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The Future of EU Science Diplomacy: Conceptual and Strategic Reflections

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1. Background and objectives

In the past decade, the concept of Science Diplomacy (SD) has progressively entered into the strategies and institutional settings of a number of states and organisations both globally and in Europe. Despite having engaged in different forms of international scientific cooperation for several decades, the European Union (EU) has only recently started to reflect on the incorporation of science in different aspects of its external relations, progressively adopting the term SD without defining a specific strategy. The emergence of a clear EU SD is faced with challenges which are both of a conceptual and practical nature.

On the one hand, the term remains subject to different interpretations and uses. Engaging with the concept and the body of literature and practical experiences behind it allows for better strategic thinking on the role of science in foreign policy. However, the value of the term as a label for practical initiatives is still unclear. In a context where EU member states (MS) tend to protect their national prerogatives in foreign policy and scientists guard their intellectual independence from political influence, its use in official communications and strategies might prove to be counter-productive.

On the other hand, the political contexts external and internal to the EU present both obstacles and opportunities for the incorporation of science in foreign policy. At the global level, unprecedented challenges like climate change require concerted science-based solutions. These seem increasingly harder to achieve in contexts where populist movements discredit scientific evidence as a basis for policy making or where scientific and technological progress is read in a purely competitive way. Within the EU, lack of support for further integration in domains that are not yet communitarised and distance between policy makers and the scientific community risk to nip EU SD in the bud.

As part of the policy reflection process on EU SD, the EU-funded project 'European Leadership in Cultural, Science and Innovation Diplomacy' (EL-CSID) has extensively enquired into different aspects of these challenges and provided insightful case studies. Based on this work and on selected literature from other sources, this study seeks to explore the possible developments facing the EU and its role of leadership in a global SD. Engaging in a foresight analysis, its aim is to provide a reflection on future scenarios and how EU action could influence and operate within them. This is an exercise intimately connected with policy planning and can help make informed choices as events unfold.

The work aims to identify challenges facing the EU in the further development of its SD in the next 5-10 years. There are two major components to be considered for this exercise:

- (i) *An analysis of the politico-economic and security contexts in which (...) science diplomacy is likely (or not) to flourish over the next decade. (...)*
- (ii) *An institutional and process analysis of the instruments at the disposal of the EU (...) in the conduct of (...) science diplomacy; especially the degree to which this is 'managed' top-down or encouraged to grow organically from the bottom up.¹*

The identification of four possible scenarios and the broader reflection provided by this paper are based on an extensive literature review, use of official documents produced by the EU and other relevant organisations as well as a questionnaire distributed within the EL-CSID project consortium, compiled by seven researchers with extensive academic and practical experience on the topic (see Acknowledgements).

The paper starts by discussing the concept of SD and the challenges related to its adoption by the EU. The following section then identifies the internal and external variables likely to affect the development of an EU SD and draws four different scenarios based on this reflection. Afterwards, the study discusses the role of the main actors and instruments involved in the definition of an EU SD, looking at emerging leaderships or possible arrangements among them for consensus building. A final section provides some concluding statements and policy recommendations.

¹ H2020 Project 'EL-CSID', Grant Agreement 693799, Work Package 1, Task 3.

2. Concept and related challenges

The concept of 'science diplomacy', albeit useful for both academic enquiry and policy making, presents some weaknesses. It is far from being stable and clearly defined. Instead, different understandings based on economic (competitive), political or scientific objectives create tensions for the coherence of the term.² As part of a foresight analysis on EU SD, reflection is needed both regarding its usefulness as a concept that inspires and guides policy making as well as its strength in terms of strategic communication when used to label specific initiatives.

First, the broad use of the term SD to categorise activities that do not have an explicit diplomatic character raises a problem of agency. Does SD need to be carried out by self-recognised 'science diplomats'? Or does the simple involvement of governments as facilitators or funders of a scientific initiative – motivated inter alia by its diplomatic value – suffice to apply this label? This is a central question as scientists might feel uncomfortable or even refuse to be indicated as serving foreign policy interests. Similarly to what has been noted with regard to the concept of cultural diplomacy – where cultural operators are traditionally jealous of their independence – 'Once [they] make use of EU funding and technical support, they take part in implementing EU policy objectives, regardless of whether they perceive themselves as EU agents or not'.³ However, this applies to initiatives that have been organised or funded by EU institutions to explicitly include foreign policy goals.

Second, while it is easier from a conceptual standpoint to distinguish between SD and the more neutral idea of international scientific collaboration/relations, policy makers often tend to use SD as a catch-all term. This can include putting a diplomatic label on initiatives that are otherwise devoid of clear political goals. Also, the lack of agreement over the meaning of SD allows various actors to use the term – which resonates neutrality of means and purposes – to push their individual agenda. While the three typologies defined by the AAAS/Royal Society Report⁴ – namely 'science in diplomacy', 'diplomacy for science' and 'science for diplomacy' – remain useful for conceptual reflections, more policy-oriented distinctions have been put forward in the context of EL-CSID, for example 'between an actor's intention to make the scientific cooperation with partners its foreign policy objective and an actor's intention to use (or exploit) cooperation in science as a tool for another foreign policy goal'.⁵ This categorization shifts the focus on the actor's intentions. A further step towards concepts that can readily be applied to policy advice and policy making is to stop focusing on dichotomies opposing normative vs. interest-based drivers for science cooperation or purely scientific vs. other policy objectives. Ultimately, all policies are designed to serve interests existing at a certain level of governance, but some of these need action to be taken at global level in order to be effective. This clearly emerges in the conceptual framework proposed by Gluckman et al, who write that 'for a country to make any investment that supports science diplomacy, the actions must be seen to either directly or indirectly advance its national interest, but that national interest can be parsed according to motivations and intervention logic'.⁶ The authors propose a new categorization based on the level where the interest resides:

- Actions designed to directly advance a country's national needs;
- Actions designed to address cross-border interests;
- Actions primarily designed to meet global needs and challenges.⁷

This change of perspective can also be applied to the EU. An EU SD could take shape as more goal-oriented and aimed at the incorporation of science across all fields of external relations, with different contributions based on the level of interest they serve (EU, cross-border/inter-regional/bilateral or global). A similar point, which partly overlaps with these three levels, had already been brought forward by Van Langenhove,⁸ who called for the EU to focus on 'three areas that are a mix of self-interests and aspirations to have a positive impact on the world':

² Flink, Tim & Nicolas Rüffin. Forthcoming 2018. The Current State of the art of Science Diplomacy.

³ Trobbiani, Riccardo & Simon Schunz. 2018. The European Union's multi-level cultural diplomacy vis-à-vis the United States of America, UNU-CRIS Working Paper 2018/7, UNU-CRIS, Bruges.

⁴ AAAS & Royal Society. 2010. New Frontiers in Science Diplomacy, The Royal Society Science Policy Centre, London.

⁵ Penca, Jerneja. 2018. The rhetoric of 'science diplomacy': Innovation for the EU's scientific cooperation?, *EL-CSID Working Paper 2018/16*, IES, Brussels.

⁶ Gluckman, Peter D., Vaughan C. Turekian, Teruo Kishi, & Robin W. Grimes. 2017. Science Diplomacy: A Pragmatic Perspective from the Inside, *Science & Diplomacy* 6(4).

⁷ Ibidem.

⁸ Van Langenhove, Luk. 2017. Tools for an EU Science Diplomacy, European Commission Directorate-General for Research and Innovation, Brussels, p. 6.

- Science and technology contributions towards improving European trade in the world (cf. EU interest);
- Science and technology contributions towards enhancing regional security in its neighbourhood (cf. cross-border/inter-regional interest);
- Science and technology contributions towards tackling global problems (cf. global interest).

This shift of paradigm can help frame future-oriented reflections by looking at their practical policy implications.

Besides conceptual considerations, SD must be analysed from the angle of EU strategic communication. Better care in communicating SD as a policy is fundamental. EL-CSID results suggest the presence of a relatively fertile ground among EU scientists, yet attached to some caveats. In an enquiry carried out within the Horizon 2020 (H2020) scientific community, senior scientists leading international projects were found to receive relatively well the term 'science diplomat' and to be ready to engage with diplomatic issues. However, they strongly protected the neutrality of science and often advocated the idea that its objectives cannot be politically directed.⁹

But strategic communication of SD does not only concern relations with the scientific community. Arguably, many problems lie with broader communication of the EU's role as an institutional actor in the field of science. In 2015 a survey revealed that citizens of the EU's ten strategic partner countries would hardly recognise the EU as a scientific actor. When asked to associate the topic of 'science, research and technology' with either the 'EU' or 'Europe', only 26.9% of the respondents to the survey picked the EU, while 38.3% indicated 'Europe', 21.6% stated that there is no difference between them and 13.1% could not answer the question. Furthermore, 'science, research and technology' was the policy topic least often associated with the EU when compared to 'economy' (46.6%), 'politics' (42.6%) or 'social development' (30.5%), and only ranked above 'culture and sports' (17.6%).¹⁰

More problematically, EU's image in many countries is also affected by European history and geopolitics, especially concerning colonialism. The question is: is EU science cooperation really perceived as neutral in developing countries, former European colonies and countries with a history of cultural and political confrontation with Europe? Does it function as a tool to de-politicise the EU foreign policy agenda? How do external perceptions influence the future of EU SD? Three EL-CSID reports looked at external perceptions of EU SD coming mostly from the academic world in Egypt,¹¹ Tunisia¹² and Turkey,¹³ which were tested through survey and interviews. Although a general positive evaluation and interest in collaboration emerged from this exercise, a recurring theme was the perception of the EU as an actor driven by its political and economic agenda and motivated by the intention to appear stronger than its competitors rather than by the sake of science and scientific progress per se. In these political contexts, the EU struggles to enhance its reputation of an actor applying double standards in international politics on issue like human rights. Also, in the cases of Turkey and Tunisia a majority of the respondents believe that EU scientific cooperation in the current form constitutes an interference in their country's internal affairs. This highlights, inter alia, the importance of enhancing coherence between the different EU external policies as part of a larger strategic approach.

In brief, in some situations the EU would benefit from downplaying the level of political control retained over certain initiatives. A better communication approach on the EU side might be considering the foreign policy dimension of international scientific collaboration without publicly using the SD label, unless useful to do so. Also, the EU could simply highlight ex-post how certain initiatives served EU diplomatic goals besides their inherent scientific ones.

Future EU reflections on SD as a policy should first of all clarify the extent of this term and how it can strategically influence the use of science in international relations. Indeed, the boundaries between scientific cooperation supported by public resources and government-driven SD are fuzzy. Scientific

⁹ Proud, Virginia. 2018. The Hunt for Science Diplomacy: Practice and Perceptions in the Horizon 2020 Scientific Community, *EL-CSID Working Paper 2018/18*, IES, Brussels.

¹⁰ Public Policy and Management Institute, National Centre for Research on Europe & NFG Research Group. 2015. Analysis of the perception of the EU and of EU's policies abroad, Annex III p. 112-114, http://ec.europa.eu/dgs/fpi/showcases/eu_perceptions_study_en.htm.

¹¹ Hatzenberger, Antoine. 2018a. Case study report: The view of the EU cultural and science diplomacy from Egypt, *EL-CSID Working Paper 2018/12*, IES, Brussels.

¹² Hatzenberger, Antoine. 2018b. Case study report: The view of the EU cultural and science diplomacy from Tunisia, *EL-CSID Working Paper 2018/13*, IES, Brussels.

¹³ Senocak, N. Selin. 2018. Case study report: The Perception of the EU Cultural and Science Diplomacy in Turkey, *EL-CSID Working Paper 2018/14*, IES, Brussels.

cooperation most often serves a plurality of goals in science and beyond¹⁴ and scientific results in some fields can help find solutions to global challenges which are part of foreign policy objectives. As suggested by Gluckman et al, reframing these categories based on the motivations for an actor to invest in SD brings the concept closer to policy advice and policy making. Such an approach can help the EU think strategically on how to better incorporate science and scientific advice in all the diverse dimensions of its external relations. However, this goes in parallel with deciding on the appropriateness of this term to label initiatives, as this might affect perceptions by the implementing and target actors. In brief, a stronger EU SD could be (1) goal-oriented and aimed at the incorporation of science across all fields of external relations, with changing roles according to the three levels proposed and (2) used primarily as a tool for strategic thinking and policy making, and only constitute a label for external communication for ad-hoc, carefully evaluated initiatives.

3. The future of EU Science Diplomacy: SWOT analysis and future scenarios

3.1 Internal and external political, economic and security variables

A reading of the EL-CSID publications and other relevant EU SD literature points at a few possible internal and external variables affecting the development of an EU SD. A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis can help organise these variables and identify simplified scenarios. The exercise draws heavily, but not exclusively, upon Van Langenhove and Boers' SWOT analysis of SD.¹⁵

The *Strengths* and *Weaknesses* of SD can be approached as positive and negative variables of one local, internal factor, namely 'support and involvement of the relevant EU 'policy entrepreneurs' (scientific community, EU Member states, etc.). See table 1

The creation of an internal European consensus on the need for an EU-level SD and a clear understanding of its focus – as complementary to national and non-governmental activities – are both essential elements for EU leadership on the global stage.

First, this consensus should include scientific and research communities. One of SD's major strengths would be if the scientific community takes part in the reflection and consensus-building on an EU SD and in its implementation. This involvement should not lead to a loss of independence for scientists. Inter alia, it would give them a chance to jointly define the limits and boundaries of EU's support and stirring in such a policy. Conversely, one of the major weaknesses would be if – as mostly seems to be the case at present – support for SD remains primarily located in the policy community. EL-CSID results provide the example of Science and Technology Agreements (STA), which have been mostly driven by political considerations and seem to be little valued by scientists.¹⁶

Equally important is the convergence of EU MS towards a strengthened EU SD. A lack of a consistent strategy shared by the EU and its MS, as well as other actors involved in EU external relations, could substantially undermine EU's credibility and impact abroad, as it does in other policy domains.¹⁷ Lock-in effects resulting from weak EU foreign policies and services (European External Action Service - EEAS) and the MS' prerogative in science and research, plus a lack of coherent EU strategies in both fields might be fatal to what still is an emergent policy. EU MS have traditionally been jealous of their competences in science policy, and the EU has tried to carve a role for itself based on narratives of scaled-up economic development and competitiveness.¹⁸ How the EU will find its complementarity with national actions in such a complex interstitial policy field remains to be seen, and while multiple options are available, these are all challenging in different ways.¹⁹ Also, before consensus for coordinated EU-

¹⁴ Gluckman et al. 2017. op. cit.

¹⁵ Van Langenhove, Luk & Elke Boers. 2018. Science Diplomacy in Search of a Purpose in the Populist Era, *EL-CSID Policy Brief 2018/4*, IES, Brussels; see also Van Langenhove, Luk. 2016. Global Science Diplomacy as a New Tool for Global Governance, *FOCIR Pensament 3*, FOCIR, Barcelona.

¹⁶ Ruffin, Nicolas. 2017. Science and Technology Agreements in the Toolbox of Science Diplomacy. Effective Instruments or Insignificant Add-ons?, *EL-CSID Working Paper 6/2017*, IES, Brussels.

¹⁷ Lack of internal cohesion and external coherence between member states' policies has increasingly demonstrated its disruptive potential in fields like migration and energy among others.

¹⁸ Ruffin, Nicolas. Forthcoming 2018. EU Science diplomacy in a contested space of multi-level governance: Ambitions, constraints and options for action.

¹⁹ *Ibidem*.

level action is created, what is still missing in many EU MS is even the adoption of SD as a coherent and properly funded national policy. National SD strategies and structures are limited to a few EU countries as most MS have not fully integrated scientific cooperation with foreign policy.²⁰ Additionally, states often use SD as 'just a buzzword to label their policy of nation-branding and self-promotion'.²¹ These considerations are closely tied to what will be the future agreement on the need for further EU integration, particularly in key fields like science and research. Many EU MS have strong national Science, Technology and Innovation (STI) systems and are already involved in many European or transnational science cooperation projects. A factor of strength would be increased awareness within the EU of the need to enhance EU collaboration and economies of scale in research and innovation, both as a source of economic growth and as a way to find solutions to common challenges. The weakness potentially counterbalancing this development is constituted by national governments that refuse further European integration across policy domains.

Finally, but not less importantly, these developments chiefly depend on willingness and good internal communication within EU institutions themselves, which seem to be increasingly present, but cannot be given for granted in the future. Under the initiative and leadership of the Commission's Directorate General for Research and Innovation (DG RTD) and key figures like the European Commissioner for Science, Research and Innovation Carlos Moedas, SD – which started as a minor concept – became a central piece of EU's 'open to the world' strategy. It allowed DG RTD to gain a more policy-oriented role and it was progressively acknowledged as a policy by other DGs dealing with external actions and EEAS, which now communicate with DG RTD on the concept and its strategic dimension. While strengthening its 'diplomacy for science', the EU has increasingly developed 'science for diplomacy' tools. In this effort, EU institutions seem to be motivated by a mix of interests and normative concerns. Interest-based justifications constitute the prevalent narrative and are mainly of an economic nature. These tie STI to jobs, growth and competitiveness, as is clearly visible across H2020. Norms are instead mostly related to the use of STI as tools to promote development and peace building abroad.²² Interesting for this foresight analysis is that these two justifications appeal to different audiences and constituencies,²³ and maintaining them in parallel while reducing contradictions could be key to create consensus within the EU on the topic.

The *Opportunities* and *Threats* could also be collapsed into positive and negative answers, respectively, to a variable or driver of change in the macro-environment: 'Global consensus on the need for science-based multilateral solutions to global challenges'. [See table 1](#)

The global emergence of populist and nationalist movements focused on short-termed electoral return rather than long-term policy planning threatens the role of science as a foreign policy tool and EU leadership in this domain. The current US administration, most notably, has demonstrated explicit rejection of scientific evidence as a basis for decision-making, particularly concerning man-made climate change. Also, the EU capacity to create global consensus should go beyond national governments, involving a public diplomacy dimension aiming at supporting scientists while safeguarding their independence and credibility. With the current political climate in the US (less funding, no voice in policy making and negotiations), it would be important to reach out to the American scientific community. The challenge is here twofold. On the one hand, the international scientific community is required to find viable solutions to the problems that are facing humanity and to provide scientific advice to policy makers on how to tackle issues as diverse as climate action, energy, food production, water management and more. On the other, the same international scientific community is faced with a growing distrust from the public, who increasingly values short-termed policy promises over science-based rational decision-making. In other words, scientists together with policy makers who base their choices on scientific advice are not only faced with the intrinsic complexity of their tasks – whose nature and purpose are unprecedented – but also the need to reassert their authority and credibility as the actors who are entitled to provide these solutions. In some fields they are even required to convince the public of the very existence and seriousness of these global challenges. Indeed, the reflection on the ways to react to the climate change is both a challenge as well as an opportunity for EU SD. SD can play a role in fostering exchange, raising the profile of the EU and its partners and combatting misinformation on the nature of and solutions of common problems.

²⁰ Van Langenhove. 2017. op. cit., p. 5.

²¹ Van Langenhove & Boers. 2018. op. cit., p. 3.

²² López de San Román, Alea & Simon Schunz. 2018. Understanding European Union Science Diplomacy, *Journal of Common Market Studies* 56(2), 247-266.

²³ Ibidem.

For a global consensus on the use of science to tackle global challenges, the involvement of external actors like Asian, African, and Latin American countries in EU initiatives and diplomatic efforts becomes fundamental. BRICS countries are set to become key actors in SD,²⁴ and the EU's attention should shift towards facilitating their positive leadership. Many countries with which political relations are historically more problematic, like Russia and Iran, are still eager to cooperate with the EU in many scientific fields. The EU should take this opportunity, granted that it will persist. Concerning developing countries, part of the challenge is overcoming 'science for development' approaches while moving towards equal partnerships to address common problems on an equal footing.²⁵ In particular, the active involvement of 'graduated' countries, which are no longer eligible for EU development aid, in scientific cooperation on common challenges will be key to create leadership in their respective regions on issues like climate change, food security and health. In its cooperation with countries which are not yet 'graduated', the CESCAN I and II projects with the Andean Community have demonstrated that where possible, a region-to-region approach can potentially assure such leadership at the regional level.²⁶ However, scientific cooperation with the developing world needs to take into account political and historical contexts. The cited contrast between interests and norms in the SD debate is not clearly resolved in EU's discourse and policies.²⁷ This contrast impacts on third countries' perceptions of EU action as primarily driven by one-sided interests, especially in post-colonial relations.

Other factors could impact the external opportunities (or threats) facing EU leadership. An example is how scientific innovation will be regarded in the future: as a close process lead by private economic interest or as open innovation, where the final aim is to disseminate results and co-create solutions to common challenges. Misguided self-interest and the distorted perception of scientific progress as a purely national good to be protected for short-term goals are threats that could characterise negative scenarios. The changing global economic and STI context itself shows a rise of competition: 'traditionally science diplomacy has had a focus on collaboration, but with the growing importance of knowledge driven innovation as a growth factor in the economy, competitive thinking is becoming more influential the field'.²⁸ This accompanies a broader process of decline of Post-WWII liberalism and free trade. Tensions emerge between on the one hand the increased need for interdisciplinary, international cooperation to tackle future global issues, and, on the other hand, the increasing pressure on such cooperation coming from both populism and the need to remain competitive.²⁹ In particular, while basic research offers relatively uncontroversial grounds for cooperation, as research and development get closer to the market competition mindsets tend to emerge, even within the EU. This was highlighted in the EL-CSID project in the case of EU scientific cooperation with China in the field of solar photovoltaics, where the rise of predominance of Beijing at the detriment of the European industry has precluded collaboration on this topic under the EU framework programmes. In this context, it has been argued against the uncritical translation of the term SD to the domain of scientific and industrial innovation (innovation diplomacy), where mutual interests and win-win cooperation are less easy to highlight.³⁰ Nonetheless, preliminary evidence also suggests that while the narrative of global competition is well present at the strategic level, day-to-day activities of science and innovation diplomacy agencies are not characterised by rivalry or even knowledge of each other's activities. This is accompanied by the fact that while nation branding lies at the heart of state-driven SD, actions on the ground can enjoy a good degree of autonomy in some cases.³¹

Taking these two macro-variables summarised by internal Strengths and Weaknesses and external Opportunities and Threats would give us four simplified scenarios, illustrated in the matrix in Table 1.

²⁴ Rüffin, Nicolas. 2018. Case Study Science and Innovation Diplomacy Agencies at the nexus of research, economics, and politics, *EL-CSID Working Paper 2018/10*, IES, Brussels.

²⁵ See e.g. Selleslaghs, Joren. 2017. EU-Latin American Science Diplomacy, *EL-CSID Working Paper 2017/08*, IES, Brussels.

²⁶ See Comunidad Andina, Resultados on CESCAN II, <http://www.comunidadandina.org/cescanII/cescanII.html>; Kingah, Stephen, Ana B. Amaya, & Luk van Langenhove. 2016. Requirements for Effective European Union Leadership in Science and Cultural Diplomacy on (Inter) Regionalism in the South, *EL-CSID Working Paper 2016/1*, IES, Brussels, p. 35.

²⁷ López de San Román & Schunz. 2018. op. cit.

²⁸ Leijten, Jos. 2017. Exploring the Future of Innovation Diplomacy, *European Journal of Futures Research* 5(20), 1-12.

²⁹ Ibidem.

³⁰ Gehrt, Daniel. 2018. Innovation diplomacy caught between the two opposing logics of cooperation and competition: Case study on EU-China S&T cooperation in the field of solar PV, *EL-CSID Working Paper 2018/15*, IES, Brussels.

³¹ Rüffin. 2018. op. cit., p. 16.

Table 1. SWOT analysis for EU science diplomacy

<p>Internal</p> <p>External</p>	<p>Weaknesses:</p> <p>EU policy entrepreneurs (scientific community, EU MS, EC and others) NOT involved in EU global SD policies.</p>	<p>Strengths:</p> <p>EU policy entrepreneurs (scientific community, EU MS, EC and others) involved in EU global SD policies.</p>
<p>Opportunities:</p> <p>Global consensus on the need for science-based multilateral solutions to global challenges.</p>	<p><i>Sub-Optimal scenario 1:</i></p> <p>Lack of political stirring from the EU and EU leadership in multilateral fora. Possible EU MS intergovernmental leadership in multilateral decision-making.</p>	<p><i>Optimal scenario:</i></p> <p>EU leadership in SD for multilateral science-based solutions to global challenges.</p>
<p>Threats:</p> <p>LACK of global consensus on the need for science-based multilateral solutions to global challenges.</p>	<p><i>Worst scenario:</i></p> <p>Lack of political stirring from the EU and EU leadership in multilateral fora. Weak possibility for EU MS soft power and mediation to create global consensus.</p>	<p><i>Sub-optimal scenario 2:</i></p> <p>EU isolation in advocating for science-based solutions to global challenges. Possible EU soft power and mediation to create global consensus.</p>

3.2 Four scenarios facing EU SD

Optimal scenario: EU leadership in SD for multilateral science-based solutions to global challenges.

In optimal conditions, the EU manages to create consensus on the use of science in its external relations. On the one hand, by involving the scientific community with a non-intrusive approach, such as informing scientists of foreign policy contexts and priorities while identifying synergies without imposing too burdensome political agendas upon their daily work. On the other, by helping EU MS build SD capacities and persuading them to pool part of these resources towards a shared European approach.

This unfolds in parallel to a prevailing cooperative mindset in international scientific relations, where open innovation and open science are perceived as beneficial to economic development and to the resolution of global challenges. Populist movements either lose political momentum or start to accept science as a necessary basis for policy making to solve problems beyond short-termed political cycles. EU science cooperation moves towards a more inclusive and equal partnership with developing countries, dispelling accusations of only being driven by economic interests and of using science to disguise political agendas.

An expansion of two current positive trends creates the opportunity for EU leadership globally. First, the growth of networks connecting the scientific community and policy makers at the global and national level. This goes in parallel with a stronger awareness within the policy community of the need for

scientific solutions to the problems states are faced with.³² What might look like ‘a coalition of Science and Technology organisations, major funding agencies and multilateral organisations’,³³ ensures global stirring for science-based policy making, with a strong EU leadership.

Sub-optimal scenario 1: Lack of political stirring from the EU and EU leadership in multilateral fora. Possible EU member states’ intergovernmental leadership in multilateral decision-making.

The opening of an opportunity window for EU leadership on the global stage is not matched by internal consensus on a coherent SD approach. Support for SD mostly remains within the policy making community, which prioritises the symbolic dimension of scientific cooperation, charging scientists with political agendas they are little aware of. Only few key EU MS have structured SD approaches, but these remain uncoordinated and with little pooling of resources.

This damages the EU’s perceived actorness and leadership in SD on the global stage. The EU is not sufficiently identified as an actor in the field of STI.³⁴ The favourable global context allows for the leadership of some European countries, that converges on common themes like climate change, but disperses political clout in multilateral fora. Impact is not maximised. Also, purely national SD remains tied to nation-branding logics which do not fully exploit the cooperative potential of international scientific relations.

While some shared European foreign policy goals are sustained by single MS – competition prevails in fields and geographical areas where national interests diverge. Geographically, scientific relations are carried out bilaterally with developing countries based on post-colonial ties and strategic economic interests. Also, cooperation in close-to-market technologies remains underexploited within EU and fragmented vis-à-vis third countries.

Sub-optimal scenario 2: EU isolation in advocating for science-based solutions to global challenges. Possibility for EU soft-power and mediation to create global consensus.

Internal consensus and incorporation of SD into EU foreign policy create stronger European clout to advocate for science-based policy solution and to boost international scientific cooperation. This action takes place in relative isolation in a context of global rise of populist movements and distrust for science.

However, the progressive inclusion of the European scientific community into a SD incorporated in an EU foreign policy opens up possibilities. First, to create alliances with global and national STI organisations to lobby and communicate the need for science-based solutions worldwide. Second, to step up public diplomacy by directly targeting scientific communities and sub-national authorities in third countries (e.g. the US), inter alia, through the further opening of EU research programmes.

A possible shift of strategic STI alliances, getting closer to key developing countries based on a discourse of economic profitability of sustainable development, can help the EU regain centrality. Internal EU cohesion also comes with increased intra-EU STI cooperation and economies of scale. In front of a global competitive mindset, this can reposition the EU as a technological and scientific innovator, by maximising the impact of its R&D investment.

Worst scenario: Lack of political stirring from the EU and EU leadership in multilateral fora. Weak possibility for EU member states’ soft-power and mediation to create global consensus.

The worst-case scenario for EU leadership in SD is one of synchronic dissociation of EU and global politics from science cooperation to provide public goods and fight global challenges. Competitive mindsets concerning scientific innovation prevail within and outside the EU. SD is strongly synonymous with nation-branding. The lack of internal EU cohesion leaves some EU MS advocating for science-based policy making in an uncoordinated way. The EU has the possibility to support their leadership in global fora as a short-term solution, while carrying out a parallel effort to build internal cohesion.

³² Van Langenhove. 2016. op. cit., p. 21.

³³ Ibidem, p. 24.

³⁴ See Public Policy and Management Institute et al., 2015. op. cit., Annex III p. 112-114.

The prevalence of competitive mindsets leads to uncoordinated, bilateral relations with developing countries, and to external perceptions of EU SD as based on one-sided economic interest, and, in the case of some developing countries, possibly post-colonial interference in their internal affairs.

Mobilisation and engagement with the STI community for global governance beyond state-centred multilateralism becomes even more fundamental. In the absence of governmental leadership, the EU can support and try to accelerate the shift towards a Multilateralism 2.0,³⁵ by seeking alliances with like-minded international STI organisations, international and regional organisations, private corporations but also sub-national authorities, which have increasingly proved central in committing to the fight against global challenges in absence of state willingness (e.g. US cities in COP21).

4. Who takes the lead? The actors and tools at the disposal of EU Science Diplomacy

From this scenario-drawing exercise it emerges that a determining factor for future developments could be EU's ability to involve and coordinate relevant actors or 'policy entrepreneurs', particularly the scientific community, but also EU MS, some of which have structured or developing approaches to SD. Also, the EU will need to put science at the centre of its policy making process and to value the instruments at its disposal by enhancing their international dimension.

Scientific community

While the involvement of the scientific community in SD is fundamental, most initiatives have historically needed a political impulse and stirring.³⁶ Indeed, the scientific community is both a beneficiary and an actor of EU SD. However, it should not be expected to provide political leadership. Initiative resides with politics, and the role of scientific research and technology have often been subject to political decisions. At the opposite end of the 'science diplomacy' spectrum, scientists have historically contributed to the furtherance of national interests and nationalist discourse both involuntarily and voluntarily. Involuntarily, as scientific success has been perceived to automatically contribute to the prestige of a nation, irrespective of the intention of the scientists as agents. More problematically, scientists have voluntarily put their knowledge at the service of purely national interests, a tragic and extreme case being technological innovation in warfare applied to the World Wars.³⁷ Therefore, government institutions must protect the independence of scientific research, but also facilitate its engagement with foreign policy challenges when these need scientific solutions to be addressed. MS and EU institutions' initiative is fundamental to support the creation of platforms for scientists' involvement in policy making and implementation.

The involvement of the scientific community should follow different logics in the policy formulation/policy making and implementation phases.

On policy formulation, the incorporation of scientific advice in foreign policy making needs to stem from a clear political will and cannot solely rely on external advocacy from scientific associations on certain themes (e.g. health risks of certain industrial activities, climate change). The involvement of scientific advice during the policy making process has received substantial attention from the Juncker Commission, in office since November 2014, which promoted the establishment of a Scientific Advice Mechanism and the development of public reflections for a reformed relationship between science and policy making.³⁸ However, the EU still demonstrates an inconsistent stance, at times privileging short-term political calculations and economic interests over scientific evidence.³⁹ Support to science-based policy making becomes fundamental in times when fact-based decision making is threatened by populist politics and increased attention to short-termed electoral return. At a general level, H2020,

³⁵ Van Langenhove. 2016. op. cit.

³⁶ Ruffini, Pierre Bruno. 2017. *Science and Diplomacy*, Springer International Publishing.

³⁷ See Forman, Paul. 1973. Scientific internationalism and the Weimar physicists: the ideology and its manipulation in Germany after World War I, *Isis* 64(2), 151-180, pp. 155-156.

³⁸ See EC. 2015. Strengthening Evidence Based Policy Making through Scientific Advice, https://ec.europa.eu/research/sam/pdf/strengthening_evidence_based_policy_making.pdf; EC. 2016. Science & Policy Making: Towards a New Dialogue,

https://ec.europa.eu/research/conferences/2016/ingsa2016/pdf/2nd_ingsa_final_report.pdf#view=fit&pagemode=none.

³⁹ See Trobbiani, Riccardo. 2017. Strengthening the Relationship between Science and Trade Policy in the European Union. *Science & Diplomacy*, 6(4).

JRC, ERC and COST actions can also play a role in closing the gap between policymakers and scientists.

Concerning the implementation of an EU SD, the EU should take a more distanced position. Scientists tend to congregate amongst themselves, fuelling their research questions, methods and findings, at a sub-state level – even if across states. Also, the scientific community pleads for safe spaces through which to conduct research, knowledge exchange and training. It can play a significant role in lobbying MS not to interrupt relationships whose scientific outcomes might benefit all. In this context, the EU can best act as a facilitator of such exchange, and a convenor to gather knowledge and share it. This role needs to be not intrusive, as it may become counterproductive. Also, the EU must be wary of the re-emerging tendencies around in world, and in some European countries,⁴⁰ to exert political control over science, affecting its independence and credibility. In fact, ‘inducing political expectations in the work of scientists may burden the scientists’ primary responsibilities with the pressure of the need for that genuine cooperation to result in higher, more strategic outcomes’.⁴¹ The EU should avoid falling into this trap by transforming science into a political battlefield with populist and anti-liberal governments. Rather, EU action should facilitate international scientific cooperation while giving it additional policy objectives by using it as a platform for dialogue with third countries and organisation. EU funding programmes can help this process by financing and facilitating scientific cooperation that addresses global challenges and targets specific countries. The EU should also act in informing and training scientists on global policy goals and political priorities. As noted within EL-CSID, ‘there is significant upside in providing appropriate context and increasing capacity in some segments of the scientific community, particularly as science reaches higher Technology Readiness Levels and engages with a multiplicity of policy, industry, government and community stakeholders. Here science and technology may make a hard impact in economic and societal terms and awareness of political context can increase the likelihood of delivering actionable outcomes’.⁴²

A stronger level of governmental involvement is however needed in the case of investment in international research infrastructures. The establishment of bilateral, regional and multilateral research efforts – often to achieve economies of scale and address scientific problems that cannot be tackled by limited national resources – has often needed governmental involvement both in terms of political and financial support. While supranational resources are limited, the EU has often played a role in this respect. Examples include the International Thermonuclear Experimental Reactor (ITER), where EU MS participate and contribute financially to the project through Euratom. Support from the EU, also through the European Investment Bank, can facilitate and leverage larger international investments in technological projects like the Noor Ouarzazate solar power complex in Morocco.

EU member states

Regarding coordination with MS, the emergence of an EU SD will need to take place within the legal framework provided by the treaties. Here, SD can be described as a shared competence.⁴³ If the EU wants to embed this action into its external relations objectives and particularly its 2016 Global Strategy, this also poses the question of finding a complementary role for EU-level SD vis-à-vis national ones.⁴⁴

Considering the institutional framework of the EU and the Commission’s legal competencies, the EU will have to fit in that picture either as a coordinator or as a provider of an added value to the MS’ national SD. A stronger scientific cooperation within the EU will be a fundamental pre-requisite for the coherence and solidity of its external engagement. Cooperation in STI has in fact played a role in the European integration process itself, with spillovers in other policy domains.⁴⁵ However, current SD capacities present many imbalances among EU countries.⁴⁶ Larger member states like France, Germany, UK, Italy, Spain as well as advanced players like Switzerland, the Netherlands and Nordic

⁴⁰ See e.g. the case of Hungary: <http://www.sciencemag.org/news/2018/05/hungarian-scientists-are-edge-country-poised-force-out-top-university>.

⁴¹ Penca. 2018. op. cit.; See also Flink & Ruffin. Forthcoming 2018., op. cit.

⁴² Proud. 2018. op. cit., pp. 13-14.

⁴³ Van Langenhove. 2017. op. cit.

⁴⁴ Ibidem.

⁴⁵ See e.g. Curli, Barbara. 2017. Nuclear Europe: Technoscientific Modernity and European Integration in Euratom’s Early Discourse, in: Manuela Ceretta & Barbara Curli (eds). *Discourses and Counter-Discourses on Europe. From the Enlightenment to the EU*, London, Routledge, pp. 99-114.

⁴⁶ See Flink, Tim, & Ulrich Schreiterer. 2010. Science diplomacy at the intersection of S&T policies and foreign affairs: toward a typology of national approaches, *Science and Public Policy* 37(9), 665-677; Ruffini. 2017. op cit.; Flink & Ruffin. Forthcoming 2018. op. cit.

countries among others have all developed to different extents formal or informal strategies and capacities for SD or international scientific cooperation. However, others have not achieved coherent and structured approaches, and this shortcoming may hinder the development of a truly European SD. The EU should support internal capacity building in SD to allow all MS to develop some strategies and tools according to national ambitions and needs.

More importantly, as both foreign policy and (to a slightly minor extent) science policy are domains where EU MS have historically been jealous of their prerogatives, the EU will have to find a complementary role and convince them of its added value. The current fragmentation of SD activities in third countries and lack of resources for common EU action are detrimental to European SD as a whole, as target countries tend to apply 'divide and rule' approaches and 'cherry pick the mode of collaboration that they prefer'.⁴⁷ However, consensus for top-down coordination of national initiatives seems to be very unlikely. Instead, the EU could aim to use an open method of coordination among MS and provide opportunities for enhanced cooperation on a voluntary basis. Using the EU as a platform to boost the visibility and impact of national STI would particularly appeal smaller MS.⁴⁸

At the same time, the EU could focus on the actions and tools that already gather most support from MS. Most easily, the promotion and communication of European achievements in STI. Most importantly, the strengthening of the international dimension and global objectives of EU programmes, especially the framework programme for research and innovation, which can more autonomously be decided at EU level.⁴⁹ Already in H2020, there was a progressive internationalisation of ERA-NET cofunds both in terms of third countries involved as full partners and in terms of objectives aimed at establishing international partnerships.⁵⁰ However, this contrasted with the lower participation from entities from non-associated countries to H2020 projects when compared to the previous framework programme (FP7), despite an increase in the number of topics flagged for international cooperation.⁵¹ The opening of Horizon Europe and the strengthening of actions like ERA-NET will have to provide for an autonomous EU SD. Also, the international openness of ERC grants and COST actions, together with initiatives like EURAXESS, will be fundamental in strengthening the European Research Area while also improving its global reach. National scientific organisations will be at the forefront of the implementation of EU programmes with a SD dimension, especially research and higher education institutions as partners of these programmes.

Transnational policy communities

However, the EU cannot solely rely on MS' capacities as these are not necessarily destined to grow in size.⁵² Actors like international STI organisations are fundamental in the current shift towards a 'Multilateralism 2.0'.⁵³ The fusion of the International Council for Science (ICSU) and the International Social Science Council (ISSC) into the International Science Council (ISC), signals the importance for the global STI community to reach more political clout globally, to 'defend the inherent value and values of all science at a time when it has become harder for the scientific voice to be heard', '(...) support scientists to contribute solutions to complex and pressing matters of global public concern' and 'advise decision makers and practitioners on the use of science in achieving ambitious agendas such as the Sustainable Development Goals'.⁵⁴

More generally, the enduring centrality of sovereign states in the provision of science-based solution to global challenges does not mean that public bodies can act alone in an old intergovernmental fashion. Instead, responses to challenges in fields like health require a networked governance which involves actors at all levels, including private corporations, with possible new allocation of responsibilities and

⁴⁷Rüffin. Forthcoming 2018. op. cit.

⁴⁸Ibidem.

⁴⁹Ibidem.

⁵⁰Götke, Niels, Effie Amanatidou, Ioana Ispas, Daria Julkowska & Joaquín Serrano. 2016. Analysis of ERA-NET Cofund actions under Horizon 2020, Final report of the expert group, European Commission Directorate-General for Research and Innovation, Brussels. p. 48.

⁵¹Ibidem. See also: Euraxess. 2017. Horizon 2020 Annual Monitoring Report,

<https://euraxess.ec.europa.eu/worldwide/japan/publication-latest-horizon-2020-annual-monitoring-report>.

⁵²For example, as highlighted in the framework of the EL-CSID project, 'the times of an apparently unlimited expansion of science and innovation diplomacy agencies seem to be over by now', and resources have rather been increasingly focused towards specific countries, like the BRICS' (Rüffin. 2018. op. cit). See also: Rüffin. 2017. op. cit.

⁵³Van Langenhove. 2016. op. cit.

⁵⁴ISC Website, <https://council.science/about-us/a-brief-history/icsu-issc-merger>.

accountability in the provision of public goods.⁵⁵ While the rise of knowledge-based competition risks overshadowing cooperative solutions to global challenges, attention to the latter is not an exclusive prerogative of sovereign states. Regional/local public authorities as well as private actors have proved to be fundamental in committing to science-based solutions for global governance.⁵⁶ Sharing responsibilities among different levels of governance and actors requires a double shift: on the one hand, moving away from a state security mindset in provision of public goods like healthcare to a human-centred approach; on the other hand, moving from a one-directional transfer of scientific knowledge (e.g. from Europe to developing countries) to a multi-directional exchange. This allows for the absorption and adaptation of scientific knowledge to local cultural contexts.⁵⁷ The 'transnational policy communities' that help shape global governance are not only characterised by a flow of knowledge from experts to policy makers, but they are brought together in a system of social learning that contributes to the definition, interpretation and implementation of policies across countries. They gather 'international civil servants, but also 'internationalised public sector officials' from national administrations with 'transnational policy professionals' from academia, think tanks, foundations and broader civil society, in communities that interpret concepts and modalities to deliver global policy solutions.⁵⁸ The ability of the EU to act as a leader in these contexts and to create policy-specific networks to inform its policies and influence global ones is fundamental. A shift towards a more networked and less state-centric system of governance can be facilitated by a SD that moves 'away from the soft power rhetoric and self-interests of states towards a global level where it can be used as a tool to achieve better global governance'.⁵⁹

5. Conclusion and policy recommendations

While an in-depth analysis of the *strategic, operational and support tools* for SD⁶⁰ falls outside the scope of this foresight analysis, a few future-oriented reflections are provided here with regard to how the EU could prepare to face the scenarios analysed above or a combination thereof while trying to influence internal and external factors to induce positive developments. The emergence of an EU SD needs to take place in a larger transformative change in favour of science as a key tool informing policy making.

Strategic tools: an SD strategy integrated in EU CFSP and broader external policies

The EU should define a clear strategy for SD and integrate it into its Common Foreign and Security Policy (CFSP) and broader external policies. This needs to be done with a realistic approach.

Internally, it should be based on a thorough mapping and assessment of the resources at the disposal of the EU, possibly by commissioning a 'preparatory action' for SD similarly to what has been done for culture in external relations.⁶¹ What clearly emerged from the foresight analysis is that the development of an external SD capacity partly depends upon strengthened scientific cooperation and political consensus within the EU. Therefore, an internal process of capacity building must take place, with EU's support to its MS' SD policies deployed in parallel to the development of a central EU-level approach.⁶²

Stepping up scientific cooperation and SD as a concept is also needed within the EU institutions' services, as the topic still ranks relatively low among foreign policy priorities, including in often-cited cases like the European Neighbourhood Policy (ENP) South.⁶³

Externally, the categories suggested by Gluckman et al can provide some guidance for EU SD, bearing in mind that the three levels intersect and cannot be treated as completely separate.

⁵⁵ Šehović, Annamarie Bindenagel. 2016. Coordinating Global Health Responses, *EL-CSID Policy Brief 2016/01*, IES, Brussels.

⁵⁶ Leijten. 2017. op. cit.

⁵⁷ Šehović, Annamarie Bindenagel. 2017. Securing Global Health through Diplomacy: From One-Way Transfer to Multi-directional Knowledge Exchange, *EL-CSID Policy paper 2017/2*, IES, Brussels.

⁵⁸ Stone, Diane. 2017. Partners to diplomacy: Transnational experts and knowledge transfer among global policy programs. In: Annabelle Littoz-Monnet (ed.) *The Politics of Expertise in International Organizations*, Routledge, pp. 93-110.

⁵⁹ See Van Langenhove. 2016. op. cit. p. 23.

⁶⁰ See Van Langenhove. 2017. op. cit.

⁶¹ Van Langenhove, Luk. 2018. Open Science diplomacy message to the EU. Unpublished note.

⁶² Van Langenhove. 2017, op. cit., p. 5.

⁶³ Penca. 2018. op. cit.

At the level of EU interest, a balanced and realistic approach to SD can reveal to be a precious tool for external relations. The involvement of scientific advice into policy making has received substantial attention from the Juncker Commission, as suggested by the establishment of a Scientific Advice Mechanism and by the development of public reflections for a reformed relationship between science and policy making.⁶⁴ Scientific advice (e.g. advisory groups) should be one of the key components for new policy making, and the gap between scientists and policy-makers should be closed, including in the field of external policies.

Political and economic interests behind trade and development policies should not be at strain with scientific evidence and advice. Where tensions exist, these should be acknowledged and dealt with (e.g. barriers to GMOs production and trade⁶⁵). A specific reflection should take place on the role of science in EU external policies, which in some cases are strongly driven by short-term political and economic interest rather than scientific evidence. Also, advocacy of open science and open innovation should continue to be supported in EU external relations, while recognising that they only work in conditions of reciprocity with third countries, and should therefore be balanced with the need for the EU to remain competitive.

The EU should learn from its competitors when aligning science cooperation with foreign policy objectives. When referring to SD as a means for countries to enhance the attractiveness of their STI systems or their clout and influence abroad, some countries play a far greater role in the global SD field than others. Strong actors like the US, the UK, Russia and Japan, plus a number of small countries like Switzerland will probably continue to be key players in the next decades alongside emerging ones like China and India. These countries can serve as a comparison and potential example for the EU with regard to general practices of linking science and research cooperation with foreign policy. It is also important to look at geographical case studies in regions where the EU competes with stronger actors (e.g. Russia and China in Central Asia).

In terms of cross-border/regional interests, realism means avoiding overstating the promise of SD, particularly science for diplomacy as a peace-building tool. Apart from a few often-cited key cases (US-USSR scientific cooperation, SESAME project in the Middle East, CERN in Europe, etc.), the assumption that science is an uncontroversial topic where cooperation can take place between otherwise opposing powers still needs to be demonstrated. Additionally, the attractiveness of the EU as an actor funding scientific and cultural projects is not necessarily an incentive to cooperation among developing countries. On the opposite, a hub-and-spoke model of bilateral cooperation with the EU at the centre of purely North-South relations has been noted in the cases of the Black Sea Region⁶⁶ and the ENP South.⁶⁷ A pessimistic view could simply state that scientific cooperation is 'contingent on politics, rather than impacting it'.⁶⁸ Science diplomacy tools therefore need to accompany broader processes of political cooperation.

Relations between governments have been characterised by the signing of STI cooperation agreements and the creation of other tools that have, to different extents, directly supported diplomatic goals.⁶⁹ However, the biggest potential lies with the EU's role as an enabler and facilitator of international scientific cooperation, which also informs the European scientific community of existing external policy priorities. Policy-relevant scientific results and open channels of communication are among the achievable outcomes. Inter alia, SD holds a potential to mitigate the effects of nationalism and isolationism, if the EU will support networks and fora augmenting the political clout and advocacy capabilities of the scientific community.

At the global level, support for science and scientific cooperation worldwide will be needed in a context where the willingness for multilateralism seems to decline, and short-termed national interests framed

⁶⁴ See EC. 2015. op. cit.; EC. 2016. op. cit.

⁶⁵ Trobbiani. 2017. op. cit.

⁶⁶ Boers, Elke. 2017. Exploring the Impact of the EU's Promotion of Regional and Inter-regional Processes in the Black Sea Region through Science Diplomacy, *EL-CSID Working Paper 2017/7*, IES, Brussels.

⁶⁷ Trobbiani, Riccardo, 2018. Culture in the ENP South: Broad Ambitions, Little Strategy, Insufficient Means, *EL-CSID Policy Brief 2018/08*, IES, Brussels.

⁶⁸ Penca. 2018. op. cit., p. 8.

⁶⁹ A 2014 report produced for DG RTD highlighted at least four non-scientific reasons for the signing of these agreements: (1) highlighting cooperation during a diplomatic visit; (2) protecting security (e.g. demilitarisation of scientific sector in third country); (3) transforming a diplomatic relationship and (4) promoting public diplomacy. See Jan Fikkers, Derek & Manfred Horvat (eds.). 2014. Basic Principles for effective International Science, Technology and Innovation Agreements, Main Report, European Commission Directorate-General for Research and Innovation, Brussels. pp. 11-12.

within electoral cycles seem to dominate political agendas. As global challenges need international scientific collaboration, the EU will have a pivotal role in convincing the international community of the shared interest represented by joint scientific efforts addressing common problems. Joint programming among European countries and with third countries will rise in importance. Investment in joint research facilities and common technological project will need to strongly rely on private investment which can be leveraged and guided by public funding. As government-level cooperation can fail, inter alia for the political problems stated above, the tools of SD should be reviewed so as to focus on strategic communication of science to domestic and foreign audiences and on the creation of non-mediated ties with non-governmental scientific actors in third countries (e.g. the US).

Across levels, the EU should bear in mind to protect the neutrality and credibility of science, which are inherent characteristics of its potential.⁷⁰

Operational tools

As part of this process, EU foreign policy goals should be better incorporated in programmes funding scientific research, and the concept of SD should be addressed as a principle guiding programming. Again, the creation of SD capacities goes in parallel with a further strengthening of internal cooperation, both by creating capacity building for SD and by moving towards the completion of a European Research Area.

The contribution of EU funding programmes, particularly the framework programme, should be twofold. On the one hand, it should allow for further reflection on SD, within a valorisation of social sciences in the programme. On the other, and most importantly, it should fund actual SD initiatives. Two aspects will be pivotal in the future design and implementation of these programmes in order to ensure their contribution to EU leadership in SD. First, an increased focus on global challenges, to support EU leadership in climate action and other Sustainable Development Goals (SDGs) relying on science-based decision making. Second, EU research funding should be further internationalised, not only through the formal opening of research programmes to third countries applicants, but also through active facilitation of their participation (e.g. streamlined portals that enable scientific collaboration outside of Europe). Also, more joint programming and joint calls within EU bilateral and bi-regional (e.g. EU-CELAC, EU-ASEAN) relations should be used to tackle common challenges. Region-to-region cooperation in particular holds the potential to create more equal scientific relations with developing countries and to shift from a donor-recipient mindset towards mutual engagement to address common challenges.

In case of weakened governmental cooperation, the EU should increasingly allow for unilateral opening of EU funding and initiatives to foreign scientists, even targeting specific countries when needed. In cases of countries where scientific evidence is refused, and scientists persecuted, the EU might consider the establishment of an 'Endowment for Science' modelled after Endowment for Democracy.

Finally, human and financial resources for science in EU foreign policy need to be increased. Currently, EU delegations are not sufficiently equipped to promote all sectors and areas of European science and technology, and most often rely on voluntary (and therefore less predictable and reliable) national contributions.⁷¹ Creating a specialized service centre for SD would provide better coordination, advice and support to EU services in Brussels, EU delegations and MS and would augment the visibility and efficacy of EU SD.⁷²

Support tools

Instruments supporting the development of an EU SD should be mainly aimed at including and enhancing the political clout of the scientific community and communicating SD to domestic and foreign audiences.

On the first point, training sessions for scientists can be organised to make them aware of the foreign policy implications of research, seeking for their active cooperation without orienting their work. Equally needed is a continued support to dialogue and consultation platforms which engage the global STI

⁷⁰ Proud. 2018. op. cit., p. 14.

⁷¹ Ruffin. Forthcoming 2018. op. cit.

⁷² Ibidem.

community and help it translate results into policy advice. This is not always easy, inter alia because scientific results are not always clear-cut and straightforward.⁷³ Also, increased transparency and access to the EU policy making process can facilitate the participation of the scientific community to shaping its outcomes. Better communication should be pursued between the Commission and MS, increasing the latter's awareness of scientific achievements and projects undertaken under European framework programmes.⁷⁴

External communication aimed at branding European scientific cooperation, promoting its values and highlighting its contribution to addressing global challenges is relatively cheap and encounters little resistance from MS.⁷⁵ This could be stepped up by engaging more with the media including the press on topics related to EU SD.⁷⁶ However, most fundamental to any communication process is a clear definition of the message to be conveyed. Reflections included in this foresight analysis suggest that SD could be more useful as a strategic concept guiding policy making than as a label used to communicate and disseminate certain initiatives. Inter alia, the 'diplomatic' label risks affecting the perceived neutrality of science, thus rather undermining the potential of SD initiatives.⁷⁷ The terms 'international scientific cooperation' or 'international scientific relations' would therefore better serve EU strategic communication purposes, while actually supporting the impact of SD initiatives.

⁷³ Van Langenhove. 2016. op. cit., p. 17.

⁷⁴ Proud. 2018. op. cit., p. 14.

⁷⁵ Rüffin. Forthcoming 2018. op. cit.

⁷⁶ Terzis, Georgios & Linsey Armstrong. 2018. The Role of Foreign Correspondents in Cultural and Science Diplomacy, *EL-CSID Policy Brief 2018/12*, IES, Brussels.

⁷⁷ See Penca. 2018. op. cit.

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