NSTIx
National Security Technology and Innovation Exchange

Strategic Intent of the National Security Technology and Innovation Exchange

Innovate

Collaborate

Co-Create

December 2022

Foreword

In this fast-evolving and increasingly contested environment, developments and innovation in science and technology (S&T) provide both challenges and opportunities for the UK's prosperity and national security.

As we continue to realise the UK's ambition to achieve S&T advantage, our ability to innovate, collaborate and co-create in the national security space will be of increasing importance.

With the establishment of the National Security Technology and Innovation Exchange (NSTIx), we have the ability to drive a systematic and coordinated approach to innovation and technology development in the interest of UK national security.

Already, NSTIx has established new spaces to promote co-creation across government, academia and industry and has encouraged a deeper understanding of the opportunities and barriers for national security innovation.

By delivering on this ambitious strategy, NSTIx will foster greater coherence, tackle systemic barriers, and enhance diversity of thought in the national security S&T space. This important work will deliver collective benefits for the national security community as a whole.

Sir Patrick Vallance

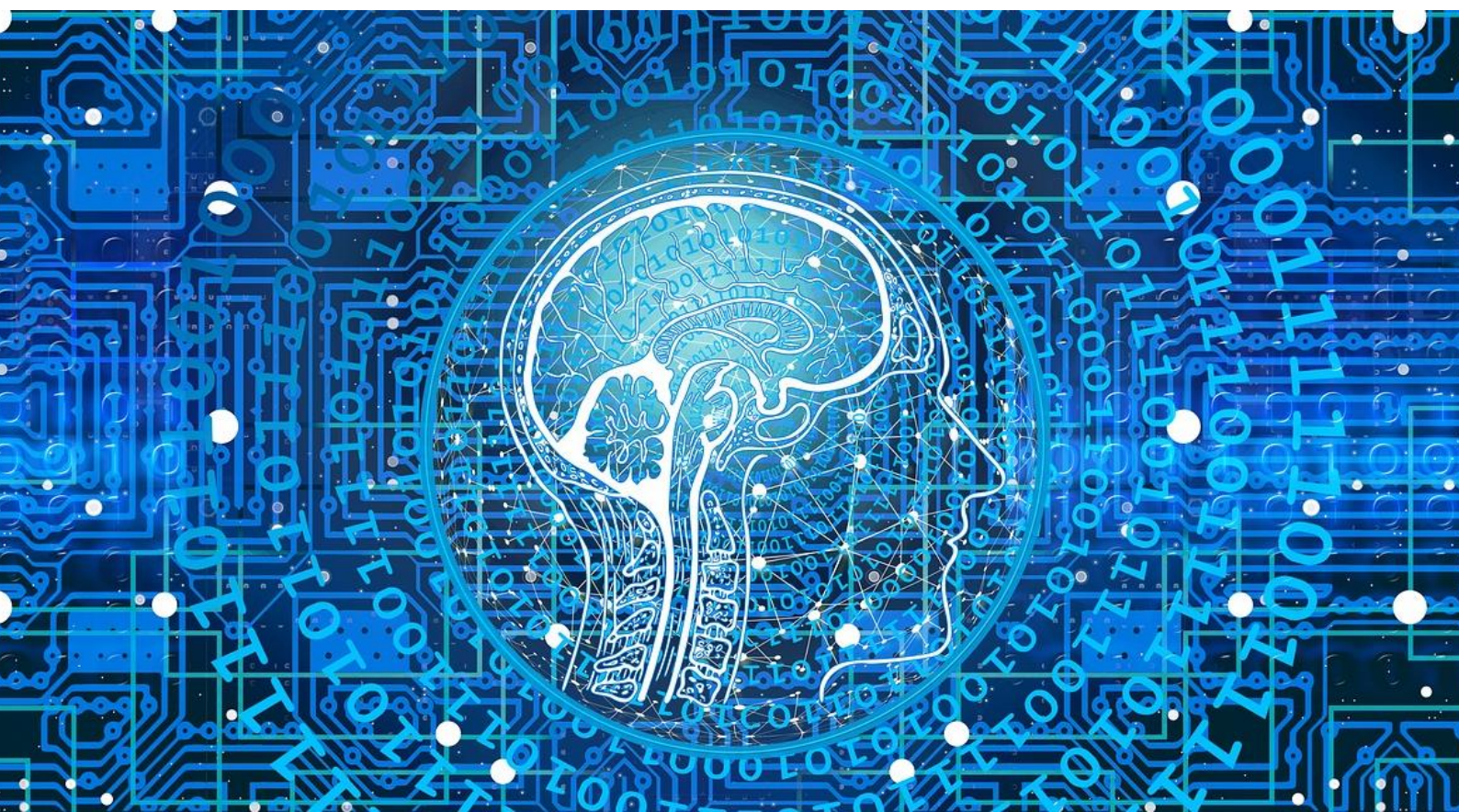Government Chief Scientific Adviser

Introduction

Dr Jane Williams, Head of NSTIx

We are in an era of rapid technological and scientific progress, driven primarily outside of governments. Our allies and adversaries are rapidly harnessing this progress and obtaining an advantage in a global context. To keep the UK safe and secure, we must draw on all our strengths and resources to take the opportunities and mitigate the vulnerabilities that emerge through progress in science, technology and innovation.

I am proud to lead the new National Security Technology and Innovation Exchange (NSTIx), set up in 2021 to help UK Government to meet this national security challenge. In our first year we have established ourselves as a multidisciplinary team, uniquely positioned within government to drive unprecedented change in how we work as a system. Through the five core services we have developed, NSTIx will connect and cohere the national security science, technology and innovation community across organisational boundaries in a way that has never before been achieved, to enable us to be greater than the sum of our parts. This will include increasing cross-government collaboration as well as increasing co-creation between government, industry and academia.

Through this document we aim to communicate the Strategic Intent of NSTIx. The content covers who we are, what we do, and our future direction which will underpin our future workplans and measures of success.

Exploiting an exciting opportunity for Science, Technology and Innovation

Science, technology and innovation (ST&I) are at the heart of the UK Government's ambition to deliver prosperity and national security.

The **National Security Technology and Innovation Exchange (NSTIx)** was a key recommendation from the Government's Integrated Review (IR) of UK Security, Defence, Development and Foreign Policy. It recognised real potential for government to better harmonise national security ST&I activities and deliver in partnership with a more diverse set of contributors, for greater shared impact and pace, to keep ahead of our adversaries.
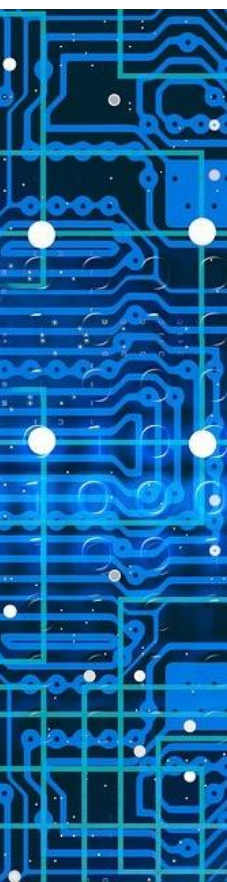
NSTIx was set up in April 2021 to amplify the opportunities and reduce the barriers faced by government in being able to innovate, collaborate and co-create to generate better national security capabilities and meet the challenges of tomorrow.

NSTIx is a government-focused system-level enabler that fosters coherence and collaboration across the government ST&I system while also equipping government with the tools, process and behaviours to co-create with industry and academia. It supports a highly complex and sensitive ecosystem to rapidly solve the most complex and pressing national security problems through ST&I.

Working in a highly complex ecosystem

The national security ST&I ecosystem includes multiple government departments, each playing a unique role in driving UK prosperity and national security, with opportunities to access a diverse set of innovators within the private sector and academia. While the roles of each organisation in this ecosystem are different, there are synergies in their activities. They may be exploring the same foundational technologies, drawing on the same resources in terms of skills and infrastructure or developing the same enablers around tools, processes, and culture.

NSTIx strives to develop connections across government, exchange knowledge and insight, and drive new ways of working around these shared areas of interest to enable a more dynamic and impactful community. An enhanced integrated government system, able to engage effectively with industry and academia, will strengthen the UK's ability to realise benefits from investment and bring the best diverse minds together to protect the UK and allow it to prosper.

Enabling the Science, Technology and Innovation ecosystem through innovation, collaboration and co-creation

NSTIx is uniquely placed, through our independent status and focus on the national security ST&I ecosystem, to enable UK Government to realise its full potential in delivery of ST&I for national security and be greater than the sum of its individual parts.

We **envision** a world–leading, agile and responsive national security ST&I ecosystem that amplifies the UK's strengths to secure operational and competitive advantage, through a more coherent and effective approach.

Our **mission** is to scale ST&I investments and impact on common priorities by coordinating and cohering across the national security system as a systems enabler.

NSTIx enables the ST&I ecosystem through three core pillars

Innovate

We focus on cross-cutting national security problems and enable a collective effort to pilot and share novel approaches to solving them through ST&I.

Collaborate

We make it easier for government organisations to work together, enabling collaboration across a highly complex ecosystem, even in the most sensitive national security environments.

Co-Create

We drive the co-creation of national security ST&I with industry and academia at the system level by developing and sharing best practice to bring together multidisciplinary groups of problem solvers from diverse communities that may not come together on their own.

NSTIx enhances the system

We complement the existing strategy, policy, and operational elements of government infrastructure to strengthen the impact of the collective output for the benefit of national security. Dedicated organisations and teams across the ecosystem will continue to lead their own areas of ST&I.

NSTIx

Tackling factors that impact Science, Technology and Innovation

Cultural and structural factors currently amplify barriers to ST&I for national security. NSTIx is focused on tackling these common challenges, allowing the UK to take better advantage of opportunities for collaboration and co-creation.

NSTIx provides added value by:

Identifying and addressing barriers to ST&I that are faced by the ecosystem collectively such as policy, process and regulation.

Making it easier to identify, connect and establish harmonious and productive **collaborative and co-creative relationships.**

Encouraging sustainable and efficient **use of scarce resources**, such as specialist expertise, facilities, or funds.

Reducing accidental duplication or gaps in ST&I activity between different teams/organisations.

Informing better or more rapid decision making, prioritisation and delivery through enhanced knowledge sharing.

Driving cultural change to **balance risks and learn fast** as positive ST&I characteristics.

Enhancing **diversity of contributors and thought** to drive better capabilities from idea through to impact.

Providing tailored services that support Science, Technology and Innovation

NSTIx has designed a set of 5 core enabling services to make our vision and mission a reality.

Our services are primarily government focused, complementing the ST&I activities of government teams. However, the services will also enable government teams to realise their goals more effectively by being better equipped to access the diverse supply base. In turn external suppliers will have a better and more consistent experience when working with government on ST&I programmes.

Provide cross-government ST&I Insights

We help people understand what is happening across the government national security ST&I community through a knowledge base of ST&I activities, case studies and best practice. We are also commissioned by government to cohere the view of the national security ST&I community on bespoke themes. We curate and communicate our insights across the ecosystem to inform others' decision making, prioritisation and delivery.

Connect the government System

We leverage our knowledge of who operates in the national security system and their current ST&I activities to connect government teams to collaborate more widely and faster. We support teams to use limited resources more effectively to increase diversity of thought, support agility in delivery and avoid accidental gaps and duplication.

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Tackle Barriers and Drive for Change

We provide a coherent voice to amplify shared opportunities and escalate the systematic and cultural barriers facing the government national security ST&I community, drawing on our central position, impartial stance, and our understanding of effective collaboration and co-creation with industry and academia. We share best practice across the system and pilot new ways of working, such as optimised commercial approaches.

Enhance Exploitation Opportunities

We help government national security ST&I teams to get the most out of what has already been done across the system both to enhance pull through and to maximise investment. Wherever possible we must reuse and advance the starting point of new work. We understand the complexity of investment in national security ST&I and give stakeholders a head-start to optimise their delivery of capabilities.

Champion Co-Creation

We lead a network of individual government-led co-creation spaces designed to bring together industry, academia and wider government stakeholders to apply ST&I to national security problems. We also lead forums that bring together government with industry and academic groups around cross-cutting themes. This allows sharing of best practise, drives common enablers, joins up opportunities and supports collaborative environments.
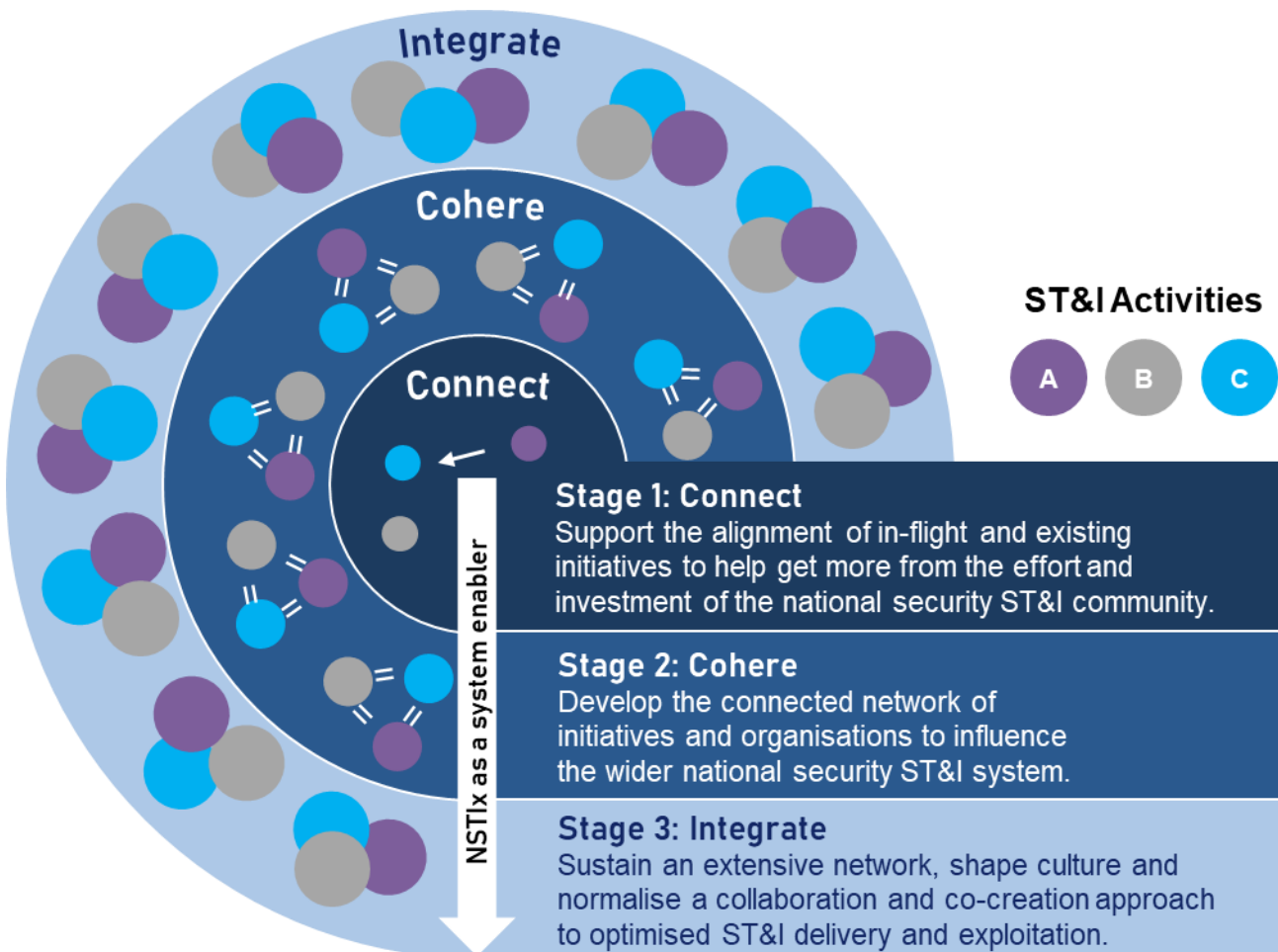
NSTIx will focus on connecting, cohering and integrating to enable effective interventions

NSTIx will not overburden the national security system. Our intent is to facilitate ST&I across government to get more from each investment, without providing additional bureaucracy or introducing delays to an already difficult pursuit. However, we do rely on engagement from across the system to build the required knowledge base and provide value. The content that NSTIx works with will come primarily from others. Therefore, without strong engagement and drive for change across our stakeholders, NSTIx cannot realise its vision and mission. Throughout our delivery, NSTIx will prioritise maintaining responsive connections with, and accountability through, the ST&I teams within the system.

NSTIx will take an ambitious but evolutionary approach to extending the reach of its services across three stages of maturity. We will start by using our services to identify and connect areas of clear thematic alignment across the government national security ST&I community. Beyond that, we will work to influence the systemic approach to collaborative S&T, and the ways of working and culture required to maximise the opportunities for co-creation with industry and academia.

▼ NSTIx's staged approach to connect, cohere and integrate the national security ST&I ecosystem

ST&I Activities

A B C

Stage 1: Connect
Support the alignment of in-flight and existing initiatives to help get more from the effort and investment of the national security ST&I community.

Stage 2: Cohere
Develop the connected network of initiatives and organisations to influence the wider national security ST&I system.

Stage 3: Integrate
Sustain an extensive network, shape culture and normalise a collaboration and co-creation approach to optimised ST&I delivery and exploitation.

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NSTIx will operate to the following principles

We recognise the complexity of the environment that we are operating in and will ensure we do not contribute to further incoherence.

We are a system-level enabler focused on the UK Government national security ST&I system. As such we engage with industry and academia at the group level to seek and share insights on improving how government engages to harness the systemic opportunities available. We engage internationally primarily to explore how other nations provide coherence across their national security ST&I communities.

We are not a tactical delivery organisation or funding body for individual ST&I initiatives. We promote industry and academia facing 'front-doors' focused on national security, such as:

- National Security Strategic Investment Fund (NSSIF)
- Accelerated Capability Environment (ACE)
- Defence and Security Accelerator (DASA)
- Joint Security and Resilience Centre (JSaRC)

We are impartial. We will not advocate for individual new or existing suppliers, solutions or capabilities.

The NSTIx staged approach initially prioritises ST&I initiatives with close thematic alignment across the ecosystem, gradually expanding engagement and influence.

We have built a multidisciplinary NSTIx team and trusted relationships across the national security ST&I ecosystem to develop knowledge of who is in the ecosystem and their cross-cutting ST&I interests. We have used this information to connect those interested in common themes.

We have developed relevant forums across national security entities, which bring together expert communities around holistic enabling themes such as commercial activities, to challenge the status quo, break down barriers, and develop and share best practice in exploiting investment in ST&I.

We have established a growing Co-Creation Network of themed spaces, that are working in partnership with industry and academia, to provide thought leadership in this new way of working and support the development of effective, user-driven technologies in areas critical to national security.

Setting NSTIx up for successful delivery

🏛 We will establish true cross-cutting sponsorship

To be effective NSTIx must maintain independence and impartiality. NSTIx's primary sponsors are the Government Chief Scientific Adviser and Deputy National Security Adviser (Intelligence, Defence and Security).

NSTIx is governed through a cross-government Senior Steering Group with relevant organisations represented, alongside sponsors, to enable advocacy at the most senior level that is cascaded through all levels and organisations. NSTIx has appointed an external challenge and advice function to provide independent scrutiny.

🧠 We will maximise the benefits of diversity in ST&I

There is compelling evidence that diversity unlocks innovation. Unleashing the full potential of the national security ST&I community requires the system to attract, cultivate and retain people who think differently about the world around us. We require leaders who value diversity of thought and provide a psychologically safe environment for everyone to express differentiated viewpoints and challenge the status quo thus banishing 'Group Think' that constrains how we solve problems.

NSTIx will champion diverse, inclusive teams of people whose insights and ideas reflect their different lived experiences and bring the fresh perspectives that can better enable innovation.

NSTIx will:

- Champion diversity across ourselves, innovation teams, co-creation spaces, suppliers and project delivery to maximise the innovative outputs.
- Support the amplification of equality, diversity and inclusivity (EDI) messaging to turbocharge ST&I, and tackle EDI challenges at the most senior levels.
- Co-create toolkits which empower teams to capitalise on the opportunities and resources which can facilitate EDI.
- Actively support our ecosystem teams who are advancing the EDI agenda.
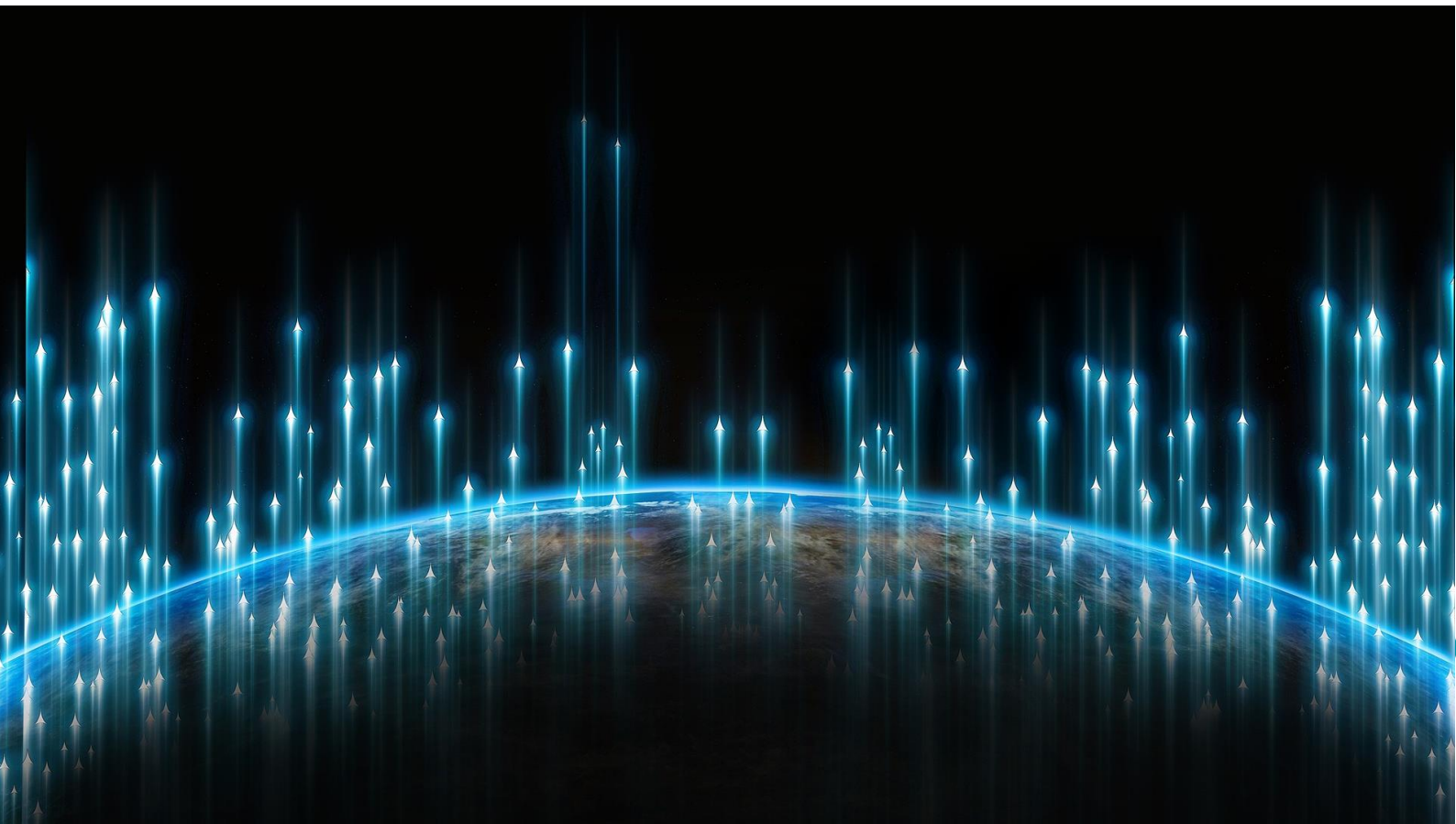
NSTIx

We will focus on sustainable outcomes for the community

We believe NSTIx can unlock tangible value and transformational impact for the collective benefit of the national security ecosystem.

Our ambition for NSTIx is to drive for a future where:

- Government national security ST&I teams feel well connected and are collaborating and co-creating as viable and valuable options for undertaking ST&I to leverage funding, resources, and ideas that would not otherwise be available.
- A common and coherent picture of the national security ST&I activities, opportunities and barriers is accessible to and used by those who need it, including industry and academia, using knowledge and insights drawn from across the system.
- There is no accidental duplication or gaps in national security ST&I investment or resourcing.
- The system is judged to hold less friction in terms of culture, policy, process and tools for innovation; it is more diverse and is optimised to working with industry and academia.

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