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## Achieving Research Security while Pursuing Science Diplomacy: Considering Intentionality

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SCIENCE DIPLOMACY - 15 YEARS ON

RESEARCH SECURITY

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In the context of the search for national strategic advantage, “research security” is a broad term that describes the protection of intellectual property, sensitive research, people, and infrastructure from potential theft, misuse, and exploitation.

Given its protectionist nature, is research security purely a constraint that inhibits science diplomacy, particularly the facilitation of international science cooperation (“diplomacy for science”) and the use of science cooperation to improve international relations between countries (“science for diplomacy”)? Or is it an enabling force that clarifies how science

diplomacy works and why it is important? We outline an approach (“security by intentionality”) that embeds the latter in a world fifteen years on from *New Frontiers*.<sup>1</sup>

At the height of the Cold War, a five-fold controls system (information classification, export controls, terms and conditions for public funders, voluntary restrictions on the private sector, and controls on visitors and visas) was set out to describe the tools deployed to achieve security in the context of open fundamental research.<sup>2</sup> It still holds today. But a new approach to research security is needed: one that emerges from considering issues of intentionality. As well as ‘knowing one’s customer,’ researchers should ask serious and searching questions about collaborating institutions and businesses. What do collaborators intend to do with the outputs of the research? Who else is in their network? Why are they interested in the field in the first place?

## Values

Creating diplomatic value from scientific partnerships feels especially difficult when societal value systems differ. Soft power opens up opportunities to understand how those values influence international partnerships.<sup>3</sup> However, multi-purpose platform technologies present new challenges, even within non-military domains, due to their multifaceted civilian uses which may or may not be in conflict with a nation’s value system.

“New Frontiers” explicitly states that scientific values (such as rationality and transparency) are global constants.<sup>4</sup> However, it is a dangerous oversimplification to say that scientific values are independent of cultural, national, and religious context. Further, these cultures of science sit within a wide variety of state-based approaches to the rule of law, human rights, individual freedom, informed consent, medical practice, and the origins of authority. Values influence how and what science is carried out, and how scientific results are interpreted. If researchers are able to develop a culture of engagement with their collaborators, driven by the need to understand intentions, then this should help assess how well their values are aligned and therefore how successful science diplomacy activities, including research collaborations, are likely to be.

## Motivations and reciprocity

As “New Frontiers” notes,<sup>5</sup> scientists are motivated to collaborate with international partners for various reasons, e.g. to gain access to talented researchers, new ideas, research infrastructure, or new sources of funding. But what does the counterparty seek to gain from the collaboration? Researchers have not asked that question rigorously enough.

It is clearly possible to incentivize the selection of international partners based on aligned intentions, rather than the part-scientific and part-financial arguments that currently prevail.<sup>6</sup> Indeed, such reciprocity is required, at least at the system level, so that, as with international trade, vicious cycles of protectionism and polarization that would inhibit the

operation of science diplomacy can be avoided.

### **Dual-use and platform technologies**

Among the most sensitive current scientific domains are those across a suite of advanced technologies, such as quantum technology, artificial intelligence, engineering biology, and telecommunications, in which military and civilian purposes may be perceived to overlap. Despite the best efforts of legislators,<sup>7</sup> the term “dual use” is difficult to define, let alone apply in practice, especially to these advanced (and “platform”) technologies.

The assumption that we can easily assess what is a military and what is a civilian application feels particularly unsafe when considering states that purposefully fuse civil and military research in their national doctrines and institutions. However, applying the precautionary principle is likely to increase the opportunity cost and reduce the diffusion of knowledge around such technologies.<sup>8</sup> Current systems of research security controls, often comprising in practice a complex and multi-faceted legislative basis and substantial operational bureaucracy, feel increasingly inadequate.

It seems possible to design security controls that allow us to, as the “New Frontiers” report proposes, “take into consideration the diplomatic value of scientific partnerships in sensitive areas to help rebuild trust between nations” only if intentions are assessed. Intentionality offers a route to addressing issues of mismatches in values, in motivations, and in the identification of “dual-use” technologies that historic approaches to research security have ignored. At the very least, intentionality should shed light on cases that are difficult to resolve via the traditional five-fold controls system and so offers a complementary approach.<sup>9</sup>

How to enable this proposed focus? As a first step, a higher level of understanding of geopolitics, the variability in international cultures of research, and the motivations of private companies must be propagated across the whole academic enterprise. That understanding must become embedded into the professional responsibilities of university researchers, innovators, and company directors, especially where platform technologies are involved.

Secondly, it should be ensured that collaborations are founded on a basis of mutual comprehension and shared intentions; it takes time to learn enough about a potential collaborator for this to make sense.

Finally, to return to the focus of this special issue, fundamentally, “security by intentionality” as a framing for modern research security makes it also an enabling force for science diplomacy since both should be approached through precisely the same lens: good security and good diplomacy both succeed through seeking to understand how a counterparty perceives and acts in the world.

## Disclaimer

While all three authors hold positions within UK Research & Innovation (UKRI), nothing in this article should be construed as a formal statement of UKRI policy.

## Endnotes

1. The Royal Society and the American Association for the Advancement of Science (AAAS), *New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power*, January 2010, [https://www.aaas.org/sites/default/files/New\\_Frontiers.pdf](https://www.aaas.org/sites/default/files/New_Frontiers.pdf).
2. See, for example pp. 27–38 of the Corson Report. The Corson Report concluded that university research should not be restricted unless it met a set of criteria that, taken together, define it as a unique, rapidly developing piece of technology with direct military application and benefit, sometimes referred to as having “high walls around small fields.” Scientific Communication and National Security (National Academy of Engineering, 1982).
3. The term “soft power” gained visibility in the 1980s and was amplified by Joseph Nye from the 1990s onwards; see for example Christopher Hill and Sarah Beadle, *The Art of Attraction: Soft Power and the UK’s Role in the World* (British Academy, 2014).
4. See “New Frontiers,” section 5.2.
5. See “New Frontiers,” section 5.4.
6. Given the current concerns about the financial stability of the UK university system, moving away from the current, rather transactional, basis is not straightforward, but would appear to align with a view of collaboration framed firmly around open fundamental research (Office for Students, *Financial Sustainability of Higher Education Providers in England* (2024)).
7. For commentary on this point, see Quentin Michel, *Trade Control and Dual Use Research: A Difficult Compromise* (European Studies Unit, University of Liège, 2022).
8. As the UK Government’s Science & Technology Framework 2023 (page 7) stated, in relation to the five critical technologies, we are left “weighing the security risk of open collaboration and investment against the opportunity cost of limiting them.”
9. In some areas, for example nuclear, chemical, and biological weapons research where military uses dominate, security by secrecy should clearly continue.


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