

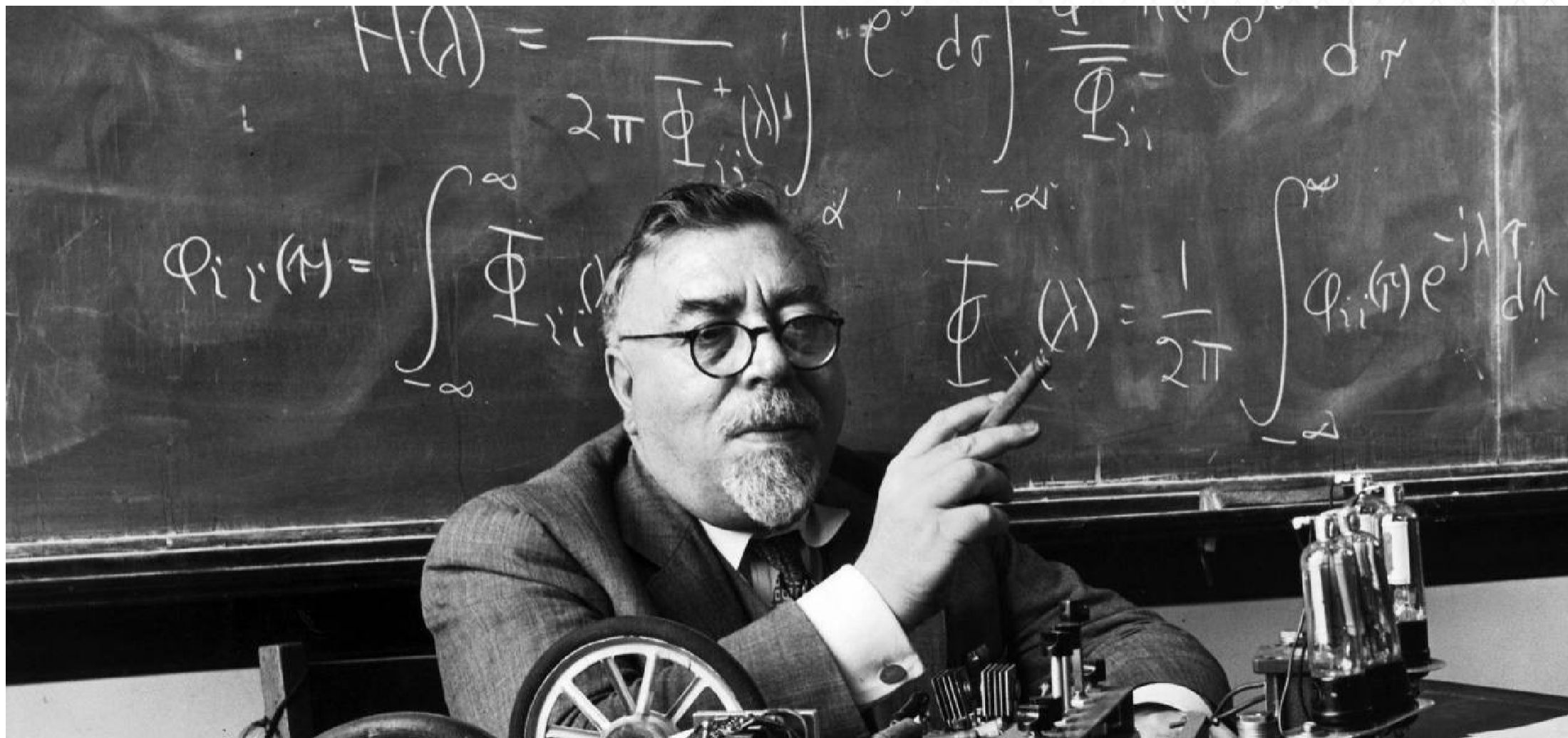
# DIANA: A multinational accelerator for emerging and disruptive technologies

Prof. Debon Ghana  
Incoming Managing Director, DIANA

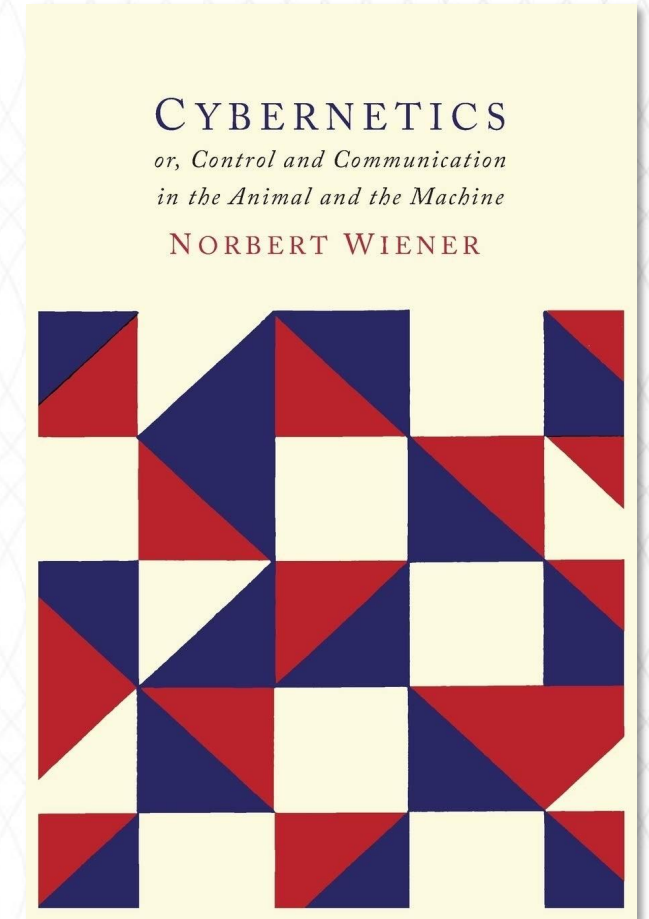
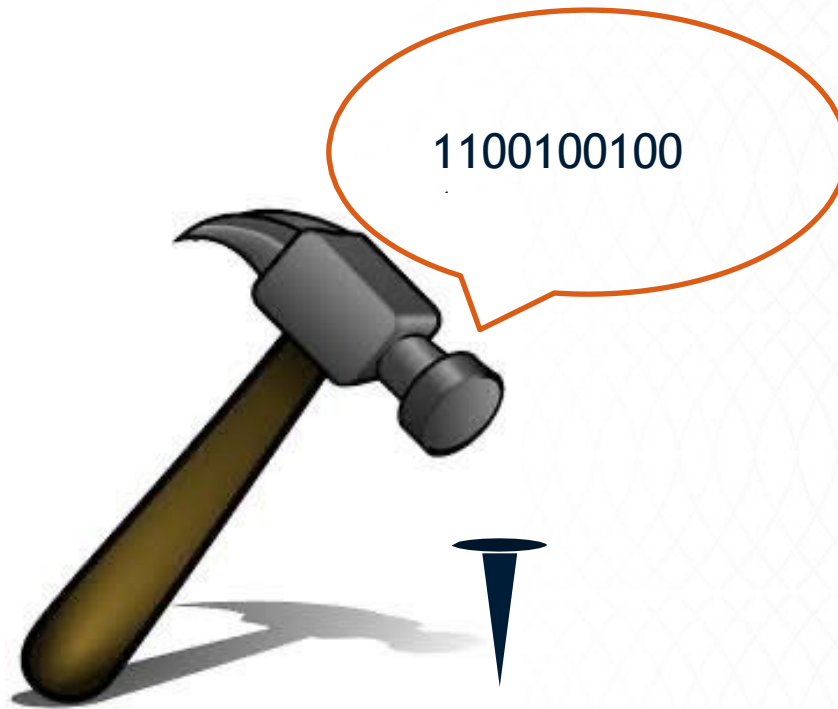
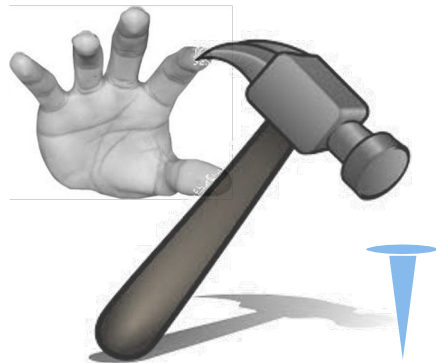
Imperial College London

*April 2023*





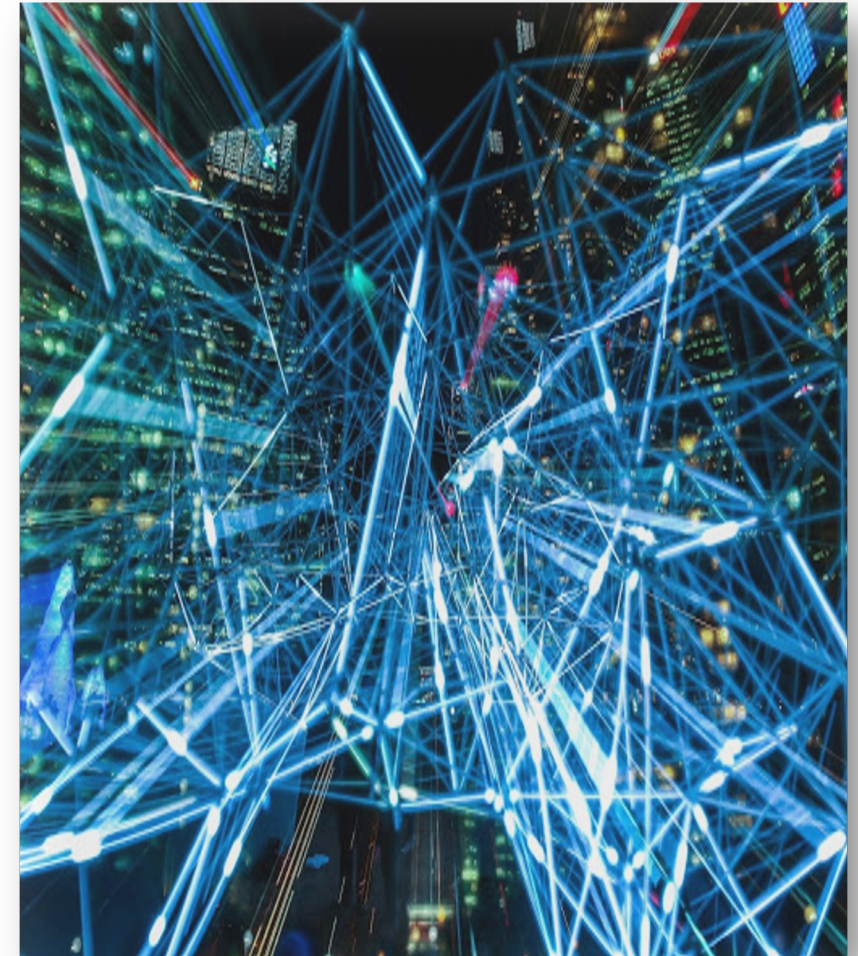
# Tools that can communicate: responding and taking actions in digital and physical ways ... cyber-physical





# Technologies and Domains

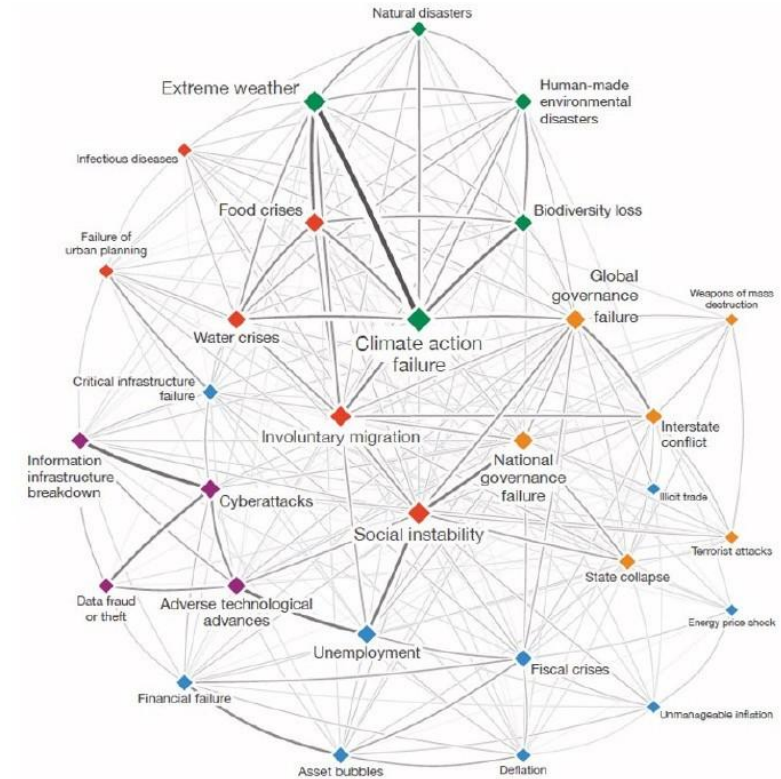
- NATO's innovation activities currently focus on key technology areas:
  - **Artificial Intelligence**
  - Data and Computing
  - Autonomy
  - Quantum-enabled technologies
  - Space systems
  - Manufacturing
  - Energy
- Focus on 'dual-use' technologies addressing societal resilience challenges, not just the traditional defense perspective
- *A holistic defence mission*



NATO - Topic: Emerging and disruptive technologies

# Holistic defence : The problem space

- Insecurity is driven by complex, interrelated global challenges, e.g.
  - Scarcity of water, nutrition, natural resources
  - Economic hardship
  - Political instability
  - Hostile threats from criminals, terrorists, nation states
- Understanding/tackling this complexity requires world-leading science and technology
- We are increasingly living in an **AI/ML powered** cyber-physical world



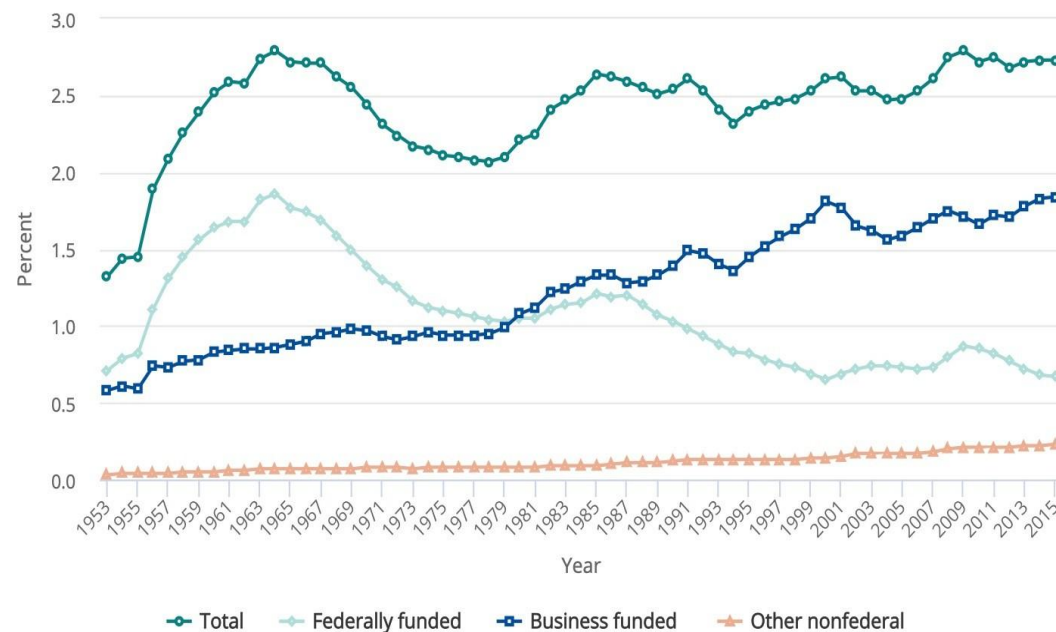




# Some current defence technology challenges

- Track developments at the cutting edge and those over the horizon.
- Identify priority areas for focus; from the perspectives of both opportunities and risks
- Technical literacy amongst Government bodies is lacking in many countries
- Tech development and adoption is occurring at an unprecedented pace
- Shift from Governments' housing leading technology to multi-national corporations is established
- Securing the talent pipeline for the future

Ratio of U.S. R&D to gross domestic product, by roles of federal, business, and other nonfederal funding for R&D: 1953-2015



# A key role for NATO

- Establish agreements and principles of responsible use for emerging technologies in the defence and security domain
- House innovation coordination mechanisms to enable the maintenance of a leading edge in technology development
- Combine the excellence in STEM-B that is distributed throughout it's unique multinational membership
- Establish a technology transfer pipeline to ensure continuity of technical excellence
- Attract the next generation of high calibre talent
- Co-develop, Invest, Edify



[210303-EDT-adv-grp-annual-report-2020.pdf](#)  
([nato.int](#))



# Defence Innovation Accelerator for the North Atlantic: DIANA



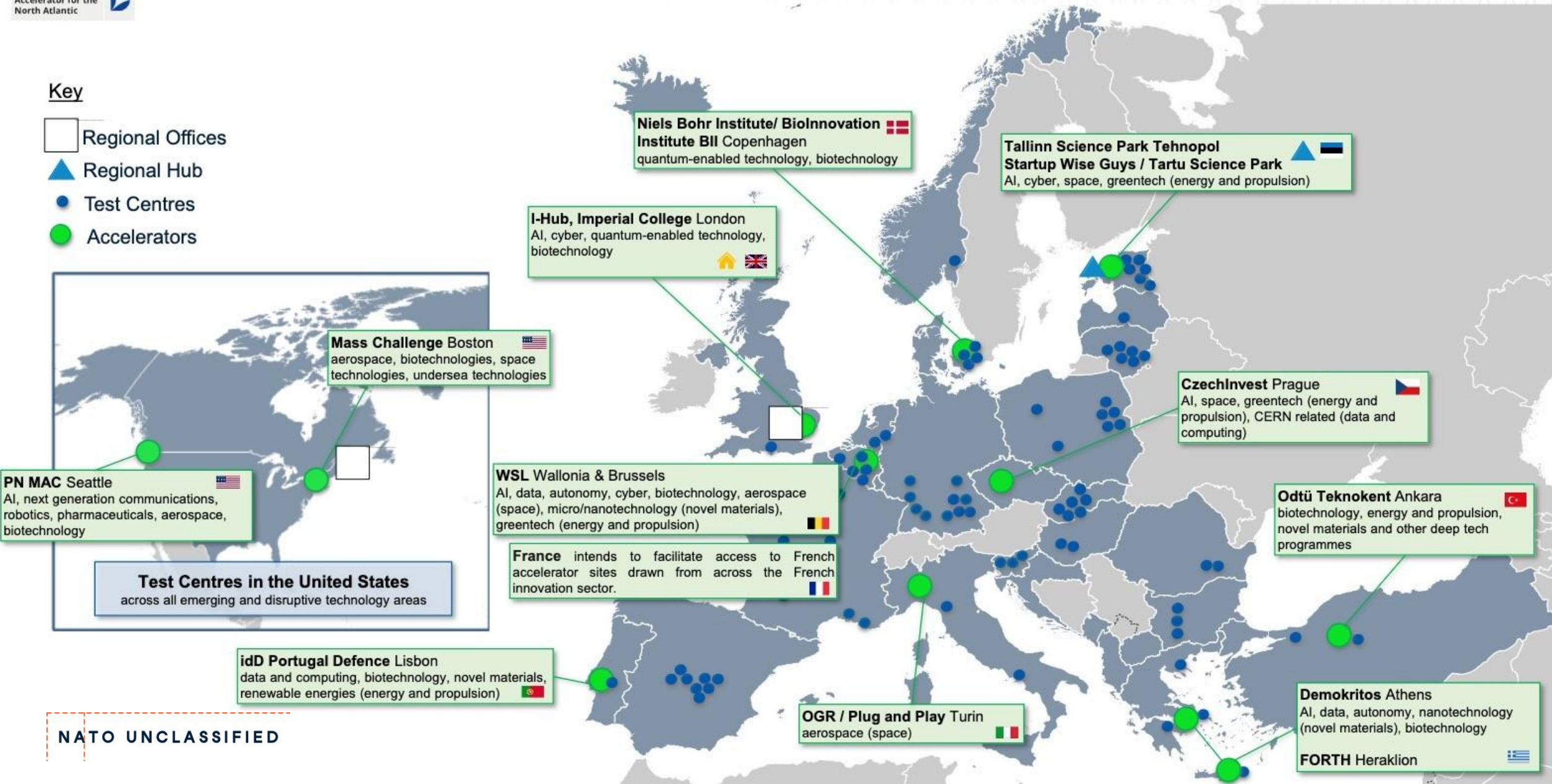
- Convene triple-helix stakeholders: government | industry | academia
- Fund research by through a network of accelerators: development and translation in key Emerging & Disruptive Technologies (EDTs)
- Establish a network of prototyping and test facilities from across Allies
- Operational timeline: initial operational condition in 2023 □ fully operational by 2025

# Updated DIANA footprint: Accelerator sites

March 2023

## Key

-  Regional Offices
-  Regional Hub
-  Test Centres
-  Accelerators



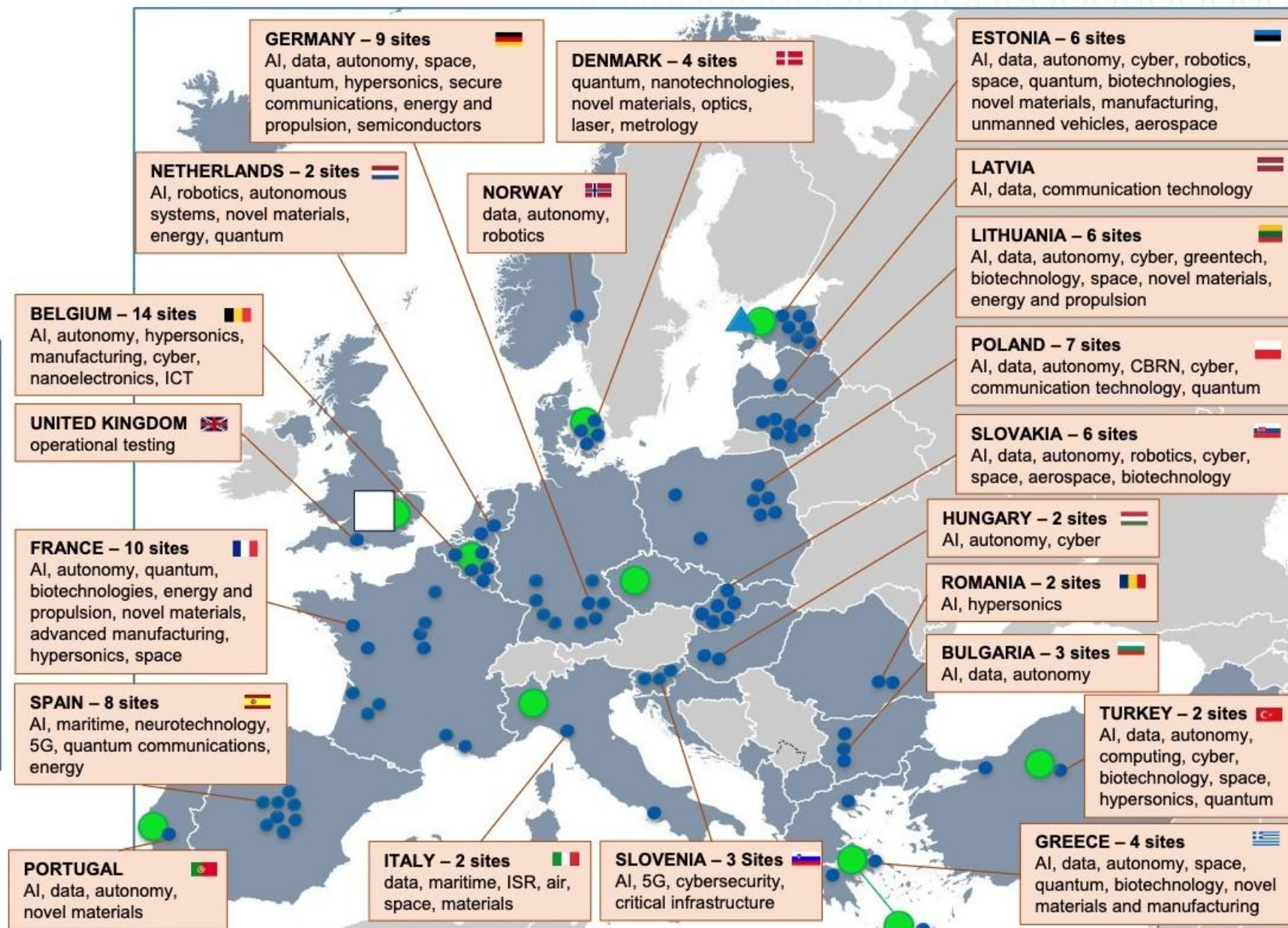
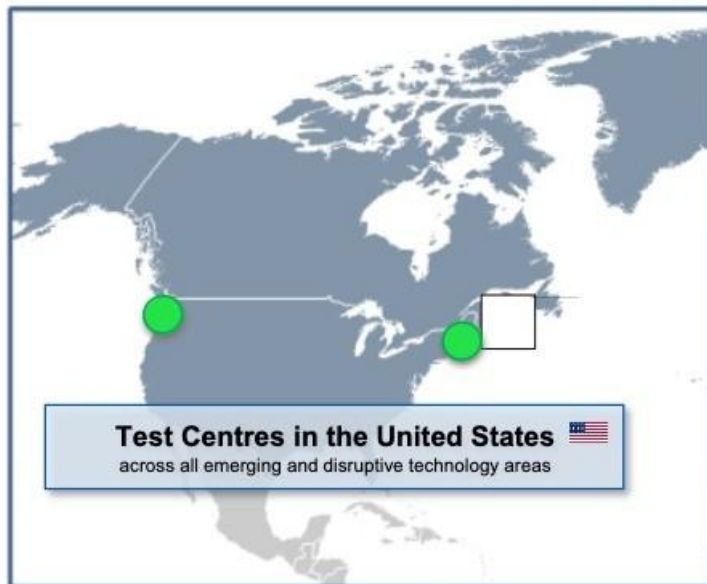


# Updated DIANA footprint: Test Centres

March 2023

## Key

-  Regional Offices
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# Defence Accelerator for NATO: DIANA

## DIANA'S ELEMENTS INCLUDE:

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### TEST CENTRES

A transatlantic network of over 63 technology Test Centres to enable innovators to engage in co-development with operational end-users and to conduct testing, evaluation, verification and validation of their proposed solutions

### ACCELERATOR NETWORK

A transatlantic Accelerator Network leveraging over nine accelerator sites to boost the development of technological solutions by innovators through a competitive deep tech start-up accelerator program.

### TRUSTED CAPITAL DATABASE

Trusted Capital Database to match vetted Allied innovators with trusted investors;

### RAPID ADOPTION SERVICE

Rapid Adoption Service to leverage NATO as a contracting vehicle to rapidly procure technological solutions;



# DIANA & NATO Innovation Fund

At the 2022 Madrid Summit, 22 Allies launched the NATO Innovation Fund, the world's first multi-sovereign venture capital fund. Since then, significant steps have been made to fully establish the Fund by NATO's Vilnius Summit in July 2023.

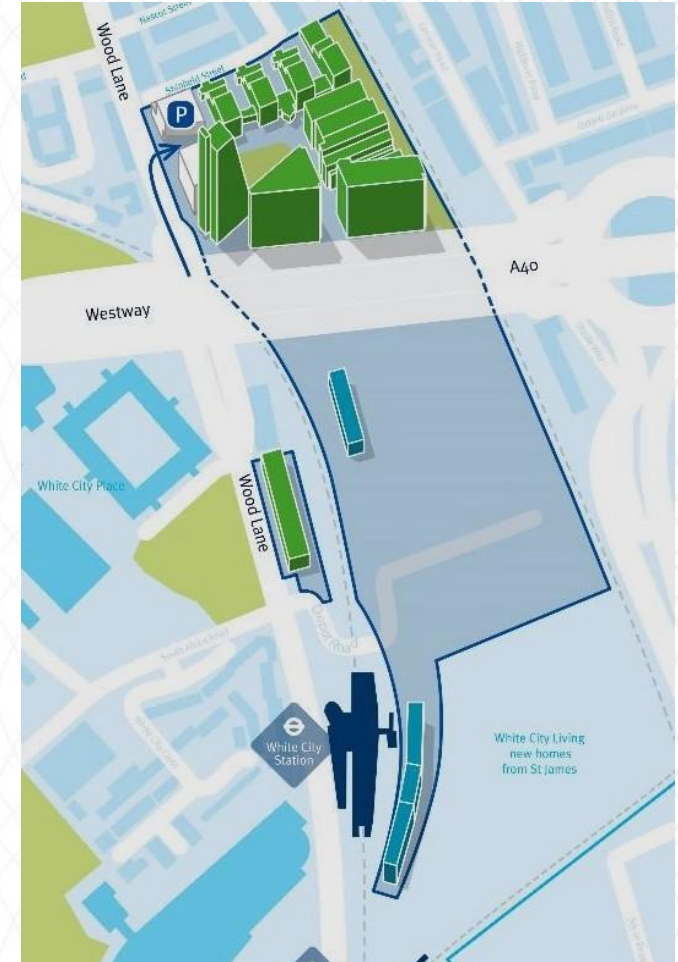


NATO Secretary General Jens Stoltenberg at the Signing Ceremony of the NATO Innovation Fund Letter of Commitment (30 June 2022)

- EUR 1 billion VC fund: strategic investments in start-ups developing dual-use emerging and disruptive technologies critical to Allied security.
- World's first multi-sovereign venture capital fund.
- Focus on early-stage investments in deep-tech such as AI aligning with objectives:
  - to seek out cutting-edge technological solutions
  - to bolster deep-tech innovation ecosystems across the Alliance; and
  - to support the commercial success of its deep-tech start-up

# Features of this technology engine

- Administrative heavy practices □ **agility and flexibility**
- **Protected** environment to mitigate risks of technology loss to undesirable markets/investors
- Enable greater **inclusivity and diversity** in the mission of NATO – appealing to future talent
- End-to-end horizon scanning, development and implementation portal; dovetailing with domestic efforts
- Game changing proposition for a world that is being transformed by game changing technology
- Establish a more **responsive and dynamic** technology system that is able to react to shifting challenges
- **Engineering serendipity**





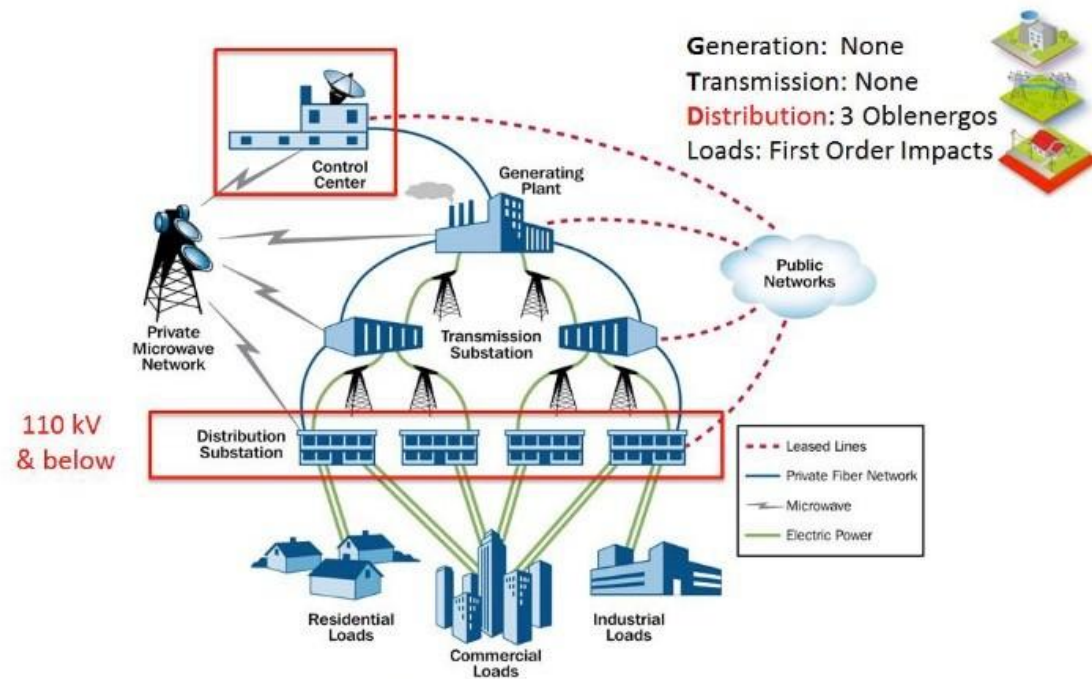
# Global insecurity, security, warfare and dual-use

- Problems of warfare and issues related to broader global insecurity challenges: the former is a subset of the later
- Primary defence mission should be to make the conflict subset as small as possible for sustainable security
- Deploying technology to better understand human activity can serve a dual use:
  - Assets can enable us with our short-term, hopefully short-duration, conflict campaigns
  - Same assets can provide the means by which we can monitor and mitigate drivers of conflict – e.g. drivers being climate change



## Dual-use ...

# Energy security and infrastructure resilience



Source: Modification to the DHS Energy Sector-Specific Plan 2010



Firefighters tackle a blaze at a thermal power plant damaged by a Russian missile attack in Kyiv [State Emergency Service of Ukraine/Handout via Reuters]





Dual-use... the  
environment

500 nm  
JAN 7, 2021 - FEB 5, 2021



Founding partners OCEANA SKYTRUTH Google

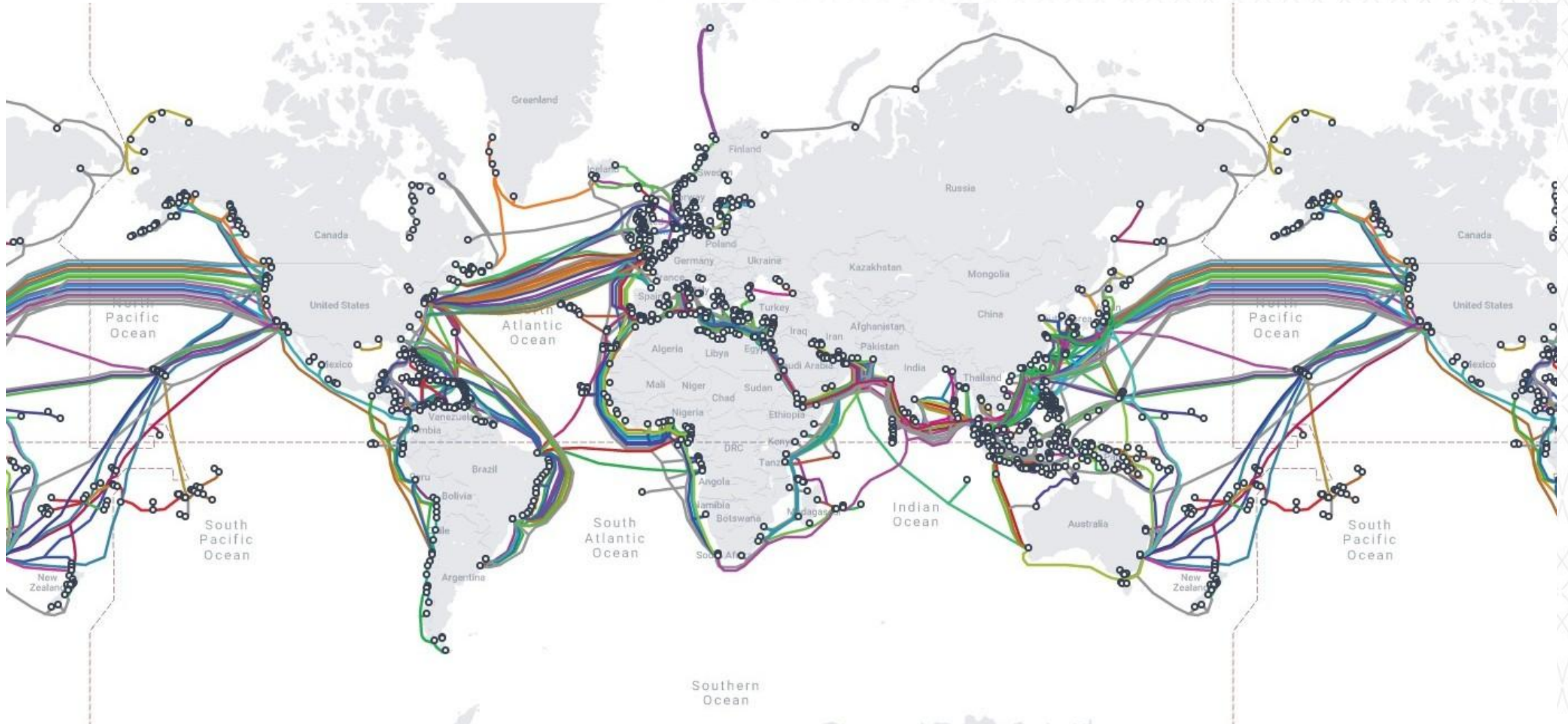
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## The *resilience* of data and information systems







Dual use ...

**Space systems: communications,  
spoofing time and position,..., the debris  
problem**

# Engage



## Innovators

We're strengthening our product-market fit! We want to learn more about the start-ups who share our vision. If your company is headquartered in a NATO member nation, developing a **deep technology** and building a dual-use solution, we want to know about you. We want to ensure our programme best fits your needs.

[Connect with us](#)



## Investors

We're helping source your next investment! DIANA will de-risk investments in companies going through our challenges by conducting business and technological due diligence, and by demonstrating that technologies coming out of our accelerator have significant market opportunities. We want to partner with proven, deep-tech and dual-use investors to support our innovators.

Investors can receive invitations to exclusive events, demo days and reports from our test centre network on the progress of product development.

If you're interested, and are headquartered in a NATO member country, get in touch.

[Connect with us](#)



## Mentors

We're fostering and protecting the next generation of dual-use and deep tech solutions, and the start-ups and small companies who are developing them. If you have the expertise – whether technological, investment, scientific, business engineering, procurement or military – that can help them deliver and thrive, get in touch.

[Connect with us](#)

## Our commitment to diversity

NATO's DIANA challenge programme is committed to diversity and inclusion, and welcomes eligible applicants from all NATO member countries, independent of gender, age, nationality, ethnicity, religion or belief, cultural background, sexual orientation, and disability.



# Connect with us ...



<https://www.diana.nato.int/>



<https://www.linkedin.com/company/nato-diana/>