeping in contact with your network and making anyone feel part of your successes; the smart use of social media can help you. Finally, read and watch the news because a constant flow of issues merits your attention at an embassy; you never know when your advice or action could effect a change.
- *Involve the general public!* This should not be a dialogue exclusively between scientists and diplomats, when populisms, pseudoscience, fake news and citizen mistrust of experts and democratic institutions seem to be on the rise.²⁸ Involving citizens in your activities will expose them to how scientific knowledge and democratic institutions both operate. Consider their feedback, too, as new research opportunities and improvements in institutional settings may arise from this.

²⁸ Melchor, Elorza and Lacunza 2020, 28-29.

6 Conclusion

With the growing importance of STI affairs in diplomacy and the emergence of global challenges, nation states require more science diplomats in institutionalised and non-institutionalised positions. These professionals are key to preserving national interests that ensure socio-economic competitiveness but also facilitate multilateral responses for addressing global challenges.

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