



USING SCIENCE FOR/IN DIPLOMACY
FOR ADDRESSING GLOBAL CHALLENGES

Calling for a **Systemic Change**

Towards a European Union Science Diplomacy
for Addressing Global Challenges

The S4D4C proposal v 2.0. February 2021

Lorenzo Melchor*, PhD; **Ana Elorza***, MA, PhD; **Izaskun Lacunza***, PhD
Spanish Foundation for Science and Technology (FECYT), Spain

(*) All authors contributed equally to this report



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

As we publish this report, the COVID-19 pandemic is bringing to the limit health, social, economic, and labour systems all over the world, causing turbulences in regional, international and multilateral relations. At the same time, science and its ability to inform policies for better response has become a crucial dimension of the answer to the crisis. COVID-19 is testing the ability of countries and regions to collaborate and fight in a united way.

Now, more than ever, we believe that **science diplomacy**, understood as a series of structured practices at the intersection of science, technology and foreign policy, **can become a fundamental dimension to the European Union and its Member States for addressing global challenges.**

This infographics presents our proposal for a EU science diplomacy addressing global challenges and it is an extreme condensed version of the [full report](#).

All this report is a summary of a series of co-creation networking meetings of the European and global science diplomacy communities, of other key outputs from the S4D4C projects and other researchers and key opinion leaders in the field, and of our own practice in science diplomacy over the last years.

How to cite this infographics

If you want to refer to the content of this infographics, please cite the full policy report: Lorenzo Melchor, Ana Elorza, and Izaskun Lacunza. 2021. *Calling for a Systemic Change: Towards a EU Science Diplomacy for Addressing Global Challenges*. V 2.0. S4D4C Policy Report, Madrid: S4D4C.

Available on: [this link](#)



ACKNOWLEDGEMENTS

The authors wish to thank all S4D4C members and associate partners as well as panellists and attendees of our S4D4C conferences. We would like to specially acknowledge their support and input in the preparation of this report to: Ewert Aukes, Elke Dall, Alexander Degelsegger-Márquez, Tim Flink, Marga Gual Soler, Maria Josten, Radenka Krsmanovi Whiffen, Stefan Kuhlman, Nadia Meyer, Gonzalo Ordóñez-Matamoros, Sheila Perosa, Charlotte Rungius, Halina Walasek, Helen B Woods, and Mitchell Young.

METHODOLOGY

The conceptualisation and identification of stoppers, warnings, and drivers in the three systems of science, diplomacy, and science diplomacy, followed a qualitative approach based on multiple sources of information.

The two S4D4C networking meetings in Madrid (2018) and Berlin (2019) served to foster discussion around science diplomacy in both the global and European contexts. We collected personal notes of the main messages and recommendations outspoken by invited speakers and participants.

We related these main messages to the overall S4D4C theoretical and empirical framework by conducting content analysis of key outputs from S4D4C such as academic publications and policy briefs/reports.

We tried to align and merge the identified items to academic contributions, policy reports, and personal communications from key opinion leaders in the field.

Our own practice in science diplomacy over the last years also helped during the identification and selection process.

Lastly, a set of S4D4C partners and external experts (acknowledged here as contributors) reviewed the report completing our conceptual analysis with their insights and assessing its overall quality.

Where do
we want to be?

Where
are we?

How will
we get there?

Where Do We Want to Be?

The European Union Science Diplomacy
Vision, Mission and Principles for Addressing
Global Challenges

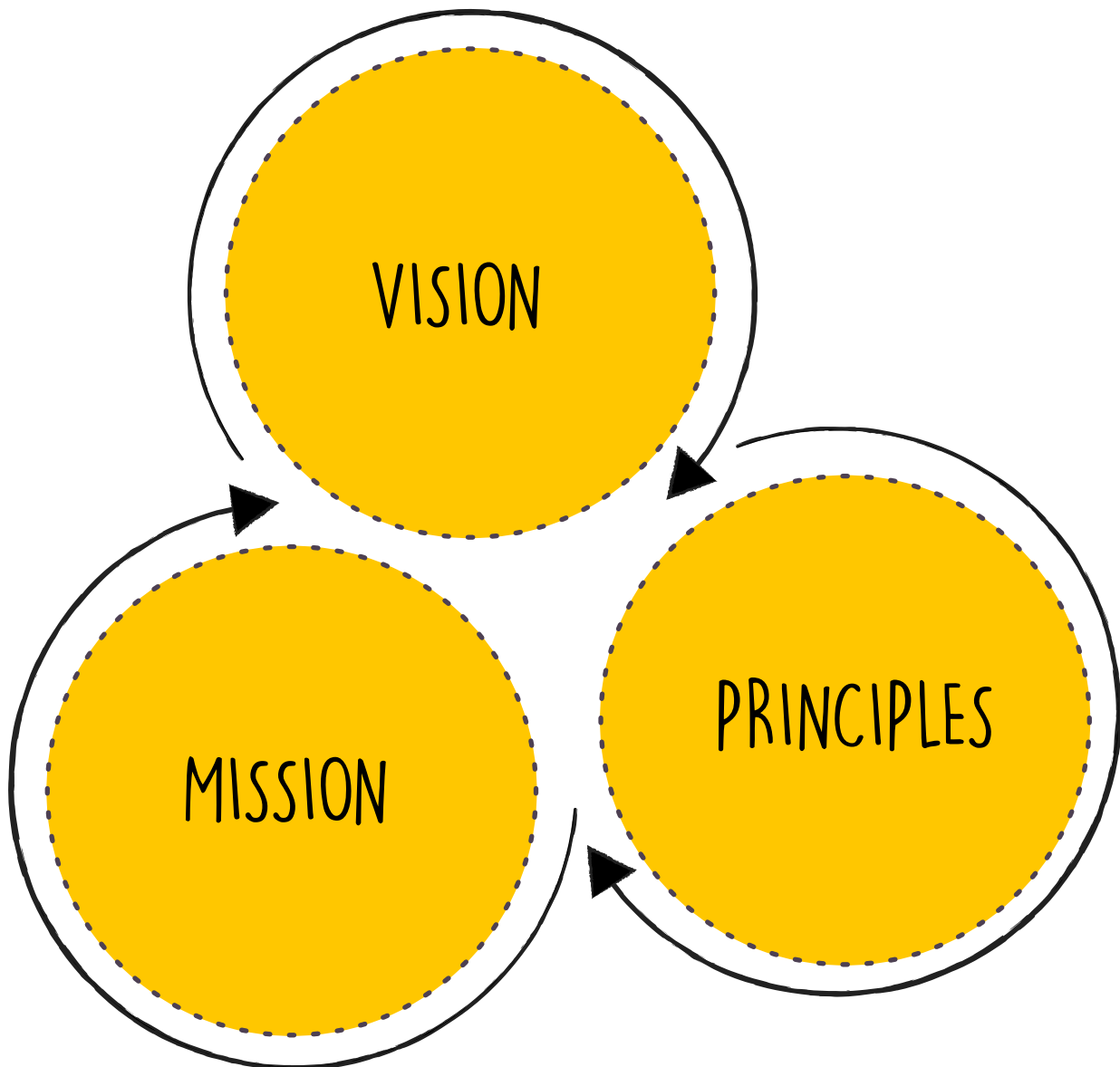


WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

The European Union science diplomacy needs to contribute to address global challenges in a just and socially fair manner. Hereby, we propose a vision, a mission, and a set of principles for such a EU Science Diplomacy.



Where Do We Want to Be?

The European Union Science Diplomacy Vision, Mission and Values for Addressing Global Challenges



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

A vision for the EU

- The EU is a global leader in addressing global challenges with a holistic approach that cherishes democratic values and scientific evidence-centred approach in a balanced way.
- The EU places global challenges at the core of its policy objectives and puts in place the necessary transformative changes to tackle them.
- The EU acknowledges science as an important dimension of its foreign policy because of its capacity to:
 - address and solve global challenges,
 - provide space for EU and MS to align foreign policy strategies towards common goals,
 - bring closer non-EU countries that decide to become associated members to EU science, technology and innovation framework programmes,
 - contribute to build the European identity, and
 - carry the banner for European values worldwide

A Vision for the EU Science Diplomacy

In order to achieve the proposed EU vision, we have to nurture the following vision of EU science diplomacy:

- EU science and EU diplomacy join forces in order to address global challenges and apply the necessary systemic changes for success
- EU science diplomacy aims to help develop integrated and mission-oriented policies to better tackle global challenges
- EU science diplomacy is rooted in scientific culture, diplomatic culture, and political culture, to contribute to the geopolitical dimension of the European Research Area, to become a driver of EU foreign policy, and to help implement the European Commission's priorities.

A Mission of the EU Science Diplomacy

EU science diplomacy for addressing global challenges incorporates:

- Informing foreign policies using scientific evidence and knowledge to help address global challenges.
- Strengthening links with countries all over the world in order to address global challenges together.
- Contributing to position the EU as a global leader in addressing common challenges and reinforcing cooperation in the European Neighbourhood.
- Raising awareness of large scale EU initiatives and their geopolitical impact.
- Becoming a key process to bring together all kinds of stakeholders for the co-design of mission-oriented EU science and innovation so that its outcomes better address global challenges.
- Being a driver of wider EU foreign policy goals.
- Contributing to the coordination and alignment of EU and MS foreign policies.
- Working for the convergence of interests from individuals, stakeholders, regions, nations, and international and supranational organisations towards addressing global challenges.

Where Do We Want to Be?

The European Union Science Diplomacy Vision, Mission and Values for Addressing Global Challenges



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

Principles of the EU Science Diplomacy

The EU science diplomacy acknowledges the principles presented in the [Madrid Declaration on Science Diplomacy](#) and applies them to the EU context:

- **Value for citizens:** EU science diplomacy works to address global challenges particularly relevant to European citizens.
- **Methodological diversity:** it encompasses explicit and implicit science diplomacy forms. EU science diplomacy may be implicit sometimes due to strategic choices.
- **Demonstrable impact:** it works on the design of a methodology to measure its potential positive and, also, unintended or even negative effects.
- **Evidence-informed:** it builds on the integration of evidence, either content-related, context-related, or process-related.
- **Collaboration and inclusion:** it acknowledges its multi-actor effort. In particular, it acknowledges the wealth that the European Union diversity brings into addressing global challenges, whereas at the same time demanding new governance mechanisms.
- **Capacity building:** it builds on the benefit that exchange and capacity building activities will have on all stakeholders involved in science diplomacy.
- **Independence of science:** it acknowledges science as an extremely useful tool for addressing global challenges and for improving international relationships as long as it is not distorted by ideological goals.

Where Are We?

EU Science Diplomacy Stoppers, Warnings, and Drivers for Addressing Global Challenges



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

We have identified a set of stoppers, warnings and drivers for a EU science diplomacy focused on addressing global challenges, which are specific to the science, diplomacy or the overarching science diplomacy system

STOPPERS, WARNINGS AND DRIVERS FOR ADDRESSING GLOBAL CHALLENGES

SCIENCE

- 
- Scientific and research misconduct
 - Insufficient European research workforce
 - Lack of structured policy engagement in scientific institutions
 - The Ivory Tower culture

DIPLOMACY

- Nationalisms, protectionisms and populisms
- Socio-political fractures in the EU
 - Political decisions outweigh scientific evidence
- The tragedy of the commons

SCIENCE DIPLOMACY

- Growing mistrust in democracy, institutions and experts
 - Discoordination between government departments
- Limited or no funding schemes
- Need for strengthening institutions

- 
- Specialised, fragmented and continuously evolving scientific knowledge
 - Bureaucracy and resistance to recognise interface professionals
 - Science advice mechanisms are complex
 - Lack of diplomatic training in the research community

- Globalisation, new actors and cooperation goals
 - Adaptation to digitalisation and information technologies
- Common Foreign and Security Policy, a work in progress
 - Lack of scientific training in the diplomatic community

- Different understandings about science diplomacy
 - Different mind sets, cultures, and rules to bridge
 - Competitive versus collaborative approach
 - Weak political leadership for science diplomacy

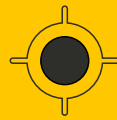
- 
- Science and collaboration as core European values
 - Good examples of science advice mechanisms
 - The public value of science
 - Wider policy impact of research and innovation

- The EU: global leader in multilateralism and science
 - Good examples of development cooperation frameworks
- Knowledge-based economic diplomacy
- Science as a driver for diplomacy

- The EU shows leadership in SDGs and climate emergency
 - Global and regional charters for win-win actions
 - Demand for training from both communities
- Trust, empathy, political will, and timeframes

Where Are We?

Addressing Global Challenges Using Science



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

STOPPERS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE



Scientific and research misconduct

The lack of research integrity can affect people trust in science, reduce the impact of research investment and also harm people and the environment.

Insufficient European research workforce

An innovative EU able to take the global lead in addressing global challenges would require a bigger research workforce.


Lack of structured policy engagement in scientific institutions

The concept of science diplomacy for addressing global challenges needs to get more traction within the scientific community.

The Ivory Tower culture

The academic community still struggles to better train researchers with transferable skills and staff their centres with diverse professionals.

WARNINGS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE



Specialised, fragmented and continuously evolving scientific knowledge

Science and technology have had vast specialisation and the knowledge is continuously evolving, which all may hamper the impact of science in addressing global challenges.

Bureaucracy and resistance to recognise interface professionals

Public administration (including scientific) tends to be a rigid environment where adaptive changes take time to be implemented.


Science advice mechanisms are complex

The use of science advice mechanisms need to become much institutionalized and formalized.

Lack of diplomatic training in the research community

Science-policy-diplomacy interfaces require a set of skills in international affairs and negotiation often not developed by scientists.

DRIVERS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE



Science and collaboration as core European values

EU science contributes to EU values, so taking the lead in addressing global challenges is a natural move.

Good examples of science advice mechanisms

Evidence and science-informed decision making and public policy development are one of the hallmarks of good governance and responsible public administration.

The public value of science

Scientific values provide a common place for understanding and collaboration to find technical solutions to global challenges.

Wider policy impact of research and innovation

Responsible Research and Innovation, Citizen Science, Open Science, or Science Diplomacy contributes to research and innovation having a wider policy impact.

Where Are We?

Addressing Global Challenges Using Diplomacy



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

STOPPERS FOR ADDRESSING GLOBAL CHALLENGES USING DIPLOMACY



Nationalisms, protectionisms and populisms

Brexit, COVID-19 pandemics and other crises have altogether altered the EU integration process.

Socio-political fractures in the EU

Trust and optimism in the EU project is unequal when comparing different Member States and may underline fractures between North-South and East-West.

Political decisions outweigh scientific evidence

During policy-making, science and scientific evidence is just a credible source of information but it is not the only one as policy makers have to weigh other interests in.

The tragedy of the commons

Individual users act independently following their own self-interest overexploiting or depleting the shared resources without considering the common good.

WARNINGS FOR ADDRESSING GLOBAL CHALLENGES USING DIPLOMACY



Globalisation, new actors and cooperation goals

In science diplomacy, the scientific public administration, scientific organisations, research centres, universities, learned societies, and individual scientists all play a role.

Adaptation to digitalisation and information technologies

The global proliferation of Information and Communication Technologies, the mass adoption of social media, and the use of big data have an impact on diplomacy practices.

Common Foreign Security and Policy, a work in progress

Better coordination is in progress and the European External Action Service still needs to become an even more leading player in EU science diplomacy.

Lack of scientific training in the diplomatic community

Diplomats have been rarely exposed to the science and technology systems and practices, hampering how they understand and engage with the research community.

DRIVERS FOR ADDRESSING GLOBAL CHALLENGES USING DIPLOMACY



The EU: global leader in multilateralism and science

The EU is a global leader in multilateralism and global governance, as well as a global example of scientific research collaboration.

Good examples of development cooperation frameworks

Through the Sustainable Development Goals, the international community has an acknowledged frame of reference for global objectives.

Knowledge-based economic diplomacy

The role of knowledge as a factor in economic prosperity of countries is taking a predominant role in the relations between nations.

Science as a driver for diplomacy

Science is a universal language and can link communities where political ties are weaker.

Where Are We?

Addressing Global Challenges Using Science Diplomacy



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

STOPPERS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE DIPLOMACY



Growing mistrust in democracy, institutions and experts

The economic crisis in 2008 have put at risk citizen trust towards EU institutions, democracy and political representativeness. Trust in science is not an exemption.

Discoordination between government departments

Addressing global challenges requires close coordination between different governmental departments and close communication with other stakeholders involved.

Limited or no funding streams

There is lack or intermittent existence of public funding streams for the research and/or development of science diplomacy actions tackling global challenges.

Need for strengthening institutions

There is a need to strengthen institutions with administrative and managing staff with networks and expertise for science in policy and diplomacy.

WARNINGS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE DIPLOMACY



Different understandings about science diplomacy

Different professionals and countries have different conceptions and understandings about science diplomacy.

Different mindsets, cultures, and rules to bridge

Scientists and diplomats belong to two different systems or cultures and they have to engage with counterparts whose values may differ too.

Competitive vs collaborative approach

Strategies for cooperation and competition are based on completely different approaches.

Weak political leadership for science diplomacy

Government science diplomacy requires political support in the higher government ranks to ensure its importance in the policy agenda.

DRIVERS FOR ADDRESSING GLOBAL CHALLENGES USING SCIENCE DIPLOMACY



The EU shows leadership in SDGs and climate emergency

The EU is committed with addressing SDGs and to make Europe become the world's first climate-neutral continent by 2050.

Global and regional charters for win-win actions

Our complex international system provides excellent frameworks for global and regional collaboration, where science diplomacy practice is directly implicit.

Demand for training from both communities

Science diplomacy requires science and diplomacy literacy and a unique set of skills. Both scientists and diplomats are demanding better training.

Trust, empathy, political will and timeframes

Science advice and diplomacy require long-lasting relationships to ensure mutual understanding, common trust, empathy, and influence to foster collaborative scenarios.

How will we get there?

The Systemic Change to a EU Science Diplomacy to Address Global Challenges



WHERE DO WE WANT TO BE?

WHERE ARE WE?

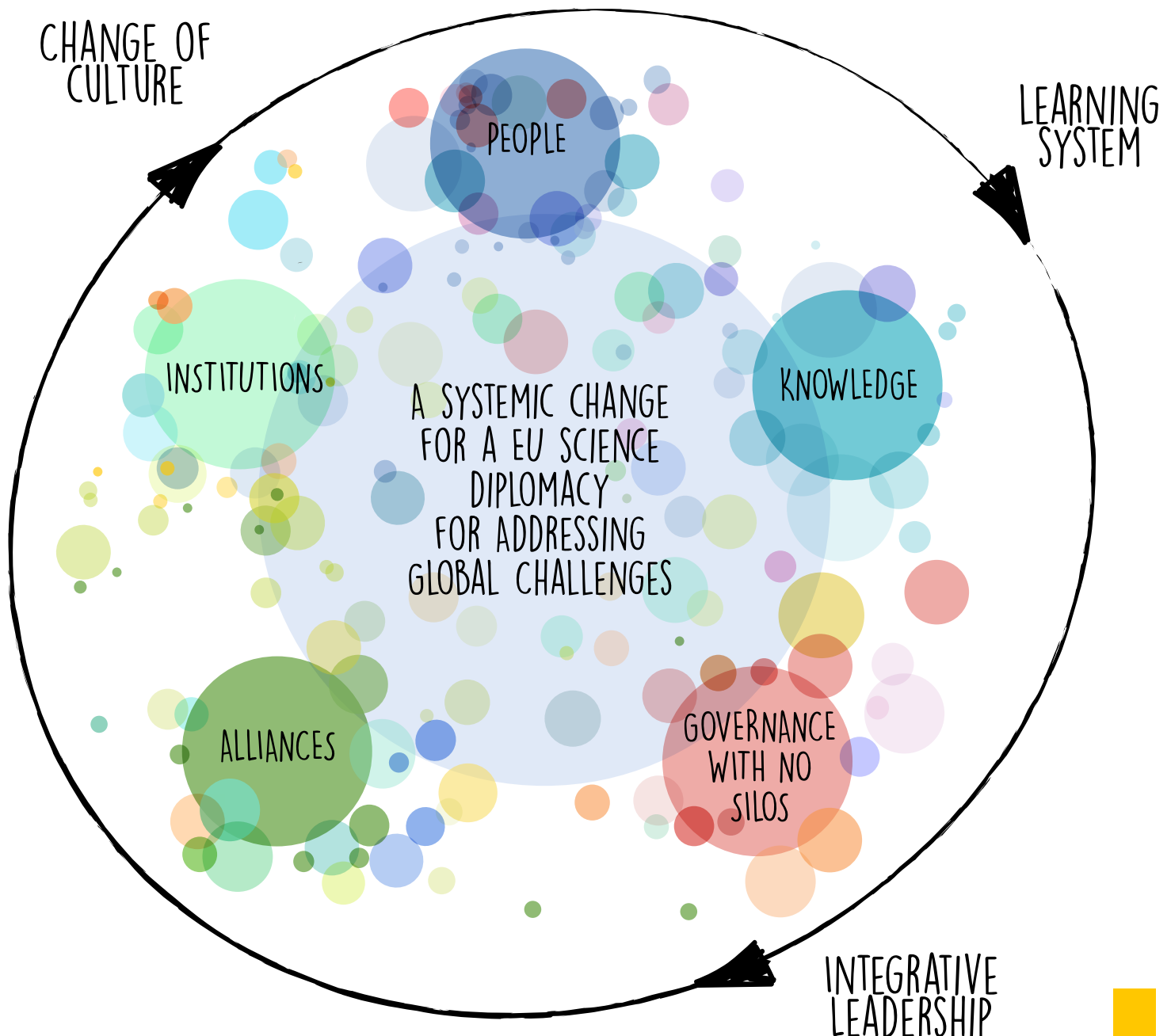
HOW WILL WE GET THERE?

The **EU** is in a unique position to lead a **science diplomacy approach** to address **global challenges**. However, the complexity of the issues that need to be tackled, the many different stakeholders in place, governance levels and the slow pace at which institutions and people are adapting to the new paradigm, all may be hampering a timely, holistic response to these challenges.

We call at **triggering a systemic change in the EU governance of science, diplomacy, and**

science diplomacy that aligns and maximizes impact of everyone's efforts towards addressing global challenges.

For a systemic change to happen, **this report proposes a set of policy recommendations focused on an integrative transformation** that takes into account three transversal processes (learning system, integrative leadership, and change of culture) in five specific key spheres (knowledge, governance with no silos, alliances, institutions, and people).



How will we get there?

Transversal Processes for a Systemic Change for Addressing Global Challenges



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

Three transversal processes are required to happen in five key specific spheres (knowledge, governance with no silos, alliances, institutions and people) to foster this systemic change:

1. a reinforced EU **learning system**, in place through a wide array of science advice mechanisms and their input into the evidence-informed foreign policy making process. This learning system needs to be embedded into and supported by all the spheres of the systemic change. It will require permanent and specially dynamic science advice mechanisms for knowledge to feed the policy-making process, a governance system able to ask for, absorb and react to this knowledge, alliances in place to integrate different stakeholders into the learning system, institutions acknowledging their role in the creation of the system and dedicated and trained people in every single sphere to make the learning system happen;

2. an **integrative leadership**: being able to foster the required changes in every single sphere of this holistic approach. This leadership will need to find ways to better generate and integrate knowledge so that it is fully exploited for addressing global challenges and to find ways to break the existing governance silos currently hampering transversal approaches to global challenges. Moreover, it will need to foster creative ways of establishing alliances, lead deep institutional cultural changes and even creating hybrid or boundary institutions more flexible and adaptive to sudden changes. Finally, an integrative leadership will be needed to inspire professionals addressing global challenges and to support the development of the necessary skills, competences and career options.

3. a **change of culture**, fostering agile, adaptive, effective and permeable environments for professionals of all kinds to collaborate to address global challenges.

Scientific and foreign affairs institutions as well as government departments need better interactive spaces. New alliances require including all relevant stakeholders in the process and building new networks that do not rely on the existing bureaucratic structures. These networks link people of similar roles across existing organisational lines. For that to happen, institutions should promote awareness and a new culture for collaboration between scientists, diplomats, policy-makers, and other professionals. Lastly, new professionals in the science-policy-diplomacy interface must be trained to bring all worlds together and catalyse more interactions.

How will we get there?

Policy Recommendations to the EU and MS for Addressing Global Challenges via the Science Diplomacy Systemic Change



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

The recommendations below are part of an integrative transformation that calls for action to all stakeholders with a say in EU Science Diplomacy and to all policy levels in the EU.

Knowledge for Addressing Global Challenges

The scientific and technical knowledge has a role in addressing global challenges through the use of scientific evidence in policy making by governments and diplomats.

Recommendation 1: Foster more interdisciplinary research around SDGs through specific calls and mission-oriented funding, ensuring a Social Sciences and Humanities (SSH) perspective is also included, and consider including science diplomacy as a research topic or impact assessment in research funding programmes.

Recommendation 2: Reinforce Responsible Research and Innovation, Citizen Science, Open Science and Science Advice as European science core assets that need to be promoted in the EU global strategy and MS foreign policies.

Recommendation 3: Share best practices for knowledge exchange in science diplomacy and policy for early-career and established researchers and diplomats.

How will we get there?

Policy Recommendations to the EU and MS for Addressing Global Challenges via the Science Diplomacy Systemic Change



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

Governance with No Silos for Addressing Global Challenges

Global challenges are wicked problems, complex and dynamic; a new way of collaboration is thus needed in order to solve the pressing problems we face globally. There is a need for better policy-alignments to tackle the challenges we face as a society in a coordinated effort.

Recommendation 4: Create and strengthen hybrid institutions bridging the scientific and the diplomatic communities.

Recommendation 5: Improve EU integration and cooperation between MS around topics of scientific priority and geopolitical interests.

Recommendation 6: Improve coordination between EC and EEAS on global and multilateral challenges.

Alliances for Addressing Global Challenges

A new way of collaboration is required where all international, national, regional, R&I systems, diplomatic corps and policymakers are mobilised to use knowledge, fostering transnational and transregional cooperation through networks and alliances for addressing global challenges.

Building networks that study, pilot, and support the new vision of the system is essential for establishing a lasting systemic change. These networks typically do not rely on the existing bureaucratic structure. They link people of similar roles across existing organisational lines reinforcing a change of culture in the community.

Recommendation 7: Foster alliances through the allocation and reallocation of research funds for global and regional priority areas.

Recommendation 8: Involve researchers' networks.

Recommendation 9: Involve citizens.

How will we get there?

Policy Recommendations to the EU and MS for Addressing Global Challenges via the Science Diplomacy Systemic Change



WHERE DO WE WANT TO BE?

WHERE ARE WE?

HOW WILL WE GET THERE?

Institutions for Addressing Global Challenges

The design and implementation of a new model must be done in close interaction with all the relevant stakeholders in both the scientific and the diplomatic community. The barriers we are addressing have deep roots which can only be overcome through institutional changes. We advocate for an institutional cultural change leading to more agile, flexible, permeable, and adaptive institutions—in particular, research organisations, universities, and foreign affairs institutions—to better address global challenges.

Recommendation 10: Raise awareness of using science for global challenges and public policy in early-career and established researchers and diplomats.

Recommendation 11: Build knowledge-exchange interfaces.

Recommendation 12: Foster strategic partnerships for capacity building and SD training with other institutions.

People for Addressing Global Challenges

Global challenges require a paradigmatic cultural shift in the way many professions are framed and evolved. In the 21st century, scientists and diplomats need to be prepared to work in a more collaborative and interdisciplinary way. Both communities, scientists and diplomats, should be trained for a cultural change to better address global challenges, in particular SDGs.

Recommendation 13: Empower and train researchers and diplomats to work together to address SDGs.

Recommendation 14: Diversify career paths for scientists and diplomats to include professionals in knowledge brokerage.

Recommendation 15: Launch of a fellowship scheme for scientists to work in EC, EEAS or MS government institutions.



USING SCIENCE FOR/IN DIPLOMACY
FOR ADDRESSING GLOBAL CHALLENGES

February 2021