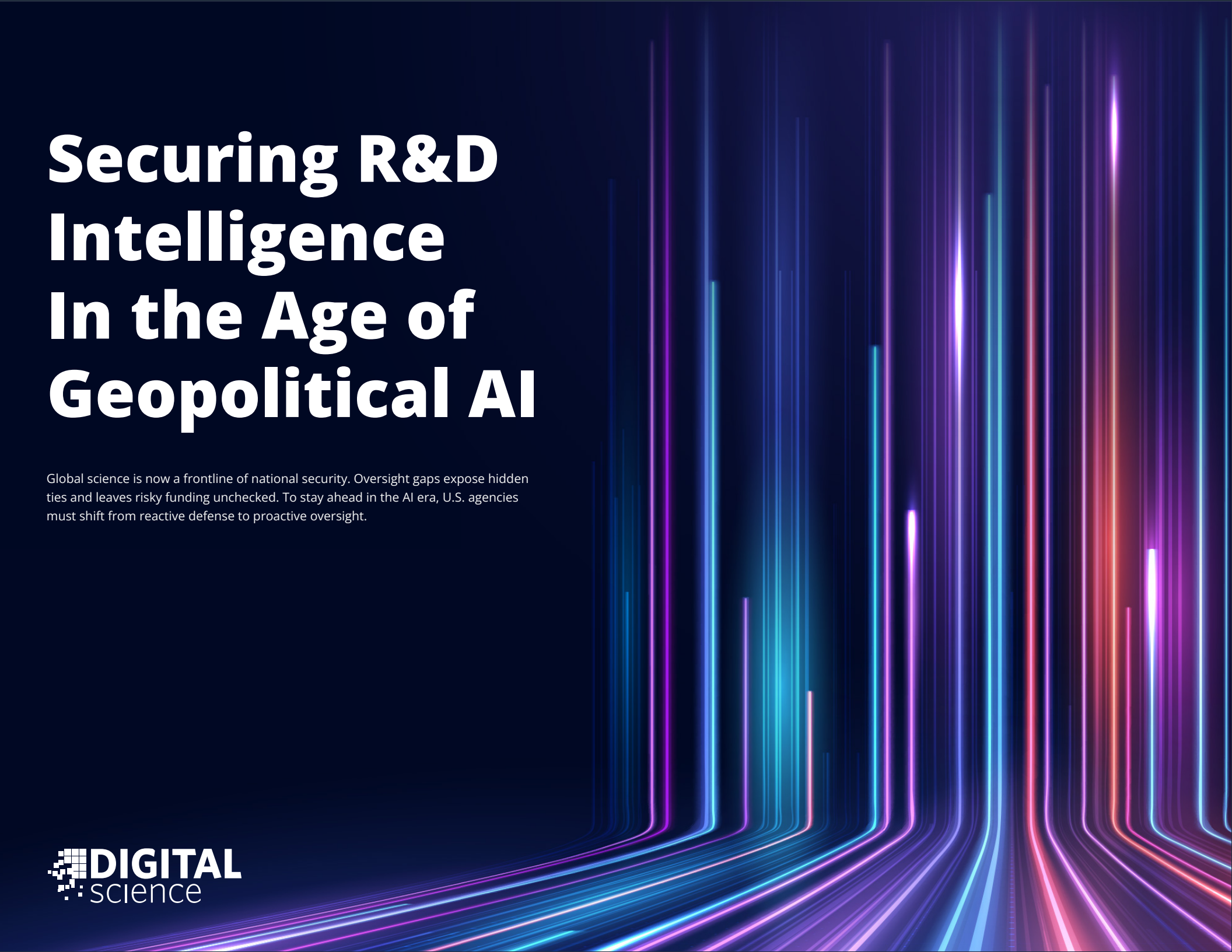
Securing R&D Intelligence In the Age of Geopolitical AI

Global science is now a frontline of national security. Oversight gaps expose hidden ties and leaves risky funding unchecked. To stay ahead in the AI era, U.S. agencies must shift from reactive defense to proactive oversight.



DIGITAL science

Executive Summary

This paper outlines how U.S. agencies can protect national security and meet expanding compliance and security mandates in the context of China's rise in AI research. By replacing fragmented tools with secure, real-time research intelligence, agencies can shift from reactive risk management to proactive strategic oversight. Dimensions, a FedRAMP-grade platform (in progress), provides the visibility, integrity metrics, and talent mapping needed to quickly identify national security risks and directly align with Executive Order 14303 and OSTP's Gold Standard Science framework.

Background

The S7 Academies' statement identifies AI as a geostrategic force, issuing an urgent call for governance from the perspective of the G7 nations. It underscores the immense potential of AI while warning of significant risks including disinformation and threats to democracy. Crucially, the statement acknowledges a "lack of preparedness in scientific, developer and policy spheres" to manage these challenges.

This admission of unpreparedness becomes profoundly more significant when viewed against the geopolitical reality of AI development. The release of DeepSeek, a state-supported, open-source AI model from China, is a turning point that crystallizes the challenge faced by the G7. The issue is no longer merely about regulating a burgeoning technology, but about rapidly adapting and harnessing its power for geopolitical advantage.

Daniel Hook, CEO of Digital Science, concluded in his recent report "Deepseek and the New Geopolitics of AI" that China now dominates the global AI research landscape, not only in terms of sheer output but also by establishing itself as the top global collaborator with the fastest-growing talent base. A direct consequence of this shift is that U.S. and E.U. institutions are becoming increasingly dependent on research conducted by researchers who may have ties to China. This has created a significant strategic gap: while the realities of collaboration and influence have fundamentally shifted, the visibility and control mechanisms necessary to manage this new dynamic have failed to keep pace.

The Challenge for U.S. Agencies: Expanding Mandates

U.S. agencies are caught in a strategic paradox, facing immense external pressures that are compounded by their own internal operational limitations. On one hand, they are being mandated by new federal directives to secure and align the nation's scientific enterprise with its national interests. On the other hand, they must operate within a global research ecosystem, particularly in AI, that is increasingly reliant on a primary geostrategic competitor. This creates a fundamental tension between their domestic security obligations and the collaborative reality of modern science.

This challenge is crystallized by two key mandates:

1. Executive Order 14303 (May 23, 2025) explicitly directs agencies to align science with U.S. national interest and security. This requires a level of control and vetting over research partnerships, data flows, and outcomes.

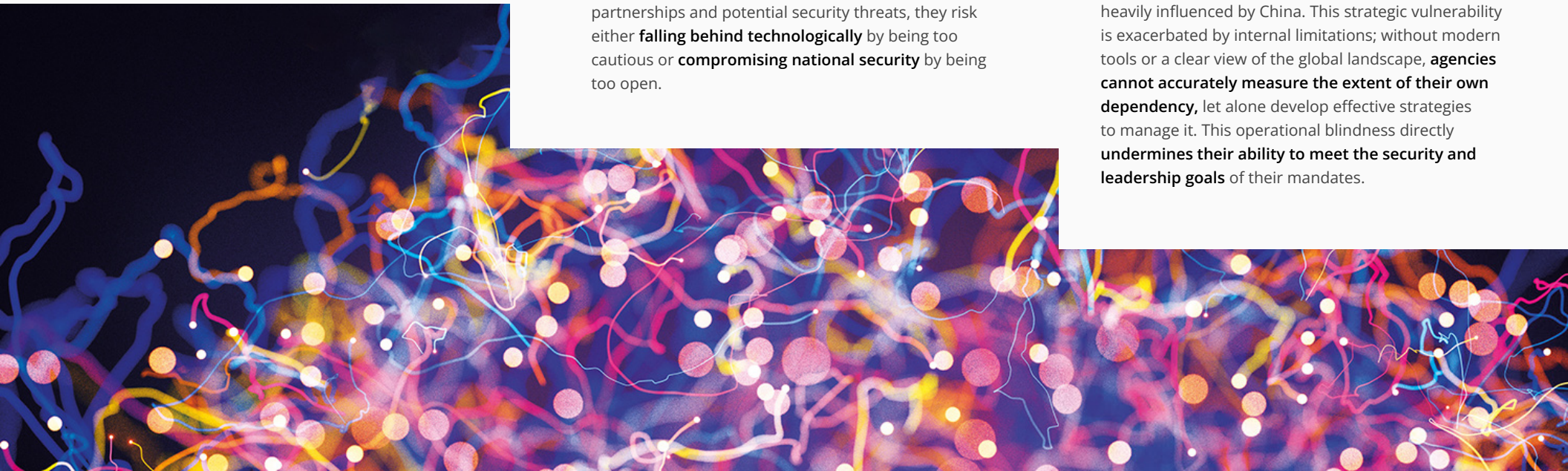
2. The OSTP's Gold Standard Science initiative (June 23, 2025) further requires agencies to ensure that research is transparent, reproducible, and free from bias, demanding deep visibility into the entire research lifecycle.

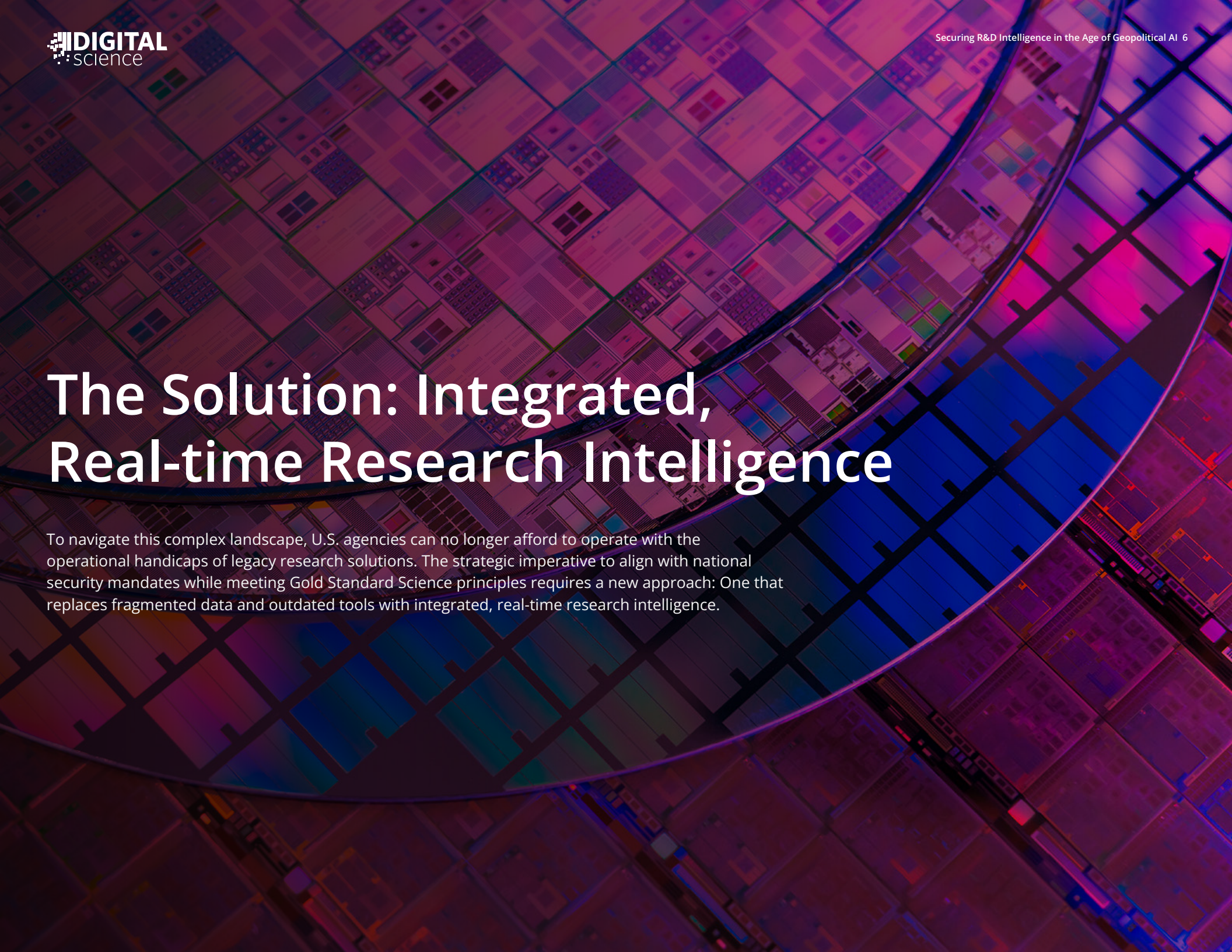
When placed against the backdrop of China's AI dominance and the S7 Academies' admission of unpreparedness, these mandates present U.S. agencies with profound challenges that their current workflows are ill-equipped to handle:

- **Balancing Open Collaboration with National Security:** Agencies are tasked with fostering scientific progress, which necessitates collaboration with top global talent. However, Executive Order 14303 requires them to view these collaborations through a national security lens. This forces agencies into an impossible position, as most of their workflows **lack real-time insights into affiliations, collaborations, and talent flows.** Without the ability to accurately distinguish between beneficial partnerships and potential security threats, they risk either **falling behind technologically** by being too cautious or **compromising national security** by being too open.

- **Ensuring Integrity in an Opaque Supply Chain:** The OSTP's Gold Standard is difficult to enforce when the research supply chain is global. A U.S.-funded project may rely on Chinese-developed open-source models or datasets. This task becomes nearly impossible when agency workflows **rely on fragmented data and outdated tools,** which are inadequate for tracking the provenance of global research components. As a result, agencies **struggle to assess integrity risks** such as hidden biases, connections to foreign adversaries or reproducibility issues and cannot reliably **report on compliance metrics** as required by the Gold Standard.

- **Managing Dependency While Projecting Leadership:** The directives implicitly assume U.S. leadership and control over its scientific enterprise. Yet, the reality is one of increasing dependency on a research ecosystem heavily influenced by China. This strategic vulnerability is exacerbated by internal limitations; without modern tools or a clear view of the global landscape, **agencies cannot accurately measure the extent of their own dependency,** let alone develop effective strategies to manage it. This operational blindness directly **undermines their ability to meet the security and leadership goals** of their mandates.





The Solution: Integrated, Real-time Research Intelligence

To navigate this complex landscape, U.S. agencies can no longer afford to operate with the operational handicaps of legacy research solutions. The strategic imperative to align with national security mandates while meeting Gold Standard Science principles requires a new approach: One that replaces fragmented data and outdated tools with integrated, real-time research intelligence.

Dimensions

The answer to this challenge lies in a platform built for this exact purpose. **Dimensions** is a secure, integrated, FedRAMP-grade (in progress) research intelligence platform designed specifically for government, funders, and non-profits that directly addresses critical gaps in agency workflows, transforming an agency's ability to manage risk, ensure compliance, identify national security threats, and make strategic decisions. Here are some examples:

- **Mapping the Ecosystem to Balance Collaboration and Security:** Where agencies currently lack visibility, Dimensions provides clarity. To meet the security demands of Executive Order 14303, agencies need comprehensive **collaboration and entity mapping.** Dimensions delivers this by allowing users to instantly **visualize co-authorship and institutional networks,** making it possible to understand the full scope of a research partnership and any potential risks.
- **Enables Effective Expert Identification:** Dimensions allows agencies to detect high-impact researchers and their affiliations. This allows agencies to find and engage with global leaders in their fields, armed with an understanding of their network of connections.
- **Mitigating Risk and Ensuring Compliance:** To uphold the integrity required by the OSTP's Gold Standard, agencies must move from struggling to assess risk to proactively managing it. Dimensions is built for **risk mitigation,** with the capability to automatically **flag indirect ties to high-risk entities** that would be missed by manual checks or outdated systems.
- **GSS compliance:** the platform provides built-in metrics, dashboards, and AI-driven oversight, allowing agencies to monitor research integrity and report on compliance efficiently and accurately.

By integrating these capabilities into a single, secure platform, Dimensions delivers the visibility U.S. researchers need to assess national security risks in real-time while automating adherence to the demands of federal mandates in an incredibly complex global research environment. It moves agencies from a reactive, vulnerable position to one of informed, proactive vigilance.

The intelligence you need is here—now with the security your mission demands.

Agency Need	Dimensions Delivers
Collaboration & entity mapping	Visualization of co-authorship and institutional networks
Expert identification	Detection of high-impact researchers and affiliations
Risk mitigation	Flagging of indirect ties to high-risk entities
GSS compliance	Built-in metrics, dashboards, and AI-driven oversight

Agency Challenge: Identify and Vet Trusted Experts for Federally-Funded AI Projects

This use case enables agencies to quickly and securely vet experts, directly reducing the risk of funding unvetted or compromised individuals. By leveraging real-time, evidence-based profiles, the review process is accelerated and national security is protected.

Agency Challenge

Federal agencies investing in AI research must identify and fund experts with verified credentials, relevant experience, and affiliations that align with U.S. national security interests. In the current geopolitical climate — particularly with China's rise as the dominant force in AI research — traditional methods for vetting expertise are insufficient, fragmented, and lack the transparency required for high-assurance decision-making.

How Dimensions Helps

Using Dimensions, agencies can securely surface:

- Author-level publication histories and expertise areas,
- Verified institutional affiliations across time,
- Collaboration networks that may signal indirect connections to high-risk entities.

This data can be accessed and integrated **within secure, policy-compliant environments** — making it safe to use across internal agency workflows, clearance levels, and procurement pipelines.

Outcome

Agencies using Dimensions can reduce the risk of inadvertently funding projects with unvetted or compromised contributors, while accelerating the review process through real-time, evidence-based researcher profiles.

Agency Challenge: Detect Risky Research Connections Across Grants and Collaborators

This use case reinforces the **compliance and oversight** value proposition and aligns well with OSTP's Gold Standard Science expectations around transparency and bias detection.

Agency Challenge

Research integrity and compliance teams are increasingly tasked with identifying high-risk or improper relationships, such as undisclosed ties to **sanctioned institutions, foreign talent programs**, or **entities flagged for national security concerns.** However, current workflows rely heavily on siloed data systems and manual reviews, making it nearly impossible to track complex collaboration histories and evolving connections across researchers, grants, and organizations.

How Dimensions Helps

Dimensions offers a vast data set, including:

- Publication data, co-authorship networks, funder records, and institutional affiliations,
- Entity disambiguation across global data sources to detect patterns and influence flows, and
- More interconnected research publication and grant data than any other source.

This intelligence can be **safely combined with an agency's internal grant or personnel data,** enabling compliance officers to make timely, auditable, and defensible decisions aligned with Executive Order 14303 and **agency-specific disclosure rules.**

Outcome

Agencies using Dimensions can gain confidence in their vetting processes, reduce the burden of manual cross-checks, and proactively mitigate research security risks before awards are finalized.

Agency Challenge: Align Funding with Strategic Priorities and National Security Mandates

This use case is essential to those agencies seeking a **forward-looking, portfolio-alignment perspective.**

Agency Challenge

Program officers and funding leaders must ensure that research investments support **emerging national priorities,** including those outlined in **Executive Order 14303, OSTP's Gold Standard Science,** and evolving **Congressional directives.** At the same time, they are expected to maintain **speed, transparency, and equity** in funding decisions — often without access to real-time intelligence on global funding trends, institutional risk profiles, or gaps in strategic coverage.

How Dimensions Helps

Dimensions provides:

- Real-time visibility into global funding flows, publication trends, and institutional activity.
- Strategic benchmarking tools that enable agencies to assess overlap, underinvestment, or risk exposure in their portfolios.

These insights can be securely integrated into program planning and award workflows — ensuring that **strategic alignment doesn't come at the cost of operational speed or compliance confidence.**

Outcome

Agencies using Dimensions can gain an advanced decision-support capability that empowers smarter, faster, and safer funding—strengthening alignment with U.S. science and security goals while improving internal efficiency and transparency.

Bottom Line

As these three examples show, the path forward is not theoretical—it's operational. Dimensions offers the tools needed to shift from reactive oversight to proactive leadership. By embedding secure, data-rich intelligence into daily decision-making, federal science funders can move faster, act with insight, and uphold the trust placed in them to steward the research enterprise.

In an era defined by strategic competition, visibility isn't just protection—it's power. This geopolitical competition now centers around the accelerating geopolitical race based on generative AI, which has transformed research from a purely academic pursuit into a lever of national power. In this new reality, funding agencies are no longer just stewards of discovery—they are at the front line in a broader struggle over influence, innovation, and integrity. By embedding trusted intelligence into everyday decision-making, U.S. agencies can lead with foresight, defend scientific openness without compromising security, and ensure that the nation's research enterprise remains a strategic asset in the AI era.

As the U.S. government makes clear in its AI Action Plan, "Winning the AI race is non-negotiable." Research funders and compliance officers are no longer supporting innovation from the sidelines—they are now key players in a national security and economic leadership strategy. Trusted research intelligence platforms are critical infrastructure in this effort.

Let's Talk

Let's discuss the ways that Dimensions could empower your organization's research leaders to act with speed, trust, and visibility.a customized briefing or to request a secure pilot program, contact:

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Visit Digital Science Email Us

Juergen Wastl, VP, Research Evaluation and Global Challenges

Juergen Wastl is VP Research Evaluation and Global Challenges at Digital Science where he has been part of the Thought Leadership team since August 2023. Previously he led the Consultancy team since August 2018 where he worked with institutional clients and partners, funders and industry, to help them achieve their goals faster and make better informed decisions e.g. on research strategy.

He has worked closely with a number of different Digital Science portfolio companies over the last decade. While at the University of Cambridge, Jürgen headed up the Research Information team at the Research Strategy Office where he developed strategy and applications for the management of research information. He provided advice to all the different layers within Cambridge concerning the REF, playing an increasingly active role over the last 10 years. Jürgen pioneered the development of Cambridge's "public face" for research expertise and research profiles for Cambridge's academic staff. Prior to Cambridge, he worked for BASF where he managed BMBF-funded projects with universities and research centers internationally.

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