Science Diplomacy in 2035: Action Regimes for a Changing Geopolitical Landscape

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Introduction

Over the past fifteen years, science diplomacy has moved from an idealised notion of universal collaboration to a more contested and strategically diverse arena. Geopolitical tensions, emerging technologies, and shifting alliances have challenged the belief that science could stand apart from politics. Instead, science diplomacy now encompasses a spectrum of practices shaped by national interests, cultural and political affinities, as well as crisis imperatives.

The concept of regimes of action provides a valuable lens for analysing these practices and anticipating their evolution. Each regime represents a relatively coherent configuration of actors and doctrines, but their boundaries are permeable, and hybrid forms often emerge. Looking towards 2035, understanding these regimes and their potential trajectories can help policymakers, diplomats, and research leaders to navigate an increasingly complex and fragmented global science landscape.

The Analytical Rationale for Regimes of Action

The regimes of action framework draws on political sociology and critical approaches to science diplomacy.[1,2] Rather than classifying initiatives solely by function—as in the Royal Society/AAAS model[1] of science for diplomacy, diplomacy for science, and science in diplomacy—it examines the structural configurations that underpin international scientific engagement.

A regime of action combines three elements:

1. Actors: the institutions, states, and networks involved.

2. Doctrines: the principles and narratives guiding action.

3. Instruments: the policies, funding mechanisms, and infrastructures deployed.

This approach recognises that the same country may operate under different regimes in different contexts: engaging in open, multilateral science in one domain, while adopting a competitive, sovereignty-driven stance in another. For practitioners, the framework offers both descriptive and anticipatory value, helping to forecast regime shifts and adapt strategies accordingly.

The Four Regimes of Action

The Ideal Regime

The Ideal Regime rests on the vision of science as a global public good. It promotes inclusive governance, open access to data, equitable participation, and strong multilateral institutions. Examples include CERN, the Antarctic Treaty System, the International Space Station, and other large-scale collaborative research efforts in fundamental science.[3,4] It thrives on mutual trust and reciprocity, but can be undermined by unequal distribution of benefits or geopolitical instability.

The Crisis Regime

The Crisis Regime emerges when urgent threats—pandemics, climate-related disasters, technological accidents—force rapid scientific cooperation. These efforts are often ad hoc and time-limited, mobilising flexible coalitions of states, agencies, and often research communities. The global COVID-19 response, the COVAX initiative, and the IPCC offer relevant examples.[5,6] While capable of rapid mobilisation, this regime often struggles with short-termism, and trust deficits once the immediate threat subsides.

The Like-Minded Regime

The Like-Minded Regime is based on selective cooperation among actors with shared interests, potentially of different nature. It favours "club" formats, such as the G7 Science Ministers' meetings or NATO's DIANA programme.[5] It can yield rapid progress on shared priorities, but tends to marginalise those outside the club and is poorly suited to addressing challenges requiring a truly global consensus.

The Sovereign Regime

In the Sovereign Regime, science is integrated into national strategies for power, influence, and economic competitiveness. This includes strategic autonomy in key technologies, control over knowledge flows, and competition for talent.[7,8] National AI strategies, moonshot programmes with strict domestic control, and technology export controls all exemplify this regime. While it can accelerate innovation in priority areas, it risks duplication, reduced circulation of ideas, and even scientific isolation.

Strategic Dynamics and Interactions

These regimes rarely exist in pure form. Hybridisation is common: a country may support the Ideal Regime in basic research, the Crisis Regime for disaster response, the Like-Minded Regime for defence innovation, and the Sovereign Regime for sensitive dual-use technologies. The capacity to navigate across regimes depends on diplomatic skill, and the ability to manage tensions between openness and control.

The interplay between regimes is influenced by three main drivers: technological change, shifting geopolitical alignments, and evolving societal expectations about the role of science. For example, the rise of AI and quantum computing has blurred boundaries between civilian and military research, forcing governments to reconsider the balance between open collaboration and protective sovereignty.

Prospective Scenarios to 2035

The horizon year 2035 aligns with major strategic cycles in science and innovation policy, including the maturation of emerging technologies, climate mitigation targets, and global development agendas. It offers a meaningful vantage point for considering how regimes of action might evolve.

Scenario 1 – Resilient Multilateralism: The Ideal Regime regains prominence, with the EU, UNESCO, and others leading coalitions on climate, health, and sustainability. Open access and shared infrastructure are revitalised. The driving forces are mutual trust and strong institutions; the pitfalls are uneven benefit distribution and vulnerability to renewed fragmentation.

Scenario 2 – Bloc Politics Dominance: The Like-Minded Regime prevails, as geopolitical blocs consolidate their own research infrastructures and standards. Cooperation across blocs becomes rare. Forces at play include common security agendas and political values; pitfalls include exclusion of non-aligned actors and failure to address universal challenges.

Scenario 3 – Competitive Sovereignty: The Sovereign Regime becomes the norm. States enforce strict control over data and talent flows, engaging in open technology races. Driving forces are security imperatives and industrial competitiveness; pitfalls include costly duplication and reduced knowledge circulation.

Scenario 4 – Crisis Management Multilateralism: The Crisis Regime dominates, with coalitions mobilised in emergencies. While threats are managed effectively, long-term collaboration suffers. Forces are urgency and rapid mobilisation; pitfalls are weak institutional memory and trust deficits.

Regimes of Action in Science Diplomacy: 2035 Outlook

Regime of Action	Description	Possible 2035 Outlook	Main Forces at Play	Potential Pitfalls
Ideal	Science is treated as a shared global resource, anchored in universal values and inclusive governance.	Revitalised multilateralism with open access, fair participation, and robust common standards.	Mutual trust, open exchange, joint research infrastructures, and strong global institutions.	Loss of trust, unequal benefits, and disruption from geopolitical instability.
Crisis	Cooperation arises under pressure, often improvised, to respond to urgent global threats.	Flexible coalitions formed to manage pandemics, climate shocks, or technological breakdowns.	Urgency of crises, rapid-response capabilities, pooling of critical resources.	Short-term focus, weak follow-up, fatigue from repeated emergencies.
Like-Minded	Selective partnerships among countries sharing political alignment or cultural affinity.	Parallel systems within geopolitical blocs, with limited collaboration across divides.	Common security agendas, political alignment, and trusted "science clubs."	Marginalisation of others, inability to address issues requiring global consensus.
Sovereign	Science embedded in national strategies for technological and geopolitical advantage.	Fragmented world of competitive sovereignty, with controlled knowledge flows and technology races.	National security, industrial priorities, competition for talent.	Duplication of effort, reduced circulation of ideas, and scientific isolation.

Implications for Practitioners

For those engaged in shaping or implementing science diplomacy, the regimes of action framework offers a practical way to read the strategic environment. Recognising which regime is in play, alone or in combination, can usefully inform choices (about partners, governance models, investment priorities, etc.).

Scenario thinking to 2035 is not about prediction but about preparedness. It enables institutions to test strategies against different plausible futures, identify early warning signals of regime shifts, in order

to design adaptable approaches. In all cases, maintaining channels for dialogue, even with competitors, remains essential for resilience.

Moreover, regime analysis encourages self-reflection. Policymakers and research leaders can ask not just what regime they are operating in, but what regime they want to foster in light of their long-term objectives and values. In a fragmented but interdependent world, strategic agility—the ability to move across regimes without losing credibility—is likely to be a decisive asset.

Conclusion

By 2035, science diplomacy will be shaped by the shifting interplay of Ideal, Crisis, Like-Minded, and Sovereign Regimes. Each offers different opportunities and risks, and none can be relied upon exclusively. The regimes of action framework, enriched with scenario-based foresight, equips practitioners to navigate this complexity. It underlines the need for trust-building, inclusive governance, and the careful balancing of cooperation and competition in pursuit of both national interests and global public goods.

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