USING SCIENCE DIPLOMACY
FOR ADDRESSING GLOBAL CHALLENGES

S4D4C Training Material for Workshops on Science Diplomacy

Stakeholder Analysis in the context of Science Diplomacy

Background	This training material is an output of the project S4D4C – Using science for/in diplomacy for addressing global challenges (www.s4d4c.eu). S4D4C has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 770342. The project S4D4C selected and developed training materials (presentations, methods, exercises, games, etc.) for trainings on science diplomacy for different target groups (mainly diplomats, scientists and science diplomats). These materials are open source under creative commons licences (see below for the applicable license).
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Details on the attribution	*You must provide the name of the creator(s) and attribution to the S4D4C project as well as a link to the project:* Creator: S4D4C (Horizon 2020 project 770342). Elke Dall. Centre for Social Innovation (ZSI). www.s4d4c.eu We are happy if you drop us a line when re-using the materials to learn about their dissemination: contact@s4d4c.eu
Short description	Science Diplomacy is a fluid concept that depends on the challenge addressed, the sector and field concerned, the regions / countries involved etc. As it is very context specific, science diplomats need skills to adequately map the stakeholder landscape they operate in.
Learning objectives	Participants will: • Learn key aspects of stakeholder mapping, management and engagement, how to apply stakeholder analysis tools and categories, prioritisation, stakeholder needs, interests and expectations • Understand the relevance for Science Diplomacy and typical stakeholder configurations
Material type	☐ presentation ☒ method

	☐ simulation game ☒ exercise ☐ other: _____.
Overall content category (if adequate and applicable)	☐ What is Science Diplomacy? ☒ Who are the Science Diplomacy stakeholders? ☐ How does the European Union practice Science Diplomacy? ☐ Which thematic and regional approaches of Science Diplomacy do exist? ☒ What set of skills do I need to be a good science diplomat? ☐ Which are good examples where Science Diplomacy has proven to be successful?
Target groups (1)	☐ Mainly for scientists ☐ Mainly for diplomats ☒ For any of the groups
Target groups (2)	☐ Mainly for beginners in Science dDiplomacy ☒ Mainly for trainees with basic understanding of Science Diplomacy ☐ Mainly for advanced science diplomats ☐ For any of the groups
Group size	☐ For individual learners ☒ For small groups (up to 20) ☐ For large groups (between 20 and 100) ☐ For any group size
Duration	Approximately 1hour 15 minutes, but depends on the mode of implementation.
Level of interactivity	☒ high ☐ medium ☐ low
Preparation and material needed	Two templates to work with stakeholder analysis are provided below, these need to be printed for participants or copied on flipcharts. In the training material we also provide background information and some insights into the S4D4C case study results. In preparation for the training, trainers are invited to consult the full case studies. It is recommended to form small groups, but depending on your group size and the heterogeneity of your trainees you can also implement a stakeholder analysis in plenary format by using brainstorming methodologies and post-its.
Recommended use case and guidance for the trainer	It is recommended to use the material in a combination of classroom style learning and feedback workshop. Participants are encouraged to implement the tools based on an example out of their own professional context as well as based on provided examples (here we offer some selected results of the S4D4C case studies).
Further resources and	An interesting article on strategic stakeholder engagement in public diplomacy can be found here – Zaharna, R.S. (2011)

links	
Evaluation and assessment	Participants need to • Demonstrate the ability to use tools to implement stakeholder analysis • Demonstrate the ability to identify stakeholders and asses their interests and influence • Demonstrate the ability to prioritise and categorise diverse stakeholders This can be done when discussing the outcome of their draft analysis implemented during the class.

1 Terminology

Stakeholder analysis originated in the business context, but it is also used to facilitate public policy development and implementation. It refers to different techniques or tools, which help to identify the people, organisations and networks that are relevant for a specific Science Diplomacy initiative or project in a defined context and helps to understand their positions, influence and interests.

Stakeholders for this training can be defined as individuals and organisations which have a declared or conceivable interest that may be positively or negatively affected as a result of a Science Diplomacy initiative or project and those who are actively involved in a Science Diplomacy project or initiative.

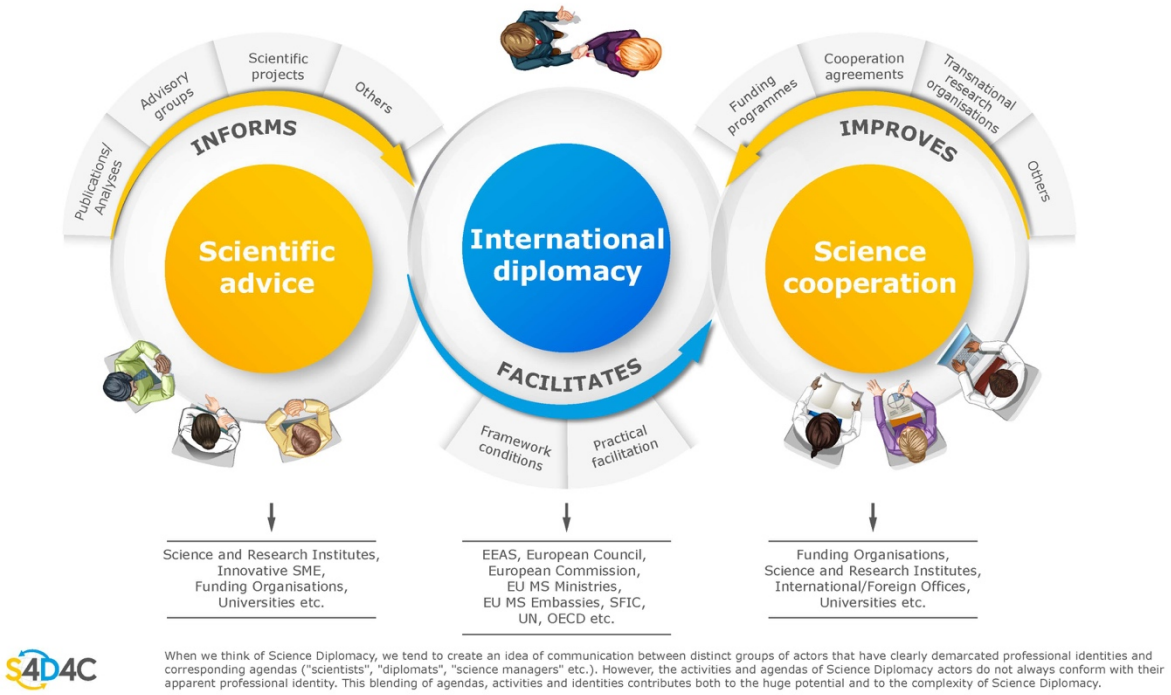
2 Why Stakeholder Analysis is important in the context of Science Diplomacy?

In order to introduce the exercise, you might highlight a few of the following starting points in your own words:

- Science Diplomacy is a multi-stakeholder endeavour.
- Science Diplomacy is context specific. It is very important to have a basic understanding of the relevant stakeholder groups, for example in the field of infectious diseases. Science Diplomacy cases in the field of infectious diseases involve very different stakeholders compared to Science Diplomacy activities to address climate change or cyber security for instance. Furthermore, there are specificities of the geographical area a science diplomat operates in. Different European Member States have different possibilities and conditions (e.g. existing science diplomat networks created by larger countries, larger scientific diaspora groups, etc.). It furthermore depends whether Science Diplomacy is working in a bilateral or multilateral context; whether the focus is on cooperation or competition with the counterpart; what scale and scope the Science Diplomacy activity has (e.g. setting up joint funding programmes, establishment of joint infrastructures, etc.).
- Some key premises to understand Science Diplomacy are (see more information about these outlined in the S4D4C policy paper):

- Grand societal challenges require both diplomatic efforts and science-based knowledge (-> think about stakeholders in different spheres)
- Science-based knowledge production is diverse and evolving (-> think about diverse scientific stakeholders, interdisciplinary work needed, etc.)
- Diplomacy means reconciling a variety of interests (-> think about diverse interest groups)
- Science Diplomacy requires combined science and diplomacy literacy (-> think about boundary spanners and translators)

- The S4D4C infographic can be used to point out some important stakeholders in different activities in the field of Science Diplomacy (see below).



S4D4C Infographic on Science Diplomacy

The infographic lists already typical stakeholders that can be involved in different aspects of Science Diplomacy activities:

Science and research institutes, innovative SMEs, funding organisations, universities, the European External Action Service (EEAS), European Council, European Commission, EU Member State Ministries, EU Member State embassies, the Strategic Forum for International Cooperation (SFIC), United

Nations (UN), Organisation for Economic Co-operation and Development (OECD), international/foreign offices, etc.

In the processes of Science Diplomacy, actors are providing information, facilitating and improving activities of each other. In this regard, the professional identity "science diplomat" is rarely found in any job position, institution or on any business card; instead, these job position names tend to be quite fluid and context dependent: science attaché, science adviser, international relations manager, science consultant, etc. are just some examples.

3 Group finding

Stakeholder analysis works best in groups that have already work experience and at least a basic understanding of Science Diplomacy.

We suggest that in a way of self-organisation, groups of three should be formed. Participants may cluster according to their interests (added value for the learning goals of your training: creating networks among trainees).

It is recommended that trainees work on an initiative they would like to perform a stakeholder analysis for, e.g. being active in "European water Science Diplomacy" or "Promoting open science in international cooperation". Such proposals can be collected at the introductory round table / using methods to get to know each other when participants are invited to point out thematic fields they work on.

Alternatively (e.g. if you have a very heterogeneous group that cannot be clustered), you can suggest global challenges as Science Diplomacy topics to work on (e.g. infectious diseases / health diplomacy, water science diplomacy, etc.) and form groups randomly for the exercise.

Depending on the themes the groups work on (i.e. if they all work on the same theme or on very different topics), the "reporting back" slot to hear the results of the group work should be modified to avoid repetition and to increase the relevance of the exchange.

Alternatively (if you have a very homogeneous group) you can do a stakeholder analysis also in plenary – collect the names of stakeholders by brainstorming, write them on post-its and cluster them. Then let pairs discuss about some of the stakeholders and work out further details.

4 Introduction of a Stakeholder Analysis table

We suggest introducing a **simple stakeholder table** for the training. There are several possibilities to increase the complexity of the matrix and there are also several other instruments that could be used or introduced (e.g. mind mapping tools), so it depends on the amount of time that you can dedicate to stakeholder analysis in your training and the level of experience of the trainees.

A simple stakeholder matrix includes:

- Stakeholder name
- Importance / Interest (high/medium/low)
- Influence / Power / Potential impact (high/medium/low)

Matrices that are more complex could include further columns to fill, such as:

- How is the stakeholder involved?
- What are the areas of interest (details/text)? What is important for the stakeholder? What are the expectations / aspirations for the future? (possible positive impacts)
- What are potential fears / concerns? (possible negative impacts)
- How could the stakeholder contribute to the initiative?
- How could the stakeholder block the initiative?
- Is there any strategy for engaging the stakeholder? Are there any ways to manage expectations?

You may want to point out that answering each of these questions for any given stakeholder can be a project in itself, using interviews and desk research to collect qualitative and quantitative data on the levels of interest and influence. Stakeholder analysis processes are always based on limited available information and subjective assessments.

You can choose to print several copies of the matrix below for each group (consider that the groups should be able to identify about 20 stakeholders, so print at least five copies per group) and have some extra print-outs in stock in case a group asks for more.

Alternatively, you can copy the matrix on flipcharts for each group or print the matrix in A3 format.

Stakeholder analysis in Science Diplomacy

Name of the stakeholder	Importance (high/medium/low)	Influence (high/medium/low)	Specific aspects about the stakeholder

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 770342.

5 Building a stakeholder engagement strategy based on the assessment

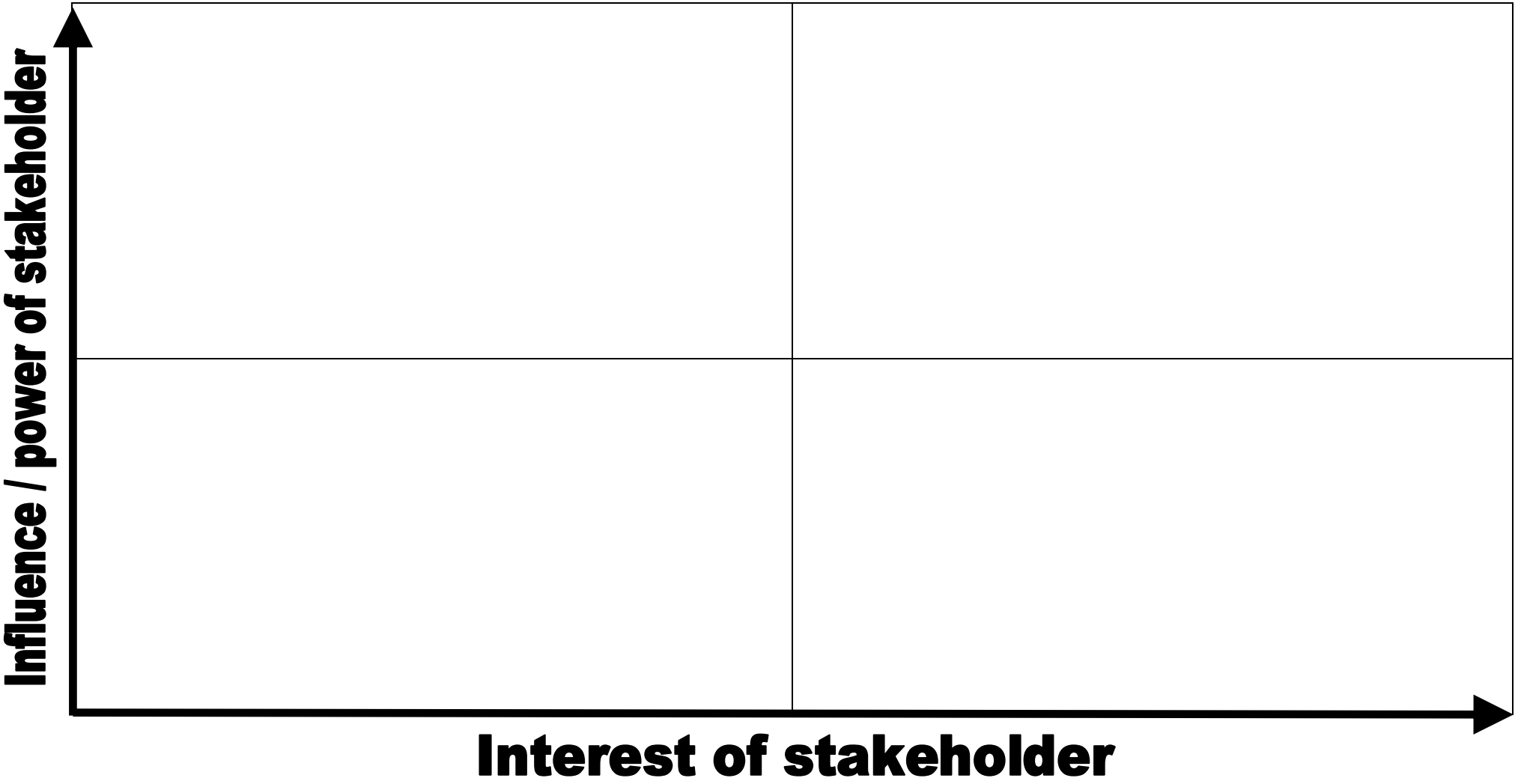
Based on the mapping, clustering and assessing of stakeholders, their importance and interest, participants can think about adequate engagement and communication strategies.

Based on the assessment of their importance and influence, stakeholders can be clustered in the following matrix and prioritised.

Influence / power of stakeholder		
	Understand and meet their needs • Engage and consult in relevant areas • Aim to increase level of interest • Monitor carefully, handle with care, manage risks	**Engage and manage actively** • Most important key players, focus efforts • Involve in decision making processes and bodies • Engage regularly and ensure support • Co-create initiatives
	Monitor and inform occasionally • Inform via general communication channels • Aim to increase level of interest • Monitor the group • Low priority, use limited efforts	**Keep them informed and involved** • Show consideration to their interests and needs • Keep adequately informed and consult on specific areas of interest and expertise • Use interest of stakeholder to involve them in low risk activities, as supporter or promoter of your initiative

Interest of stakeholder

You may distribute a print-out of the following page to the participants or draw the scheme on a flipchart illustrating how your engagement strategy could aim at increasing the interest of stakeholder groups.


Influence / power of stakeholder
Interest of stakeholder

6 Implementation and suggested timing of the stakeholder analysis

5 minutes	Introduction of the exercise and hand-out of template (see above)
5 minutes	Group forming
20 minutes	Group discussions
20 minutes	Reporting to the group and putting key stakeholders on the engagement matrix (depends on the amount of groups)
10 minutes	Reflecting on results

7 Considerations on Science Diplomacy Stakeholders

When reflecting on the results, you could consider also the structuring of stakeholders by their nature and check if the groups have addressed the following types:

- **Governmental stakeholders**
- **Researchers and academia stakeholders**
- **Industry sector stakeholders**
- **Civil society stakeholders**
- **International and supranational stakeholders**

You can highlight a few points in relation to the different stakeholder types:

- Stakeholders from national-state **governments** are the ones that most will come up with. Nation States are traditionally the most important stakeholder in the system of international relations and have the responsibility to regulate science, technology and innovation systems. More and more, national governments in the world are developing and deploying science diplomacy strategies.

- Government stakeholders include ministries or governmental departments, scientific counsellors or attachés in strategic embassies abroad, high-level science advisors to Ministries of Foreign Affairs, etc.

- Governments acknowledge in their science diplomacy activities the importance of different bodies, including also third sector organisations, research funding and performing organisations, companies and the research community as key elements.

- Interests of the national stakeholders in Science Diplomacy can be diverse, but include:

    - Strengthening bilateral scientific collaborations and the support of the countries STI interests
    - Facilitating evidence-informed positions of the country in multilateral endeavours and global challenges
    - Bringing new scientific opportunities and scientific talent to the country
    - Using scientific collaborations as a tool to improving bilateral relations with strategic countries
    - Acknowledging STI as a key asset of the country in its image abroad
    - Facilitating country companies to have a good place in the international innovation market as well as in the research and development international arena

- Globalisation and national decentraliSation processes are changing the way traditional diplomacy is undertaken. Many diverse new stakeholders engage. This is contributing to elevate the role of **subnational government stakeholders** in the global scene, i.e. regional and local levels may play a role in Science Diplomacy (for example, global and big cities are designing science diplomacy strategies, increase their presence and project a friendly and active STI ecosystem). These actors are usually flexible and dynamic, but challenged by the coordination with national governmental stakeholders and constraints of resources.

- **Intergovernmental international organisations** (public entities composed of multiple public entities based on a treaty agreements between states, such as the World Health Organisation, UNESCO, etc.) and **supranational entities** (umbrella organisations that ensure coordination and implementation of common policies in participating states which transfer part of their sovereignty to the organisation) are often involved in Science Diplomacy. These organisations help setting the international agenda, mediating negotiations, providing fora for political initiatives and catalysing cooperation among members.

- **Specific regional stakeholders** have been established in areas such as the Mediterranean, the Arctic/Antarctica, the Middle East, etc. where joint interests have brought national governments together to establish international institutions that execute Science Diplomacy.

- Within these organisations, several bodies can be relevant stakeholders, such as governing councils, which take decisions for the organisation, secretariats as administrative bodies, general assemblies or advisory boards and committees.

- The European Union itself is an example of a supranational organisation for which Science Diplomacy is a tool to address cross-border and global interests. Key players include the Directorate Generals of the European Commission or the European External Action Service.

- Some science centres or research infrastructures are also organised as international organisations (e.g. synchrotrons such as SESAME / CERN), international science programmes and large scientific conferences, fora and panels are also Science Diplomacy stakeholders that can be seen as academic actors.

- **Researchers and academia stakeholders** take a variety of shapes and can be, for instance:

    - Research performing organisations such as research councils, universities, research centres, and large research infrastructures
    - Research funding organisations such as national research councils
    - Academies, professional charters, and other researchers' associations
    - Individual researchers

- Researchers and academia stakeholders may operate on local, regional or national level, belong to international or supranational organisations or even fit into the civil society category but we might still want to consider them separately in order to distinguish their specific interests from other actors.

- Their interests include:

    - Establishing cross-border scientific collaborations
    - Exploring or establishing new research funding opportunities
    - Safeguarding independency and research integrity while at the same time advising policy and creating direct impact with their research results
    - Acting as science advisors to the Ministries of Foreign Affairs and other Ministries and Governments
    - Lobbying for certain scientific issues to permeate into public policy affairs and raising awareness of the importance of evidence-informed policy making
    - Representing academia's interests and concerns at the national level
    - Raising the public value of science and making the case for science to be a key element to achieve national/regional/global goals
    - Training on Science Diplomacy matters to the research community

  - Mainstreaming the science diplomacy dimension into research projects

- **Industry and business sector stakeholders** are also partners in science, technology and innovation diplomacy. Examples include the large research infrastructures and public-private partnerships. There are technology ambassadors linking government and businesses or private donors that can be stakeholders. International negotiations and cross-country advice on intellectual property rights can also be seen as activities in the realm of STI diplomacy.

- **Civil society stakeholders** gain relevance and co-create policy priorities and implement science diplomacy activities. NGOs, non-for-profit private foundations or charities, civil society associations and other organisations as well as individuals, who for example may use their reputation to catalyse actions.

- Interests of civil society can include

  - Engaging with the general public
  - Advocating for science, public policy and politics to communicate better
  - Advocating for science as a key element to improve international relations
  - Facilitating communication channels and exchange interfaces among researchers, politicians and other stakeholders
  - Supporting research by providing funds for international research projects
  - Focusing on increasing science education worldwide with special emphasis in developing countries
  - Promoting and advancing on Science Diplomacy for concrete specific goals
  - Advocating for concrete specific goals of Science Diplomacy (climate change, etc.)

- Organisations must navigate changes in local, regional, national and/or supranational governments (depending on their area of influence) because of new elections, switch of government officials and policy-makers, or change of policy priorities. Stakeholder interests may change with political cycles and varying approaches to international relations. Some countries want to advance in transnationalism giving more power and influence to these structures; some other countries prefer more protectionism wanting to retain their borders and power in the international scene.

8 Examples of varying stakeholder landscapes

Based on the S4D4C case studies, we can suggest to look at some aspects of stakeholder landscape analysis. For example, the case study "Science diplomacy as a means to tackle infectious diseases: The case of Zika" analysed national government stakeholders and their differences (Germany, Czech Republic and UK). Below is a list of selected German government (and government-related) actors for global health drawn from the zika case study.

Actor	Type	Relation to diplomacy	Responsibilities
Federal Ministry of Health	Ministry	Actor (health diplomacy)	National health system; global health policy; represents Germany at WHO; research and development activities on neglected tropical diseases and poverty-related diseases
Federal Ministry of Education and Research	Ministry	Actor (Science Diplomacy)	Research and development activities on neglected tropical diseases and poverty-related diseases
Federal Ministry of Foreign Affairs	Ministry	Actor (all aspects of diplomacy)	Humanitarian assistance; was the coordinating body for all the activities of the German government in its response to the Ebola crisis
Federal Ministry for Economic Cooperation and Development	Ministry	Actor (health diplomacy)	Cooperation with the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, UNICEF, and the United Nations Population Fund; research and development activities on neglected tropical diseases and poverty-related diseases
PT-DLR	Research funding organisation and consulting body to the Federal Ministry of Education and Research	Supporting and advising actor	Research funding (programmes of the Federal Ministry of Education and Research, e.g. neglected tropical diseases and poverty-related diseases)
Robert-Koch-Institute (RKI) // Centre for International Health Protection (ZIG)	National research organisation	Supporting and advising actor	Government's central scientific institution in biomedicine research and one of the most important bodies for the safeguarding of public health in Germany
Paul Ehrlich Institute	National research organisation	Supporting and advising actor	Federal Institute for Vaccines and Biomedicines. It is the senior federal authority for

			medicinal products, providing services in public health
German Center for Infection Research (DZIF)	Public research organisation	Supporting and advising actor	Research on malaria, tuberculosis, AIDS, and emerging infections. It was established in 2012 to align translational infection research with the development of new diagnostic, preventive, and therapeutic methods
Deutsche Akademie der Naturforscher Leopoldina	German National Academy of Sciences	Advising body to German Government and G7/G20	Represents the German scientific community in international committees and assumes a nonpartisan scientific position on social and political issues. Interdisciplinary groups of experts are formed by the Leopoldina and other German, European and international academies to develop and publish official statements on issues of current interest.

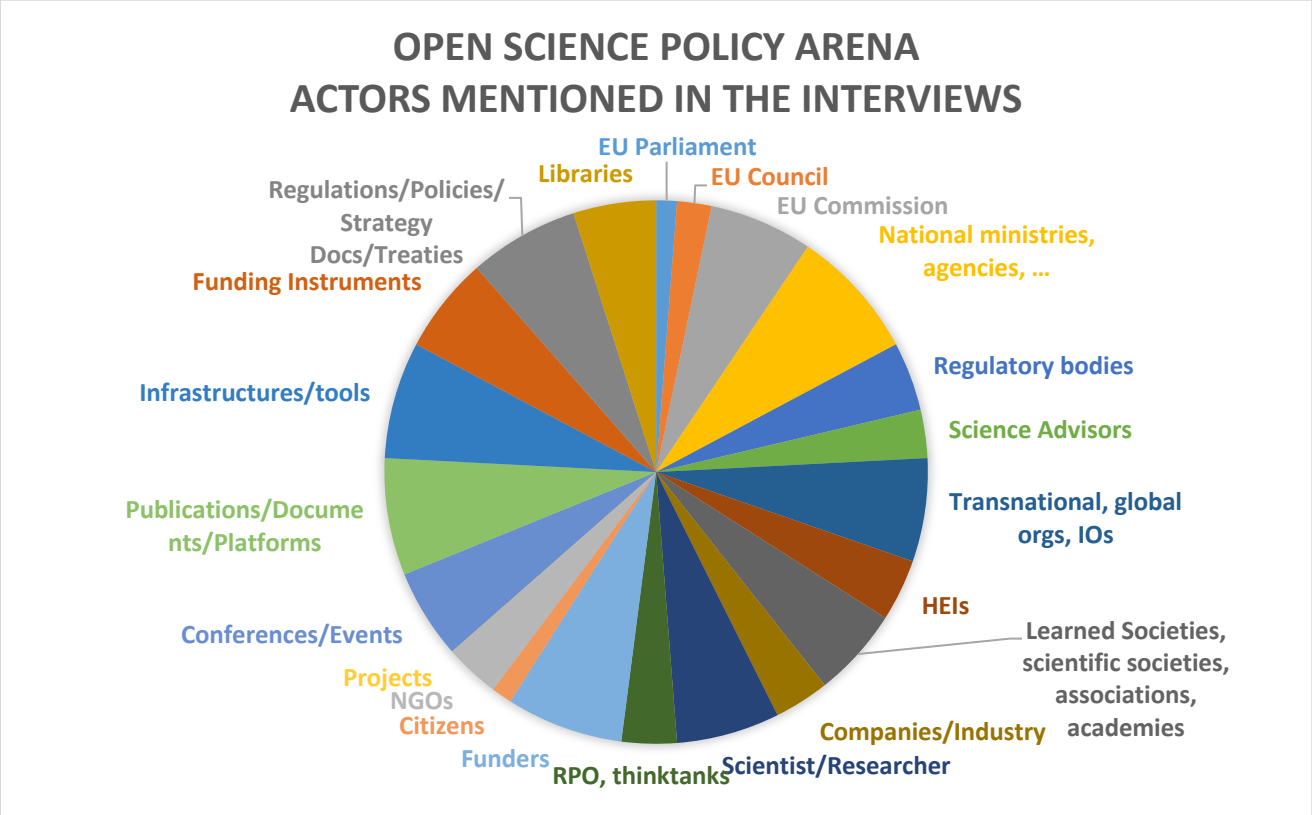
Looking also at Germany in the case about cyber security, we see that "*cyber security is considered a whole-of-government task, which means that different ministries are involved in dealing with it from different angles. Currently, three ministries share cyber security responsibilities:*

- *Federal Ministry of the Interior*
- *Federal Ministry of Defence*
- *Federal Foreign Office*"

You can read the full case study to learn about agencies and private sector actors involved in the interface between science and diplomacy when it comes to cyber security.

Another case study analysed "Open Science Diplomacy" and surveyed the landscape of actors when it comes to the international aspects of open science.

Interview partners described the stakeholder landscape and actors involved in the Open Science policy arena.



Actors in the Open Science policy arena as mentioned in the interviews. Pie illustrates the distribution of mentions.

Bringing together results from desk research and interviews, the following types of stakeholders are most visibly involved in the international Open Science arena. In the table we describe briefly the activities that were mentioned in the interviews and observed in the case study, which concern Open Science as well as related international or regional cooperative actions.

Type of actor	Description of activities and formats	Exemplary actors
Supra-national (science) policy actors	Statements, reports, platforms with description of state of the art, needs analyses, best practices and recommendations. Task forces and working groups.	G7/G8 Science Ministers, OECD, UNESCO, UN, WHO
European (science) policy actors	Policy alignment, regulations (funders) alignment of EU and member states, role models, expert advice, working groups	EU Commission DG Research and Innovation, DG Connect, the European Research Council ERC, ERAC working groups; Open Science Policy Platform; European Competitiveness Council; European Strategy Forum for Research Infrastructures ESFRI,

		High level expert groups, Science Advisors (SAM)
National-level science policy actors	Working groups (overlapping with ERAC), guidelines or national roadmaps and action plans, research policy and financial and legal frameworks, national research documentation systems	Research, education and innovation ministries and related public services, agencies
Public research funding organisations	Funders are predominately supporting Open Science, except innovation funds, which only rarely and then cautiously implement optional Open Access schemes. The international representatives of European science funders are particularly active, see i.e. Plan S. Policies, guidelines, trainings, international exchanges and coordination (e.g. for transparency of publishing costs)	Science funding agencies, research councils, science academies, or innovation funds Science Europe, Global Research Council
National foreign policy actors /diplomatic services	Event organisation, briefing documents and preparation of negotiations	Delegations in embassies, liaison officers in ministries, science attaches, and dedicated offices, such as the Office of Science and Technology of Austria in Washington OSTA.
Charitable organisations and trusts acting as research funders	Policies, guidelines, trainings and capacity building, international exchanges and coordination, lobbying, infrastructures Often role models for science policy makers.	Wellcome Trust, Gates Foundation, Sloan Foundation, Open Society Foundations, … see also the Open Research Funders Group …
Research performing institutions, higher education institutions and their international representatives	Policies, education and capacity building, infrastructures, lobbying, incentives and rewards, conferences … advocacy and engagement level commonly depending on the activities of libraries	League of European Research Universities (LERU), European University Association (EUA), Association of African Universities (AAU)…
Research infrastructure organisations, libraries, archives, and information services, as well as museums (and their international representations)	Research documentation, repositories, infrastructure, technology, governance models, lobbying, training, international exchanges and coordination, negotiation of big deals with publishers in cooperative library consortia. Either strongly advocating,	Among the advocates are the Association of Research Libraries (ARL), LIBER, OpenAIRE, the Council of the Australian University Librarians (CAUL), The Confederation of Open Access Repositories (COAR), REDALYC, GÉANT (pan-European collaboration on e-

	partially involving, sceptically observing, or fully rejecting Open Science developments. Sceptical are mostly cultural heritage institutions as well as specialist archives, which are depending on sparse resources for long term digitisation, curation as well as visitor fees/subscriptions.	infrastructure), DARIAH (European research infrastructure).
Learned societies and their international representatives	Running or publishing scientific journals or research databases, conferences, platforms, lobbying	Discipline specific associations, European Citizen Science Association, Global Young Academy, and the International Science Council
Civil society organisations, NGOs, NPOs, or associations, intermediaries	Research, infrastructure, platforms, networking, consulting, statements, briefings, technology, strategic development, international coordination…	Advocating OS: SPARC, Mozilla, Wikimedia, EIFL, African Open Science Platform, Research Data Alliance (RDA), Wikimedia Policy consultants and support: RAND, Lisbon Council (Open Science Monitor)
Publishing and research services industry	Publishing, indexing, competing and developing new Open Science business models (Gold OA, Article Processing Charges), monitoring, documenting, analysing, lobbying, infrastructure, policies	Monograph or journal publishers, repository and research and documentation infrastructure providers, discovery services, conference services, data management and analysis services, such as the Holtzbrinck Group, Elsevier, Frontiers, F1000, …
Individuals	All of the above-mentioned activities. Many of them speaking out, publishing, blogging, teaching about Open Science (pro and con) and networking	Researchers, technology developers or librarians, involved in grassroots' activities, science administration as well as in policy advisory bodies[1]. Moreover, there is a growing community of internationally mobile students and next generation researchers developing and promoting Open Science activities and policies.

Actors in the international Open Science arena as mentioned in the interviews and gathered through observation

[1] SEE THE LIST OF MEMBERS OF THE OPEN SCIENCE POLICY PLATFORM https://ec.europa.eu/research/openscience/pdf/ospp_nominated_members.pdf #view=fit&pagemode=none OR THE LIST OF AMBASSADORS FOR PLAN S https://www.coalition-s.org/ambassadors/ as accessed 01.06.2019.

9 Sources

S4D4C (2020): Case studies, available from: https://www.s4d4c.eu/s4d4c-cases

S4D4C (2019): Infographics.

S4D4C (2020): Online training to be available soon via https://www.s4d4c.eu

Annex – Details on the License