



2025 Annual Letter

Piers Millett, Executive Director

The moment we are in

It is strange how much of my professional career has involved Jurassic Park. This time it is the idea that ‘life will find a way’! In the original movie, it was the overlap between mathematics (chaos theory) and advanced biotechnology evolving around engineered biocontrols. In early 2026, it was the discovery of an [entirely new way of making DNA](#).

Of course, both the overlap between maths and biology, and the synthesis of DNA are themes that have driven our recent work. In late 2025, [a study IBBIS conducted in partnership with Microsoft and a global group of experts was published in Science](#), subsequently making headlines in the Financial Times, Washington Post, BBC, and other newspapers. The finding was both reassuring and sobering: DNA synthesis screening tools can be made resilient to AI-enabled circumvention, but only if we act deliberately to make them so. Additionally, Science endorsed a tiered-access approach to sensitive data introduced in the publication, the first time a leading scientific article has formally endorsed such a framework. It was a precedent-setting moment: a signal that biosecurity can keep pace with AI.

The study crystallised something we have known for some time: biotechnology is advancing faster than the governance frameworks designed to steward it, and AI is accelerating that gap. The long-held reliance on expertise as a key barrier to misuse is now in question as advanced scientific capabilities become more accessible and distributed around the globe.

IBBIS was created precisely for this reason. As the only independent organisation with a primary mission dedicated to reducing emerging biological risks associated with technology advances, we exist to develop practical governance approaches and technical solutions to safeguard the biological sciences. In 2025, that work moved from the theoretical to the operational.

Mapping the global DNA synthesis landscape

For nearly two decades, synthetic DNA has been an identified key element of biological research where biosecurity safeguards should be implemented. A basic knowledge gap, however, prevented concise understanding as to the scale and scope

of how to approach this issue; there was no consolidated information source to identify where synthetic DNA providers and benchtop manufacturers were located, what companies implemented screening approaches, and what national policies exist that apply to synthetic DNA.

In 2025, we closed that gap with the launch of the [Global DNA Synthesis Map](#): the first publicly available, comprehensive overview of where synthetic nucleic acids are produced, who implements screening practices, and how synthetic nucleic acids are regulated around the world. The Map shows the distribution of providers, their screening practices, and the national regulatory environments they operate in.

This new tool has already informed decision-making and national security outreach in regions as diverse as Brazil, Denmark, EU, Nigeria, Netherlands, Norway, UK, USA and South Africa,, helping governments and partners identify where safeguards are strong, partial, or absent and where engagement is most urgently needed. Industry bodies, funders, and civil society organisations have begun to use this information to prioritise outreach and advocacy efforts, relying on the Map as a shared evidence base rather than incomplete and expensive market research reports.

For IBBIS, the Map marked a turning point. Policymakers, providers, and practitioners can now point to specific locations, screening practices, and regulatory gaps; it has become a common reference point for conversations that previously depended on partial understanding of a fast-moving landscape.

Setting international standards: the DNA Synthesis Screening Consortium (DSSC)

Mapping where synthesis capacity exists is only one aspect of what is needed for biosecurity governance of synthetic nucleic acids. Governance approaches, such as standards, are powerful tools to harmonise practices globally and incentivise industry adoption. Standards also provide a technical basis by which national level policies can rely on and point to.

In November 2025, we took a major step toward that goal by [launching the DNA Synthesis Screening Consortium \(DSSC\) in Singapore](#). [The DSSC](#) brings together around 30 experts (and growing) from industry, academia, government, standards bodies, and civil society across more than two dozen countries. The DSSC has a clear mandate: turn high-level standards into practical implementation guidance.

Concretely, the DSSC is drafting a technical implementation guide to operationalise the biosecurity provisions in ISO 20688-2:2024 on nucleic acid synthesis. Working alongside the SBRC, which defines what counts as a sequence of concern, the DSSC translates those definitions into workflows, templates, and screening logic that providers can implement and regulators can reference.

These efforts align with and reinforce broader policy momentum:

- **In Europe**, IBBIS experts worked closely with other organizations to include DNA synthesis screening in the draft EU Biotech Act circulated in December 2025. If adopted, this would make screening mandatory in all 27 EU countries. Notably, IBBIS [chaired an European Parliament hearing](#) on the Biotech report, [coordinated a submission to the EU](#) (subsequently [highlighted in Le Monde](#)) as well as providing numerous briefings to the European Commission, European Parliament, and the European Biosecurity Regulators Forum shaping internal deliberations.
- In the **United Kingdom**, IBBIS experts have been [participating in the Responsible Innovation Advisory Panel](#) hosted by the UK Department of Science, Innovation, and Technology to help implement the UK's Biosecurity Policy, including helping to share formal government guidance on DNA synthesis screening guidance, and discussions to translate this guidance into regulation.
- In the **United States**, IBBIS submitted written submissions to calls for evidence on relevant legislative and regulatory initiatives, briefed lawmakers and representatives on strengthening incentives and requirements for DNA synthesis screening, and [worked with National Institute of Standards and Technology \(NIST\)](#) to help implement Executive Orders requiring those receiving Federal funds to use DNA synthesis providers which screen their customers and orders.

Building the tools to screen: sequences and customers

Standards set the direction; tools make implementation possible. The crucial question is whether that capacity is used responsibly. DNA synthesis security depends on robust screening for both sequences and customers.

On the sequence side, IBBIS's [commec](#), a free, open-source, globally available screening tool, continued to mature in 2025. In a landscape where most screening tools are proprietary or constrained to specific jurisdictions, commec stands apart:

- It runs locally so providers do not need to send sensitive data across borders
- It draws on biosecurity standards and agent control lists from every continent
- It is engineered to be more robust than basic BLAST-based approaches, which are vulnerable to evasion and struggle to keep pace with evolving taxonomy and policy requirements

Independent benchmarking in 2025 confirmed that commec met or exceeded industry standards for identifying sequences of concern with minimal false positives. I am pleased to say that IBBIS made great efforts to socialise this tool in 2025, and it is now adopted by companies across in multiple geographic regions, including

[Dynegene](#) and [the Shenzhen Institutes of Advanced Technology \(SIAT\)](#), which is the [national synthetic biology biofoundry](#), both in China.

In addition to developing tools and approaches to identify sequences of concern, we have also strengthened customer screening approaches. IBBIS developed and released a suite of [Know Your Customer \(KYC\)](#) resources tailored specifically for nucleic acid providers: model forms for new customers, decision-support workflows for high-risk orders, and a structured order form for sequences of concern. These are templates companies can adapt and integrate into their existing processes. We paired them with gamified training for DNA synthesis companies, biosafety professionals, and biofoundries.

Together, commec and KYC tools move responsible practice from principle to implementation, providing clarity for providers and making it easier to institute.

Deploying tools is only meaningful if we can verify they work. In 2025, [IBBIS launched the Screening Evaluation Portal](#) in partnership with the US National Institute of Standards and Technology (NIST), offering standardised evaluations of sequence screening quality using test sets developed monthly by NIST. It is the only global mechanism to evaluate the consistency and quality of screening systems. In 2025 alone, more than 15 evaluations were conducted across 5 datasets giving stakeholders an evidence-based view of whether screening is actually doing its job.

Knowing what to screen for: the Sequence Biosecurity Risk Consortium (SBRC)

Even the best tools and forms cannot solve a more foundational question: what, exactly, should organisations screen for? What should be considered a “sequence of concern” in the first place?

For too long, the definition of "sequences of concern" has rested on incomplete lists, inconsistent interpretations, and the individual judgement of software developers. Recent US and UK policy guidance has gone further, calling for screening of sequences that encode known pathogenic or virulent functions, which is an approach that list-based methods alone cannot deliver. We began changing that narrative in 2025 through the [Sequence Biosecurity Risk Consortium \(SBRC\)](#), which IBBIS convenes. I am proud of what the SBRC has achieved in its foundational year, with more than 60 subject-matter experts joining (and growing) and a financially self-sustaining structure, which allows the consortium to operate for years to come.

Bringing together synthesis providers, tool developers, policymakers, and researchers, the SBRC is developing scientifically grounded, consensus-based definitions of which sequences should be flagged to distinguish those that are clearly low-risk, and areas where scientific uncertainty remains. Its outputs are already

feeding directly into practice: informing how commec flags sequences, aligning providers' internal screening systems, and giving national export control authorities a more concrete basis for licensing decisions.

Bringing governments along: national workshops in Nigeria and South Africa

Standards and tools only travel as far as the policy environments that support them. In 2025, we developed a replicable model for in-country workshops that bring together synthesis providers, regulators, and policymakers in the same room.

Piloted in [Tanzania](#), and developed further in [Nigeria](#) and [South Africa](#), these workshops create a positive reinforcement loop: companies gain confidence that screening aligns with national expectations and does not impede economic interests, while policymakers hear directly from providers that robust screening is both technically feasible and commercially manageable. In 2026, we have plans to further adapt these in-country workshops to Brazil and Uganda, amongst others.

Engaging industry as a partner, not a bystander

Any durable solution to DNA synthesis risks must treat industry as an active partner. Companies operate the tools, interact with customers, and notice emerging patterns long before regulators do.

In 2025, IBBIS convened a core group of global biotechnology and pharmaceutical firms to explore how they can engage with biosecurity in ways that respect commercial sensitivities while advancing shared safeguards. [Together with partners such as the World Economic Forum and CEPI](#), we used those conversations to surface practical steps companies can take: integrating screening expectations into procurement, aligning internal governance with emerging standards, and sharing anonymised risk information where appropriate.

These efforts are early but promising. Major industry associations (including PhRMA and IFPMA) have signalled their willingness to bring leading pharmaceutical manufacturers into more focused conversations on biosecurity across North America, Europe, and East Asia in 2026.

Building the organisation behind the mission

None of this is possible without people. In 2025, IBBIS effectively doubled its core staff: we welcomed a Deputy Director, a Programme Lead for International Standards, a Bioinformatics Engineer, a Programme Manager, and an Operations Manager. I am proud to lead a full-time team of 10 that is truly international with 9 countries represented across three continents, bringing expertise from international organisations, government, industry and academia.

We also established core operating procedures for annual planning, monitoring, and setting a risk register, which guides IBBIS's direction of travel. These internal investments are less visible than a new map or software release. But they are what allow a small organisation at the intersection of science, policy, and industry to move quickly, support partners across time zones, and maintain the trust of governments, funders, and practitioners who depend on our technical independence. IBBIS is set to further solidify and expand its team in 2026.

Looking ahead to 2026

The achievements of 2025: a globally relevant screening tool, a first-of-its-kind synthesis map, a growing ecosystem of standards and expert consortia, deeper in-country engagement, and an expanded team. This represents real and meaningful progress.

In 2026, we will build on the momentum created in 2025. The Global DNA Synthesis Map will guide increasingly targeted regulatory advocacy; the DSSC will mature into an authoritative body for standards development; commec will reach providers who currently screen inadequately or not at all; and the industry conversations seeded in 2025 will produce tangible commitments across three continents. Our in-country workshops will also expand to new regions and sectors, helping embed expectations for responsible practice in the places where they matter most.

We have been working hard to prioritise how, where, and to what end we invest our expertise and resources. We have chosen to place our greatest efforts on countries that already have domestic DNA synthesis providers and desktop gene printing companies, especially when we could not identify rules that govern their use. We will be working particularly closely with regulators, experts, and the makers, providers, and users of synthetic DNA in BRICS countries. As a start, IBBIS has focused on redoubling our China engagement efforts.

Closing

IBBIS was established to fill a critical gap in the global architecture for preventing biological catastrophes. In 2025, that architecture became more tangible. This progress is the product of partners across governments, industry, civil society, and philanthropy who share the conviction that the benefits of bioscience can (and must) be realised safely and responsibly. On behalf of the IBBIS team and Advisory Committee, thank you for your trust, your questions, and your collaboration over the past year.

The work ahead is significant. We are glad to be doing it with you.

Piers Millett, Executive Director, IBBIS