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Science Diplomacy in the European Union

Carlos Moedas

AS the executive body of the European Union (EU), the European Commission represents the interests of the EU as a whole through its right of legislative initiative, its executive functions, and its duties of representation regarding the EU’s twenty-eight member states. Under the leadership of President Jean-Claude Juncker, the commission is carving out a new, more political role for itself. At a time of great political uncertainty—exacerbated by the sovereign debt crisis and the sensitive political and humanitarian consequences of nearby conflicts in Ukraine and Syria—the commission must demonstrate clear political leadership in the interests of Europe.

As part of this more political approach, President Juncker has defined ten priorities, with the backing of the European Parliament and national leaders,¹ for his tenure, which began in 2014 and lasts until 2019. These priorities are designed to enhance the EU’s impact through a relatable, results-based approach focused on economic growth and employment. This stripped-back set of priorities, combined with a strengthened political stance, is also reshaping the commission’s global ambitions.

The commission is devoting extra attention to strategic partnerships because many of Europe’s challenges are linked to those of the entire international community, such as climate change, migration, and energy security. The complexity and far-reaching nature of these issues call for international cooperation in

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often highly politicized and culturally sensitive areas where science, policy, and politics meet. In particular, the commission's *Europe as a global actor* priority aims for stronger common foreign policy in light of current events in Ukraine and the Middle East.²

Scientific cooperation has an indisputable role in effective European neighborhood policy, international relations, and development policy. Therefore, as commissioner for research, science, and innovation, I want to see the EU play an increasingly active and visible role in international science diplomacy. This can be achieved, namely, by using the universal language of science to maintain open channels of communication in the absence of other viable foreign policy approaches, ensuring the EU maintains its presence at the highest level of international scientific endeavor, and ensuring the EU has access to research performed outside Europe.

Science Diplomacy in Europe: A History of Peace, Practicality, and Ambition

Europe is no stranger to science diplomacy. Across the continent, beginning in the 1950s, countries sought peace and recovery from the turmoil of the Second World War. Many eminent scientists had left Western Europe after the war to pursue their careers elsewhere, making many national projects unfeasible.³ Prompted by this vacuum and preceding even the Treaty of Rome, a small group of determined scientists began calling for cooperation among Europe's scientific communities.⁴

In 1954, CERN, the European Organization for Nuclear Research was formed by twelve European countries, including Germany and Italy.⁵ These twelve nations signed on to promote the unifying power of science, both ideologically and pragmatically—bringing scientists together from countries that had been at war less than a decade previously, while sharing the increasing costs at the frontiers of nuclear physics research. Thus, modern science diplomacy among European nations was born out of both shared aspirations and practical necessity.

As time went on, increasingly complex developments in particle physics meant that CERN's research collaboration and human resources had to extend far beyond the original European club.⁶ By the 1990s, CERN was pulling in talent from all over the world to work on the continent's Large Hadron Collider and its particle-detection experiments, A Toroidal LHC ApparatuS, Compact Muon Solenoid, A Large Ion Collider Experiment, and Large Hadron Collider beauty experiment. When it achieved its first beam in 2008, more than ten thousand people from a hundred countries had worked to design and build the Large Hadron Collider.⁷ The elusive Higgs particle was discovered just four years later.

As a hub of some of the most exciting frontier research in particle physics, CERN has become a focal point for the world's top scientists while also keeping Europe's signature research infrastructure in the mainstream-media spotlight.

Both scientifically and politically, CERN's influence has become global. It provides a blueprint for regions with similar ambitions, such as the Middle East, where in Jordan the Synchrotron-Light for Experimental Science and Applications in the Middle East (SESAME) is currently under construction and bringing together scientists from across the region. The EU was unanimously granted observer status at SESAME in 2015, something I was keen to achieve to ensure Europe has a seat at the table in this unprecedented regional cooperative effort for science.⁸

Of course, CERN is not the only example of Europeans successfully engaging in transnational scientific collaboration. In 1962, ten European countries signed the convention establishing the European Space Research Organisation at the initiative of a small group of scientists, including the French and Italian physicists Pierre Auger and Edoardo Amaldi, both of whom had helped establish CERN.⁹

Today's European Space Agency (ESA), the continent's independent space organization, is responsible for spacecraft in orbit, European astronauts, Earth observations, and space science efforts including the Rosetta mission, which in 2014 made the ESA the world's first space agency to put a lander on a comet. The ESA plays a very important, if not overtly diplomatic, role in working with China to develop human spaceflight ventures and satellite collaborations.¹⁰ As a result, the ESA has become an important go-between for the Chinese and U.S. space agencies.¹¹ The European Southern Observatory (ESO) has contributed to relations with Latin America. In 1996, for example, the ESO signed an agreement giving Chile's astronomical community preferential access to observing time on ESO telescopes.¹²

I want the EU to take inspiration from our continent's modern history of science diplomacy, which has helped unite the European scientific community and boost European scientific excellence as well as intra-European and international relations. Pooling talent and resources has not only ensured the progress of European scientific endeavor through organizations such as CERN and the ESA, it has also led to more nuanced intercultural dialogue and political influence with the EU's international partners, bringing us to the question: how is the EU using this influence?

Science Diplomacy as a Natural Extension of European Values

The dawn of the information age brought new opportunities for European scientists, highlighted by the invention of the World Wide Web at CERN. Ideas were spreading faster and across borders, and socioeconomic changes such as the expansion of low-cost air travel, the adoption of the euro by several EU member states, and the popularity of student EU-mobility programs such as Erasmus all meant that Europeans—including scientists, researchers, and innovators—saw their horizons widen.

EU policy makers were listening to the scientific community's ambitions and began concentrating on turning European research into a global brand for excellence: a brand that would attract talent from all over the world and act as an incentive for investment in an internal market for knowledge. Since 2007, the European Research Council (ERC) has been an integral part of that brand, supporting frontier research through grant funding with an outward-looking approach.

The ERC currently has seven "implementing arrangements" signed under the main science, technology, and innovation agreements that exist between the EU and partner countries including Japan, China, and South Africa. These arrangements provide opportunities for early-career scientists to temporarily join a research team run by an ERC grantee in Europe. The ERC provides grants as part of Horizon 2020, encompassing the latest EU research funding programs, which have the world's highest international research budget at around €80 billion.

In 2009, with a renewed mandate after the ratification of the Treaty of Lisbon, the EU looked to put public resources into areas for the continent's economic and social benefit. The creation of a European Research Area (ERA) was mentioned expressly in the treaty,¹³ an idea popular among scientists and one that had drawn interest in the late 1990s from key EU policy makers, such as former EU Commissioner for Research Philippe Busquin.¹⁴

Initially, efforts to create the ERA were intended to restructure European research by "improving the coordination of national research activities."¹⁵ But by 2012, a clear intention had emerged to develop a "unified research area open to the world...to collectively address grand challenges,"¹⁶ such as population aging, energy security, mobility, and environmental degradation¹⁷—in line with the EU's commitment to the United Nations Millennium Development goals.¹⁸

Europe's ambitions for better-integrated research have become increasingly intertwined with the priorities of the international community. With the Treaty of Lisbon, the EU had been making efforts to get its own house in order, improving its research ecosystem to keep European science cutting-edge and competitive, but the information age has also broadened our horizons. Having created the ERA, Europe was ready to embrace global science for a cause beyond its borders, more openly and more strategically than before. We increased our budgets for European research and opened more and more funding programs to international partners.

In the first year of my tenure, we announced our ambition to create a Common Research Area for the EU, Latin America, and the Caribbean. Together, the EU and the Community of Latin American and Caribbean States (CELAC) represent sixty-one states, about one-third of UN members, and more than one billion citizens.¹⁹ Europe, Latin America, and the Caribbean already share an interest in cooperating on important areas such as health research, renewable energies, the bio-economy, marine sciences, and sustainable urbanization, and therefore engage in common research projects and reciprocal funding arrangements. Recently, the ERC extended

its researcher-mobility agreements to Mexico and Argentina. The EU-CELAC Common Research Area could be further developed in many ways—for example, by extending the Galway agreement on transatlantic marine research in the North Atlantic to the South Atlantic. This would be the first step in achieving my goal of seeing Europe lead the creation of a Global Research Area.²⁰

As commissioner, I am always on the lookout for new opportunities to further EU science diplomacy, with the purpose of ensuring that European values lead global scientific endeavor. The EU's Horizon 2020 funding, for example, has been open to the world from the start, but my department and I pushed in 2015 to include the Ukraine²¹ and Tunisia associations²² in 2015, because we believe participation in EU programs will encourage both countries to invest in their scientific communities, better positioning them to recover from conflict as well as to contribute diversity to future EU projects.

Recent Examples of EU Science Diplomacy Initiatives

Climate Change

As the EU became more involved in international climate negotiations from Kyoto to Paris—and European scientists contributed to organizations such as the Intergovernmental Panel on Climate Change to more deeply understand the problem and how to solve it—EU science diplomacy evolved beyond science for continental strength to science for global hope.

The economic opportunity in providing renewable energy is clear, but European values dictate that the EU represent more than its own interests. As the EU's executive body, the European Commission is committed to using “effective multilateralism”²³ with strategic partners such as the UN, G7, and NATO in areas of common interest. Such areas include combating the proliferation of weapons of mass destruction.²⁴ The Treaty of Lisbon gave the EU a single legal identity, succeeding the European Economic Community and inheriting all its rights and obligations, including with regard to international organizations such as the UN. The treaty states,

The Union's action on the international scene shall be guided by the principles which have inspired its own creation, development and enlargement, and which it seeks to advance in the wider world: democracy, the rule of law, the universality and indivisibility of human rights and fundamental freedoms, respect for human dignity, the principles of equality and solidarity, and respect for the principles of the United Nations Charter and international law.

The Union shall seek to develop relations and build partnerships with third countries, and international, regional or global organisations which share [EU

principles]. It shall promote multilateral solutions to common problems, in particular in the framework of the United Nations.²⁵

Efforts to mitigate the negative effects of climate change offer opportunities for effective multilateralism, given that these effects are not constrained by national borders, the solutions cannot be provided by any one country, and the long-term socioeconomic consequences will hit the most vulnerable first. Therefore, as a community of nations rich in technological and knowledge resources, the EU uses research to address the negative effects of climate change as part of its “collective responsibility”²⁶ to its global partners, and not only as an investment in economic leadership.

My goal is for the EU to expand beyond climate science for climate policy to climate science for peace and security. This same objective was emphasized by President Juncker in his State of the Union address on September 9, 2015:

In some parts of the world, climate change is changing the sources of conflict—the control over a dam or a lake can be more strategic than an oil refinery. Climate change is even one [of] the root causes of a new migration phenomenon. Climate refugees will become a new challenge—if we do not act swiftly.²⁷

In the future, I am sure the EU will increasingly call upon interdisciplinary research, the social sciences in particular, as well as independent science advice, to inform science diplomacy for peace and stability in the realm of international cooperation to address climate change and its environmental and social effects. This is just one of the reasons I have made *open science* and *open to the world* two of the defining priorities of my mandate.

Infectious Diseases

As national borders are increasingly blurred by trade, communication, and travel—and as we delve deeper into the complexities of global challenges—the EU finds itself experiencing spillover opportunities for international research cooperation in areas of public health. With every crisis comes lessons learned and, as a result, often deeper commitments to work with international partners.

The EU extended its effective multilateralism and collective-responsibility approach during the recent Ebola epidemic. Although Europeans remained mainly unaffected—other than a small number of mainly volunteers who had traveled to affected regions in West Africa—the scale of the human tragedy caused by the outbreak required immediate mobilization by the European research community. Such mobilization was, of course, always done in close cooperation with researchers from the affected countries and worldwide, with the goal of finding a vaccine and potential treatments.

During the first months of the Juncker Commission, the EU was quick to mobilize almost €140 million in funding for urgent Ebola research, leveraging an additional €100 million from the European pharmaceutical industry.²⁸ This permitted the swift launch of thirteen EU-funded projects, with the EU helping not only to develop all three of the most promising Ebola vaccine candidates, while supporting large-scale vaccine manufacturing, but also working towards basic research, diagnostics, and response preparedness. Together, the EU, the wider scientific community, and civil society have also begun to address sociocultural factors such as the stigmatization of Ebola orphans.²⁹

The Ebola outbreak taught the world, the hard way, that lives are lost if the international political and scientific communities are not continually ready and coordinated in responding to new and reemerging infectious diseases. The tragedy not only gave fresh impetus to the European Commission's initiative for a Global Research Collaboration for Infectious Disease Preparedness (GloPID-R), it also prompted me to instruct my department, the Directorate-General for Research & Innovation, to mobilize €10 million for urgently needed research on the Zika virus in January 2016, in response to the upsurge in cases of severe congenital brain malformations across Latin America and their suspected link to the virus.³⁰

Conclusion

Science diplomacy played an important role in postwar Europe, renewing the bonds of the continent's scientific community and rebuilding Europe's leadership in scientific excellence and economic competitiveness. When we consider Europe's long-established history of international scientific cooperation—and the values and commitment to scientific endeavor enshrined in the EU's guiding treaties—we further understand that the EU views itself as representing the interests of its own peoples while also honoring an open commitment to the peoples of the world.

*[The Union] shall promote scientific and technological advance [...] It shall contribute to peace, security, the sustainable development of the Earth, solidarity and mutual respect among peoples...*³¹

For today's EU, European research is an important resource for exercising its *collective responsibility* in a spirit of international solidarity, as part of its efforts to work with international partners to solve common and complex global challenges. EU science diplomacy is therefore becoming an increasingly visible part of the union's foreign policy, one taken into account more often and with deeper commitment than ever before.

As part of my own commitment to make European research *open to the world*, I will continue to develop EU science diplomacy at every opportunity, engaging

with new countries and ensuring that science in Europe contributes as much to peace as it does to prosperity. **SD**

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