

S4D4C Training Material for Workshops on Science Diplomacy

FIGURE "Science Diplomacy at the intersection of science policy and foreign policy discourses"

<p>Background</p>	<p>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.</p> <p>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).</p>
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<p>Details on the attribution</p>	<p>You are free to share and adapt for any purpose with attribution. Please provide the name of the creator(s) and attribution to the S4D4C project as well as a link to the project:</p> <p>Creator: <i>Tim Flink, Humboldt-Universität and German Center of Higher Education Research and Science Studies (DZHW);</i> https://www.s4d4c.eu/tim-flink/ <i>S4D4C (Horizon 2020 project 770342).</i> www.s4d4c.eu</p> <p>We are happy if you drop us a line when using these materials. This way we can keep track of their dissemination and maybe also update the material to account for issues arising: contact@s4d4c.eu</p>
<p>Short description</p>	<p>Figure describing key features of the emergence of science diplomacy</p>
<p>Learning objectives</p>	<p>The figures provided elaborate in a sociohistorical way that science diplomacy as a social phenomenon has slowly emerged from the increasing interplay of activities related to both areas, science and international relations.</p>



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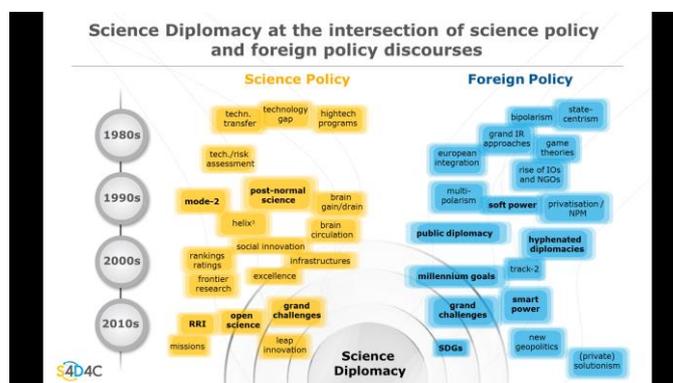
Material type	<input checked="" type="checkbox"/> presentation <input type="checkbox"/> method <input type="checkbox"/> simulation game <input type="checkbox"/> exercise <input checked="" type="checkbox"/> other: figure can also be used for scientific papers and on websites to illustrate the concept
Overall content category (if adequate and applicable)	<input checked="" type="checkbox"/> What is Science Diplomacy? <input type="checkbox"/> Who are the Science Diplomacy stakeholders? <input type="checkbox"/> How does the European Union practice Science Diplomacy? <input type="checkbox"/> Which thematic and regional approaches of Science Diplomacy do exist? <input type="checkbox"/> What set of skills do I need to be a good science diplomat? <input type="checkbox"/> Which are good examples where Science Diplomacy has proven to be successful?
Target groups (1)	<input checked="" type="checkbox"/> Mainly for scientists <input type="checkbox"/> Mainly for diplomats <input type="checkbox"/> For any of the groups
Target groups (2)	<input type="checkbox"/> Mainly for beginners in Science Diplomacy <input type="checkbox"/> Mainly for trainees with basic understanding of Science Diplomacy <input checked="" type="checkbox"/> Mainly for advanced science diplomats <input type="checkbox"/> For any of the groups
Group size	<input type="checkbox"/> For individual learners <input type="checkbox"/> For small groups (up to 20) <input type="checkbox"/> For large groups (between 20 and 100) <input checked="" type="checkbox"/> For any group size
Duration	Presenting the figure requires about 10-15 minutes.
Level of interactivity	<input type="checkbox"/> high <input type="checkbox"/> medium <input checked="" type="checkbox"/> low
Preparation and material needed	Presenting the figure requires the tools for any presentation, for example a computer, projector and a microphone for the trainer in case of an onsite training.
Recommended use case and guidance for the trainer	<p>The figure is especially helpful to familiarize SD actors with the theoretical discourse on the subject matter. The target group should be academically interested and open to engage with theories and concepts. The figure can serve to create a more in depth understanding of the underlying concepts after having provided a more general introduction.</p> <p>Please note that we provide further figures in our set of training materials that can be used as an introduction into the topic science diplomacy or as an explanation of the triangle of society, policy and science.</p> <p>In case of questions from the audience, the trainer should be able to provide a basic outline of the concepts mentioned.</p>

Further resources and links	S4D4C (2018): State-of-the-Art Report. (Link) We provide further links and context information as part of the guidance notes below.
Evaluation and assessment	Please allow for some time for question and answers to ascertain that the figures is clear to the audience.

Guided Note:

Introduction

In recent years, the term “science diplomacy” has gained increasing attention both within academia as well as the political sphere. Yet, the term neither constitutes a ready-made empirical object nor provides a clear-cut definition. Instead, it is the interplay between science and foreign policy and international relations that creates the notion of science diplomacy. The figure “Science Diplomacy at the intersection of science policy and foreign policy discourses” illustrates the increasingly blurred boundaries between the two spheres and explains how this shift of paradigm has transpired over time.



Preview of the training material – Figure “Science Diplomacy at the intersection of science policy and foreign policy discourses”

It provides scientists and diplomats with a deeper understanding of the origins and gradual emergence of the science diplomacy concept in the discourse of academics and practitioners. The trainee shall be able to grasp relevant background of the concept’s remaining “fuzziness”.

Figure “Science Diplomacy at the intersection of science policy and foreign policy discourses”

While the term science diplomacy is relatively new though, the approximation of science and foreign policy has been developing for quite some time. As this figure indicates, in the 1980s and 1990s, science and diplomacy have been defined as two separate spheres. While the area of science has been considered “as a non-political, evidence-based and universal activity”, the diplomatic arena has been attributed with the realm of politics and “as the representation and negotiation of state interests” (S4D4C State of the Art-Report 2018: 7). Both policy fields had their own proficiencies and foci. Over the last decades, however, we came to witness a slow but steady paradigm change with science diplomacy forming as “a fusion of [these] previously distinct elements” (Turekian et al. 2015).

While, from a historical point of view, there have been instances of science diplomatic activities in particular since the 1960s, it is important to note that these were not labelled as such at the time. Only in the early 2000s, a more frequent use and explicit application of the term has emerged (e.g. Lord & Turekian 2007). A growing body of policy papers and research articles has applied the label in more systematic ways ever since. As Flink and Ruffin (2019: 107) clarify: “This wave has seen a growth of programmes and staff dedicated to elements of SD, the consolidation of strategies with regard to countries and topics of interests, and attempts to coordinate (and sometimes streamline) actors under the label of SD. In addition, new actors, such as the European Commission, have entered the playing field.” It follows that every scholar or science policy-maker can find her/himself in a social setting that is of immediate diplomatic relevance, just as well as every actor in the sphere of foreign policy can be confronted with a topic that is of scientific relevance or requires scientific expertise.

The figure shows a sociohistorical evolution of concepts that expressed and structured leitmotifs in science policy on one hand, and foreign on the other hand. Epitomized by those concepts (displayed as bubbles), the traditional thinking how the relation between science and society should be governed, and how international affairs should work out for their primary entities, i.e. nation states governments, have been immensely challenged as of the 1980s. The entire landscape of relevant actors pluralized and we can see an increasing blurring of boundaries within each ecosystem, i.e. science and foreign policy, but also between the two. This has to do with the fact that globalisation with its interrelated flows of people, technologies, ideas, resources and media, just as well as science irrevocably cut through all aspects of human civilisation. All human

circumstances can affect and be affected by international developments *and* by science, its scrutiny, findings and driving force to advancement that concurrently decreases and increases societal uncertainties. Needless to say, globalisation and science have also been causally interrelated. This new awareness was framed by popular concepts in the early millennium years, such as grand challenges, while responding to cross-border problems with scientific expertise *and* international policies was yet to be framed. This is why science diplomacy could fill out a lacuna, i.e. the need for having an intersection of science, science policy and foreign policy.

Context information

The trainer needs to have a basic understanding of the concepts used in the figure and be able to provide further reading to students who ask questions. Please find below some hints on definitions, acronyms and recommended further reading. We are aware that this is an extremely shortened outline and encourage trainers to further explore material and to use this figure only if they feel comfortable answering questions of students (or in settings without Q&A).

Science policy background material

Term used	Short definition	More info about the theory and practice
Technology transfer, technology gap, high-tech programs	<p>Technology transfer (TT) refers to the process of conveying results stemming from scientific and technological research to the market place and to wider society, along with associated skills and procedures, and is as such an intrinsic part of the technological innovation process.</p> <p>Technology gap means the disparity between a company's existing technology or technological capacity and what is needed to develop a commercial application for a product.</p>	<p>Robert W. Ciborowski & Iwona Skrodzka (2019), International technology transfer and innovative changes adjustment in EU, https://link.springer.com/article/10.1007/s00181-019-01683-8</p> <p>Fulvio Castellacci (2010), Closing the Technology Gap?, https://www.files.ethz.ch/isn/122553/WP-777-Fulvio%20Castellacci.pdf</p>
Technology / risk assessment	<p>The technology risk assessment includes the identification, categorization and prioritization of hardware and software threats to achieving key reliability business objectives.</p>	<p>Regulatory technology risk requirements landscape have changed over the past 3 years: for more information, please visit the PWC-website: https://www.pwc.com/sq/en/financial-services/assets/techriskmanagement201307.pdf</p>



<p>Mode-2</p>	<p>A knowledge production mode is a term from the sociology of science which refers to the way (scientific) knowledge is produced. In Mode 2, multidisciplinary teams are brought together for short periods of time to work on specific problems in the real world for knowledge production (applied research) in the knowledge society.</p>	<p>So far, three modes have been conceptualized:</p> <p>Mode 1 production of knowledge is knowledge production motivated by scientific knowledge alone (basic research) which is not primarily concerned by the applicability of its findings.</p> <p>Mode 2 can be explained by the way research funds are distributed among scientists and how scientists focus on obtaining these funds in terms of five basic features: knowledge produced in the context of application; transdisciplinarity; heterogeneity and organizational diversity; social accountability and reflexivity; and quality control</p> <p>Mode 3 knowledge emphasizes the coexistence and co-development of diverse knowledge and innovation modes, at the individual (micro or local), structural and organizational (meso or institutional), and systemic (macro or global) levels.</p> <p>For more information:</p> <p>Nowotny, Helga; Peter Scott; Michael Gibbons (2001). Rethinking science: knowledge in an age of uncertainty. Cambridge: Polity. ISBN 978-0-7456-2607-9.</p>
<p>Post-normal science</p>	<p>Post-normal science represents a novel approach for the use of science on issues where "facts [are] uncertain, values in dispute, stakes high and decisions urgent".</p>	<p>PNS was developed in the 1990s by Silvio Funtowicz and Jerome R. Ravetz.</p> <p>For more information:</p> <p>Funtowicz, S. and Ravetz, J., 1993. "Science for the post-normal age", <i>Futures</i>, 31(7): 735-755., https://www.uu.nl/wetfilos/wetfil10/sprekers/Funtowicz_Ravetz_Futures_1993.pdf</p> <p>Funtowicz, S. O. and Ravetz, J. R., 1991. "A New Scientific Methodology for Global Environmental Issues", in Costanza, R. (ed.), <i>Ecological Economics: The Science and Management of</i></p>

		<p>Sustainability: 137–152. New York: Columbia University Press, https://philpapers.org/rec/FUNANS</p> <p>Funtowicz, S. O. and Ravetz, J. R., 1992. "Three types of risk assessment and the emergence of postnormal science", in Krimsky, S. and Golding, D. (eds.), <i>Social theories of risk</i>: 251–273. Westport, Connecticut: Greenwood. https://philpapers.org/rec/FUNTTO</p>
Triple Helix	<p>The triple helix model of innovation refers to a set of interactions between academia (the university), industry and government, to foster economic and social development, as described in concepts such as the knowledge economy and knowledge society.</p>	<p>For more information see the website of the Triple Helix Institute: http://www.triplehelix.net/publications/papers.html</p> <p>Example: Josep M. Pique, Jasmina Berbegal-Mirabent & Henry Etzkowitz (2018), <i>Triple Helix and the evolution of ecosystems of innovation: the case of Silicon Valley</i>, https://link.springer.com/article/10.1186/s40604-018-0060-x</p>
Brain gain/drain and brain circulation	<p>Brain drain is the loss suffered by a region as a result of the emigration of a (highly) qualified person, while brain gain is when a country benefits as a consequence of immigration of a highly qualified person. Brain circulation is an alternative model to the idea of brain drain. The concept of "brain drain" gained popularity as skilled labour from certain countries emigrated to other countries in search of better opportunities. Brain circulation can thus be defined as the circular movement of skilled labour across nations.</p>	<p>For more information and statistics:</p> <p>Zovanga L. Kone & Caglar Özden (2017), <i>Brain drain, gain, and brain circulation</i>, KNOMAD Working Paper 19, https://www.knomad.org/sites/default/files/2017-04/KNOMAD%20WP19_Brain%20Drain%20gain%20and%20circulation.pdf</p>
Social innovation	<p>Social innovations are novel or more effective practices that prove capable to tackle societal issues and are adopted and successfully utilised by individuals, groups</p>	<p>Examples: https://www.socialinnovationatlas.net/; What the EU does: https://ec.europa.eu/growth/industry/policy/innovation/social_en</p>

	and organisations concerned.	Reflection on the concept's evolution: https://ec.europa.eu/growth/industry/policy/innovation/social_en
Infrastructures	Research Infrastructures are facilities that provide resources and services for research communities to conduct research and foster innovation. They can be used beyond research e.g. for education or public services and they may be single-sited, distributed, or virtual.	For more information about European research infrastructures: https://ec.europa.eu/info/research-and-innovation/strategy/european-research-infrastructures_en
Rankings and ratings	Scientific rankings and ratings offer a kind of classification or an assigned position in a particular class or grade, or relative standing.	Examples: The Academic Ranking of World Universities (ARWU) is released today by ShanghaiRanking Consultancy. Since 2003, ARWU has been presenting the world Top 500 universities annually based on transparent methodology and objective third-party data. It has been recognized as the precursor of global university rankings and the most trustworthy one. http://www.shanghairanking.com/index.html Journal rankings are intended to reflect the place of a journal within its field, the relative difficulty of being published in that journal, and the prestige associated with it. The SCImago Journal Rank (SJR) indicator is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where the citations come from. The h-index is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The h-index correlates with obvious success indicators such as winning the Nobel Prize, being accepted for research

		fellowships and holding positions at top universities.[]
Frontier research	Frontier research is an intrinsically risky endeavour. It usually addresses issues about which there is considerable controversy in the scientific community in the area in which they are being explored. Furthermore, it deals with questions that are hard to answer, at least by applying the normal methodological approaches. Frontier research employs also methodologies and concepts that are atypical for the field concerned; It takes unexpected findings that challenge the dominant paradigm as its starting point and, continuing from the previous point, it focuses on issues whose resolution is key to confirming (or rebutting) the prevailing paradigm. But not all frontier research meets all these criteria.	For more information: Frontier research: bringing the future closer, http://www.fgcsic.es/lychnos/en_EN/forum/frontier_research_bringing_the_future_closer
Excellence	We understand scientific excellence as excellence in all aspects of the scientific endeavor. "Scientific excellence" in this sense not only includes excellence in scientific research, but also excellence in connecting science to society, in teaching and mentoring scientists, in science management, and in science advice to policy makers, to name only a few.	More information about Indicators of Research Excellence: JRC report, https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/composite-indicators-research-excellence
Grand Challenges	Grand Challenges are difficult but important problems set by various institutions or professions to encourage solutions or advocate for the application of government or philanthropic funds especially in the most highly developed economies and energize	For more information: Gould, M. "GIScience grand challenges: How can research and technology in this field address big-picture problems? ArcUser, 13 (4), 64-65." (2010), https://www.esri.com/news/arcuser/1010/files/geochallenges .

	not only the scientific and engineering community, but also students, journalists, the public, and their elected representatives, to develop a sense of the possibilities, an appreciation of the risks, and an urgent commitment to accelerate progress.	pdf Omenn, Gilbert S. "Grand challenges and great opportunities in science, technology, and public policy." <i>Science</i> 314.5806 (2006): 1696-1704, https://science.sciencemag.org/content/314/5806/1696.abstract
RRI = Responsible Research and Innovation	RRI is a term used by the European Union's Framework Programmes to describe scientific research and technological development processes that take into account effects and potential impacts on the environment and society.	RRI involves holding research to high ethical standards, ensuring gender equality in the scientific community, investing policy-makers with the responsibility to avoid harmful effects of innovation, engaging the communities affected by innovation and ensuring that they have the knowledge necessary to understand the implications by furthering science education and Open Access. For more information: Von Schomberg, René (2013). "A Vision of Responsible Research and Innovation", https://philpapers.org/archive/VONAVO.pdf European Commission (2013). "Options for Strengthening Responsible Research and Innovation - Report of the Expert Group on the State of Art in Europe on Responsible Research and Innovation", http://ec.europa.eu/research/science-society/document_library/pdf_06/options-for-strengthening_en.pdf
Open Science	Open Science represents a new approach to the scientific process based on cooperative work and new ways of diffusing knowledge by using digital technologies and new collaborative tools.	The European Commission has sought to advance open science policy from its inception in a holistic and integrated way, covering all aspects of the research cycle from scientific discovery and review to sharing knowledge, publishing, and outreach.

		For more information: https://ec.europa.eu/research/openscience/index.cfm
Leap innovation	Leap innovation is a strategy an organization can adapt to shift innovation focus pro-actively across products, processes and business models to stay relevant and ensure sustainability. Making these quick movements or leaps enables firms to remain relevant through changing market conditions.	Websites related to Leap innovation: https://www.ideaconnection.com/innovation-articles/leap-innovation-a-strategy-to-get-ahead-and-stay-rel-01106.html https://researchleap.com/ https://staging.leapinnovations.org/our-research/
Missions	Five major European research and innovation missions will be part of Horizon Europe, the next EU research and innovation programme (2021-2027). The missions are dedicated on cancer, climate change, healthy oceans, climate-neutral cities and healthy soil and food.	For more information: https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/missions-horizon-europe_en

Foreign policy background material:

Term used	Short definition	More info about the theory and practice
State-centrism	State-centered theory (or state-centred federalism) is a political theory which stresses the role of the government on civil society. It holds that the state itself can structure political life to some degree, but doesn't facilitate the way power is distributed between classes and other groups at a given time.	For more information: Susan Marks (2006), State-Centrism, International Law, and the Anxieties of Influence, https://www.cambridge.org/core/services/aop-cambridge-core/content/view/EB0A10F556F5B5112780435EF7A60D2C/S0922156506003335a.pdf/statecentrism_international_law_and_the_anxieties_of_influence.pdf
Bipolarism	Unipolarity means that there is sole superpower that is dominant in the international system. For example there is	Example: Oystein Tunsjo (2018), The Return of Bipolarity in World Politics: China, the United States, and Geostuctural Realism, The Return

	unipolarity at present as US is the only superpower. Bipolarity means that there are two superpowers as was the case during the Cold War.	of Bipolarity in World Politics: China, the United States, and Geostructural Realism, https://cup.columbia.edu/book/the-return-of-bipolarity-in-world-politics/9780231176545
Grand IR approaches (IR=international relations)	International Relations theory entails the development of conceptual frameworks and theories to facilitate the understanding and explanation of events and phenomena in world politics, as well as the analysis and informing of associated policies and practices, e.g. Neorealism, Liberalism, Constructivism.	For further information about IR approaches see http://www.irtheory.com/know.htm
European integration	European integration is the process of industrial, economic, political, legal, social and cultural integration of states wholly or partially in Europe or nearby. European integration has primarily come about through the European Union and its policies.	For more information about the historical development of European intergration see https://www.europarl.europa.eu/RegData/etudes/PERI/2018/618969/IPOL_PERI(2018)618969_EN.pdf
Game theories	Game theory is the analysis of how decision makers interact in decision making to take into account reactions and choices of the other decision makers. International conflict and other phenomena in international relations occur as a result of decisions made by people.	For more information: Duncan Snidal (1985), The Game Theory of International Politics, https://www.cambridge.org/core/journals/world-politics/article/game-theory-of-international-politics/18AD7306A697C35A1232FBB3D29455E9
Rise of IOs (international organisations) and NGOs (non-governmental organisations)	The reasons for the rise in international authority are threefold: (i) the functional quest for effective cooperation, (ii) increasing political demands for participation by non-governmental actors, and (iii) the diffusion of authoritative institutional templates amongst international organisations. Non-governmental organizations (NGOs) have also played an important role in pushing for sustainable development at the international level.	-
Multi-polarism	Multipolarity is a distribution of power in which more than two nation-states have	For more information: Andrea Edoardo Varisco (2013), Towards a Multi-Polar

	nearly equal amounts of military, cultural, and economic influence.	International System: Which Prospects for Global Peace?, https://www.e-ir.info/2013/06/03/towards-a-multi-polar-international-system-which-prospects-for-global-peace/
Soft power	In international politics, soft power is the ability to attract and co-opt, rather than coerce (contrast hard power). In other words, soft power involves shaping the preferences of others through appeal and attraction.	For further information: Nye, Joseph S. (2004). Soft Power: The Means To Success In World Politics. Hachette UK (published 2009), https://books.google.de/books?id=x5Q5DgAAQBAJ&redir_esc=y
Privatisation / NPM = New Public Management	Privatisation means any action that transfers some or all of the ownership and/or control of state-owned. NPM is the process in which business principles and private sector management techniques are transferred into the public sector in correspondence with, and based on, a neoliberal understanding of the economy and the State.	For more information: Anne-Marie Reynaers (2016), Privatization and Public Management, https://link.springer.com/content/pdf/10.1007%2F978-3-319-31816-5_1334-1.pdf
Public diplomacy	In international relations, public diplomacy or people's diplomacy, is any of the various government-sponsored efforts aimed at communicating directly with foreign publics to establish a dialogue designed to inform and influence with the aim that this foreign public supports or tolerates a government's strategic objectives.	Websites related to public diplomacy: https://www.uscpublicdiplomacy.org/page/what-is-pd (history) https://www.ifimes.org/en/8020-public-diplomacy-basic-concepts-and-trends (basic concepts and trends)
Hyphenated diplomacies	Hyphenated diplomacy implies recognition that more people share some responsibility for diplomacy. The rise of hyphenated diplomacy is language catching up with the pervasive reality of globalization.	-
Track-2	"Track 1" diplomacy or official diplomacy has a long history whose roots lie in the	For more information: Jeffrey Mapendere, Track One and a Half Diplomacy and the

	remote history of humankind. "Track 2" diplomacy grew out of the observation that private individuals, meeting unofficially, can find their way to common ground that official negotiators can't.	Complementarity of Tracks, https://peacemaker.un.org/sites/peacemaker.un.org/files/TrackOneandaHalfDiplomacy_Mapendere.pdf
Millennium Goals	The Millennium Development Goals (MDGs) were eight international development goals for the year 2015 that had been established following the Millennium Summit of the United Nations in 2000, following the adoption of the United Nations Millennium Declaration: 1.To eradicate extreme poverty and hunger 2.To achieve universal primary education 3.To promote gender equality and empower women 4.To reduce child mortality 5.To improve maternal health 6.To combat HIV/AIDS, malaria, and other diseases 7.To ensure environmental sustainability 8.To develop a global partnership for development	For more information see the UN website https://www.un.org/millenniumgoals/
Grand challenges	As described above, grand challenges are big problems addressed by various governmental and scientific institutions. For their solution, science and foreign policy need join efforts. Therefore, this topic is listed on both "worlds".	See "Science Policy" above
Smart power	In international relations, the term smart power refers to the combination of hard power and soft power (see above) strategies.	For more information: "CSIS Commission on Smart Power: A Smarter, More Secure America", Center for Strategic and International Studies. Retrieved 12 April 2012, https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/media/csis/pubs/071106_csissmartpowerreport.pdf
Sustainable Development Goals	The Sustainable Development Goals (SDGs)	For more information see the UN website

	are a collection of 17 global goals designed to be a blueprint to achieve a better and more sustainable future for all.	https://www.un.org/sustainabledevelopment/sustainable-development-goals/
New geopolitics	Geopolitics was always considering the territory as a main determinant of states development but globalization began to offer a world structured in a very different way. In the "global village" the territory is less important as it used to be. That is why modern geopoliticians have been changing the meaning of the geographical factor. A new element in geopolitics is for example the increased range of participants as objects of the research process.	-
Private solutionism	The term "solutionism" describes that every social problem has a technological fix.	-

References on science diplomacy

Turekian, Vaughan et al. (2015): "The Emergence of Science Diplomacy". In Lloyd, S. D. and Patman, R. (eds.): Science Diplomacy. New Day or False Dawn? Singapore: World Scientific Publishing Co. Pte. Ltd., 3-24.

Lord, Kristin M and Turekian, Vaughan (2007): "Time for a New Era of Science Diplomacy." www.sciencemag.org, SCIENCE 315.

Flink, Tim and Rüffin, Nicolas (2019): "The current state of the art of science diplomacy". In Canzler, W.; Kuhlmann, S.; Simon, D. and Stamm, J. (eds.): Handbook on Science and Public Policy. Cheltenham: Edward Elgar, 104-121.

References on science policy background

Science, Technology and Innovation Policy Development, United Nations, <http://www.unesco.org/new/en/natural-sciences/science-technology/sti-systems-and-governance/sti-policy-development/>

Johan Schot, W. Edward Steinmueller (2018), Three frames for innovation policy: R&D, systems of innovation and transformative change, <https://www.sciencedirect.com/science/article/pii/S0048733318301987>

References on foreign policy background

New Realities in Foreign Affairs: Diplomacy in the 21st Century (2018), SWP Research Paper 2018/RP 11, <https://www.swp-berlin.org/en/publication/new-realities-in-foreign-affairs-diplomacy-in-the-21st-century/>



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