



EUROPE

2025–2026

SPOTLIGHT



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Introduction

As we enter 2026, the global order is undergoing a series of pivotal shifts. The United States has a new National Security Strategy which emphasises sovereignty, border control, military strength, economic independence, technological leadership, and a new focus on the Western Hemisphere. At the same time, China's sustained investment in infrastructure, manufacturing modernisation, tech self-reliance, and critical minerals continues to reinforce its status as a global power, influencing the international agenda and shaping new norms. Across Europe, these shifts reverberate through economies and

social systems alike, as governments strive to respond to complex challenges to security – while reinforcing societal and institutional resilience.

Faced with this context, the need for evidence-based policymaking has never been greater. RAND Europe's research continues to help leaders navigate this geopolitical instability, ensuring rigorous analysis is translated into real-world impact.

The theme of impact lies at the heart of RAND Europe's work and is a central focus of *Spotlight 2025–2026*. From evolving perceptions of nuclear

deterrence to examining the strategic importance of space as both an opportunity and a risk, and from advancing innovation in healthcare to addressing the rising challenge of youth violence, RAND Europe remains at the forefront of the critical issues shaping the future of the UK, Europe, and the world.

Our reach also extends beyond Europe to the Middle East and further afield, where RAND Europe contributes to international dialogue and policy development.

But impact goes further than our research findings. In 2025, we amplified our reach and influence through new initiatives designed to connect evidence with action. We launched our Data Science Lab to harness the potential of AI and advanced analytics in shaping future research, introduced a webinar series bringing together RAND Europe experts and industry leaders to debate pressing global challenges, and convened the Foresight Forum to explore the trends redefining policy and strategy.

In January 2026, I am proud that we will host our inaugural Impact and Innovation Forum, uniting policymakers, researchers, and partners to address the UK's most complex economic, societal, and security challenges.

Finally, our heartfelt thanks are extended to our partners, clients, and grantors. Your valued support and collaboration enhance our ability to achieve our goal of improving policy and decision making through rigorous analysis and objective research. Thank you for your ongoing engagement with RAND Europe.

A handwritten signature in black ink, appearing to read 'Hans Pung', with a large, stylized loop at the end.

Hans Pung
President



Mobilising industry and society for European security

In an era defined by geopolitical competition and hybrid threats, national resilience depends on the ability to rapidly scale defence-industrial capacity, attract and retain specialised talent, and foster a shared national understanding of the role that both society and industry play in deterrence and preparedness. The 2025 UK Strategic Defence Review (SDR), co-authored by RAND Europe Impact and Innovation board member Lord George Robertson, highlighted the importance of a resilient and capable industrial base for deterrence.

While the SDR sets the tone for a more urgent mobilisation of industry and society, realising this vision requires a fundamental shift. In 2025, RAND Europe's research provided vital evidence and analysis to help UK and Europe policymaking institutions mobilise industry and society effectively in support of collective defence.

In 2025, we have been at the forefront of conversations across Europe on these matters. In May, we co-hosted a round table with the



Representation of the European Commission in The Hague, which examined how European and Dutch strategies for defence industrial innovation and production can align more closely. In November, our Centre for Defence Economics and Acquisition partnered with the London Stock Exchange to host a high-profile forum on harnessing the value of defence. And in December, we supported the delivery of the second Defence Futures Forum hosted by UK Military Strategic Headquarters, on the theme of National Effort. It included keynote speeches from the Rt Hon Alistair Carns MP, Minister for the Armed Forces, and Air Chief Marshal Sir Richard Knighton, Chief of the Defence Staff.

Netherlands prepared: lessons from war economies to mobilise a resilient society

As they face a worsening security environment, European governments and societies are currently looking at enhancing their military preparedness. Lessons can be drawn from so-called 'war

economies' to understand what trade-offs this may involve. RAND Europe explored what a war economy could mean for modern societies facing exogenous threats in a study commissioned by the Dutch Ministry of Defence. Drawing lessons from approaches to preparedness and wartime economies in the UK, Sweden and Ukraine, RAND researchers characterised a war economy as one in which the government systematically intervenes to increase societal resilience and military preparedness in pursuit of strategic goals during conflict. They delivered the following recommendations to Dutch policymakers:

- **Increase societal resilience:** Social cohesion and integration between ministries is necessary for resilience. Cultivating a national will to fight is essential for a society's ability to withstand military conflict.
- **Strengthen insight into supply chains:** Supply chains across national, EU and NATO levels should be strengthened through diversification, stockpiling and reshoring strategies.



Through our project, *The Netherlands Prepared: Lessons from War Economies for a Resilient Society*, we identified key ways to mobilise not only the defence sector but also broader industry to effectively prepare the Netherlands for conflict. In doing so, this study also offers valuable insights for other European countries, at this critical time.

Judith Huismans, Research Leader



- **Focus on deeper EU coordination:** Cooperation with EU partners and further integration of the European defence industrial base is crucial to increase resilience.
- **Clarify legal frameworks:** Proposed legislation should be reviewed to avoid an overlap between regular crisis law and constitutional mechanisms relating to state emergency law.
- **Intensify coordination with industry:** The Dutch government could better respond to threats by involving companies from across the Dutch economy, beyond defence.

These publicly released findings were picked up widely by Dutch media and briefed to the Dutch Ministry of Defence by the research team.

Building NATO's digital capabilities

Enhancing digital capabilities can strengthen both industry and society by driving innovation,

improving efficiency and building the technological edge essential for modern defence. As NATO leaders prepared to gather for the June Summit in the Hague, RAND Europe was commissioned by Microsoft to inform NATO thinking around its integration and use of new technology.

Our analysis investigated how the lack of consistent definitions of 'digital', 'digital capability' and 'digital transformation' can jeopardise effective cooperation, underscoring the critical need for a shared understanding of these concepts across the defence community.

Despite the importance of digital capabilities to achieve core tasks, their development within NATO is marred by obstacles. Our team examined the resourcing and cost of digital capability development, identifying solutions to current barriers embracing spiral development and closer collaboration with industry and innovation partners to keep pace with technological change.

We also explored the potential outcomes of NATO's digital transformation, finding that success in this area bolsters European technological leadership, while failure could undermine industrial competitiveness and strain EU-NATO relations. RAND Europe's analysis showed that interoperable digital transformation is vital to sustaining NATO's collective defence, resilience and readiness amid an increasingly complex global security landscape.

Forging the future: the Dutch metals industry

Recognising that industrial strength is inseparable from national defence, RAND Europe was commissioned by the Dutch Ministry of Economic Affairs and Climate to assess the future prospects of the Dutch metals industry.

Our analysis found that the metals industry comprises two main sectors: the basic metals sector, dominated by a small number of large, international companies producing metals as raw material, and the metal products sector, consisting of mainly small and medium-sized enterprises

(SMEs) using metals to produce secondary and high-value components. The products sector is integral to a broad array of national industries, collectively forming a flexible and innovative ecosystem that underpins the Dutch economy.

However, our experts also highlighted growing structural pressures within the sector. The metals industry is struggling to attract sufficient skilled workers, and high labour costs are limiting competitiveness. These vulnerabilities risk constraining the capacity of the industrial base to respond effectively to future demand, including in the defence and security sectors.

A consistent, long-term strategy is essential to sustain innovation and ensure that the metals industry is ready to be mobilised in support of national resilience. To safeguard and strengthen this capacity, RAND Europe recommended that the Dutch government adopts a strategy that supports the entire industrial ecosystem through better technical education, targeted assistance for SMEs to advance digitalisation and decarbonisation, and energy policies that reduce network congestion.

RESEARCH IN ACTION

UK defence industrial strategy

Over the past year, experts in our Centre for Defence Economics and Acquisition provided the UK Ministry of Defence with evidence-based insights and international comparisons to inform their approach to the 2025 Defence Industrial Strategy. Our contribution, noted in the DIS, supports the government's plan to make defence an engine for growth in the UK, working towards a vision where the people of our country feel the maximum benefit from increasing defence spending and the UK has a more competitive, integrated, innovative and resilient defence sector. We look forward to continuing this close engagement as a number of the proposed policy areas move into consultation in the coming months.

Navigating the evolving landscape of space

We are witnessing a profound transformation in the way that humans utilise and interact with space. Governments, militaries and commercial actors around the globe are expanding space activities which have come to underpin many aspects of modern digital society, from communications and navigation to surveillance and data exchange.

Defined by RAND experts as a ‘second space race’, this evolving environment is characterised by both immense opportunity and emerging risk. For Europe, engagement in space is essential to continuing economic prosperity, defence and security, and technological leadership, as well as our modern way of life.



To help policymakers navigate this rapidly changing landscape, this year the RAND Europe Space Hub (RESH) has undertaken a range of UK- and EU-funded studies examining the changing landscape of space policy, security, technology, and innovation or industry programmes.

Evaluating the benefits of the UK's investments in the European Space Agency

Historically, the UK has advanced its space goals through the European Space Agency (ESA) and other international collaborations, sharing costs and reducing risk. However, with the UK having articulated an ambitious vision to secure a 10 per cent share of the global space market, RAND Europe experts have identified a crucial window of opportunity for the UK to exploit its potential

in space and ensure it is not left behind by other nations' rapidly growing space capabilities and industries.

The UK has been a key member of ESA since its founding in 1975,

contributing to its programmes and technological innovation. Managed by the UK Space Agency (UKSA), this partnership provides access to European space infrastructure and collaboration with other member states, with around 70–75 per cent of the Agency's annual budget dedicated to ESA activities.

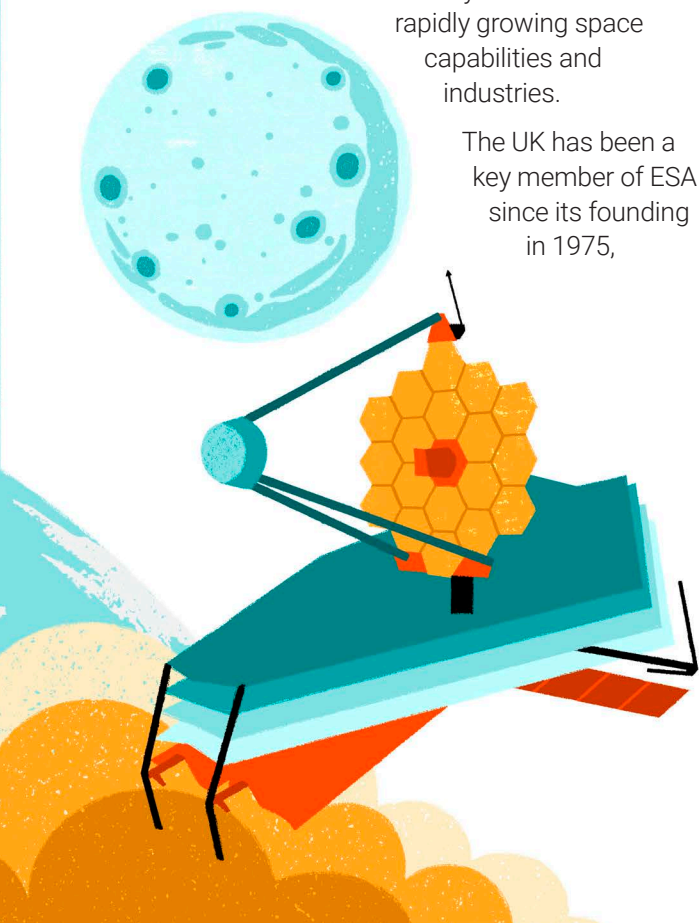
RAND Europe research, commissioned by the UKSA, found that the UK's investment in ESA offers substantial benefits in capability development, international influence and economic return.

Researchers from our Science and Emerging Technology (SET) team found that the UK derived £7.49 of economic returns from every pound invested in ESA programmes. Our analysis provides strong evidence that ESA contracts generate significant and sustained economic gains for UK firms, boosting turnover, employment, productivity and private R&D investment. These findings offer robust evidence that continued engagement in ESA not only advances national space capabilities but also serves as a driver of economic growth, generating enduring economic benefits across both local and national levels.

Moreover, our research highlighted how the UK's long-standing engagement with ESA has enabled domestic organisations to develop world-leading technologies, facilities and mission leadership capabilities. Examples include the UK's significant contributions to lunar and planetary exploration missions, as well as the Lunar Pathfinder project which repurposes low-earth orbit technology for deep-space communications.

The UKSA plays a pivotal role in helping UK entities participate in ESA programmes, acting as a vital bridge between policy and industry.

Our researchers concluded that very few of the benefits outlined above would be achievable





RAND Europe's evaluation found that the UK space sector gains £7.49 for every £1 invested into ESA. This finding has been quoted widely by UK government officials, and our recent evidence submission was cited 28 times by the House of Lords UK Engagement with Space Committee.

Chris Carter-Gordon, Senior Analyst



outside of ESA. We recommended that to fully realise the benefits of ESA membership, the UK should adopt a unified long-term strategy that aligns government, industry and academia around shared objectives – translating the original promise of the National Space Strategy into more urgent and concreted implementation. Greater cross-government coordination and sustained investment – from early-stage intervention to full mission integration – will be vital to strengthening national capacity, maximising economic return, and securing the UK's position as a leading space power. Many of these RAND recommendations have been echoed in a subsequent report from Parliament on the future of the UK space sector, to which the RESH contributed both written and oral evidence.

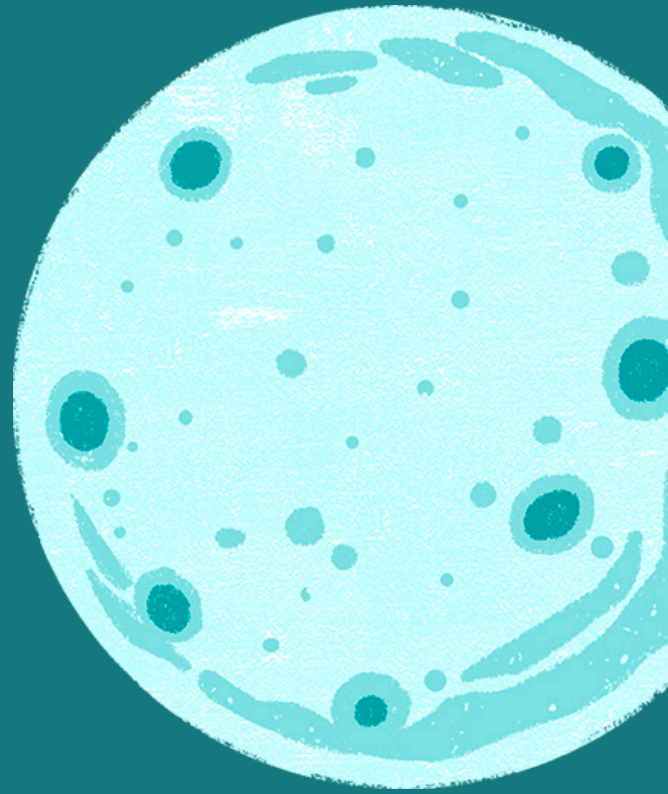
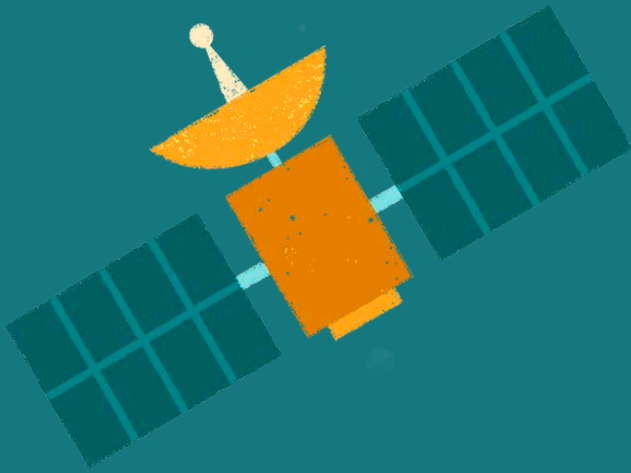
Space security and governance

Elsewhere this year, researchers from the Defence, Security and Justice (DSJ) team analysed the evolving landscape of space governance and space security, with a particular focus on the growing hybrid threats in outer space and the

potentially destabilising effects of new space and counter-space technologies.

This includes a three-year project on the implications for strategic stability of dual-use space systems – meaning those with civil, commercial and possible military applications, bringing ambiguity about their intended use. Working with RAND colleagues in the US, the RESH team is delivering a series of virtual and in-person Track 1.5 dialogues, bringing together regional experts and government or military stakeholders from each of Europe, the Americas and the Indo-Pacific.

In parallel, RAND Europe published the results of a social network analysis, mapping the growing complexity of space actors and their activities. Competing priorities around infrastructure, exploration and resource use heighten the risks associated with global security and prosperity. While both state and non-state actors recognise the urgency of strengthening space governance, it remains a collective-action challenge that demands multilateral cooperation at a time of increased tension.



Case study

RAND Europe Space Hub

At the RAND Europe Space Hub (RESH), our teams recognise space as a fundamental part of our everyday lives, providing clients (including national governments, militaries and NATO) with a deep understanding of the complex issues affecting the civil, commercial and defence space sectors.

RESH conducts research on a plethora of pressing space-related topics. Recent examples include the future use of space, factors shaping the implementation of the UK's National and Defence Space Strategies, research for the European Commission on support to the EU space industry,

and an analysis of the implications of emerging technology for space regulation policy. RAND Europe has also led the evaluation of various major UKSA initiatives, such as the National Space Innovation Programme and the Centre for Earth Observation Instrumentation. This year, RESH members have provided expert testimony at multiple UK parliamentary inquiries, spoken at the United Nations in Geneva, participated in conferences and panels across Europe and the United States, contributed to Track 1.5 and Track 2 dialogues, and been quoted widely in the media.



Exploring perceptions and realities of European nuclear deterrence

As the threat from Russia continues to pervade European security debates and US foreign policy increasingly pursues other priorities, legitimate questions are emerging about Europe's nuclear deterrence capabilities. Can Europe deter exogenous threats without the safety net of the United States?

France and the UK, Europe's two nuclear powers, remain central to Europe's deterrence posture. Both nations reaffirmed their determination to strengthen nuclear coordination through a series of key declarations in July 2025.

As made clear by the UK's Strategic Defence Review, a modernised nuclear deterrent remains the cornerstone of Britain's defence. Yet the credibility of this deterrence depends not only on capabilities, but also on perception: adversaries must believe both in the practical capabilities of the weapons, and in the willingness for the country to use them. In short, the European deterrence can only be effective if it poses a credible risk of retaliation that a Russian leader cannot dismiss.

To provide policymakers with an enhanced understanding of its effectiveness, RAND Europe experts examined European nuclear deterrence through three interconnected lenses:

- 1 How British and French nuclear weapons are perceived in Russia
- 2 How Russia's strategic culture drives its thinking on the potential use of Non-Strategic Nuclear Weapons (NSNWs)
- 3 How NATO allies interpret Russia's nuclear doctrine

Perception from Russia

To ensure that European nations maintain a credible nuclear deterrent amid rising tensions with Russia and heightened uncertainty in transatlantic relationships, it is essential to understand how Moscow perceives Europe's nuclear posture. RAND Europe researchers were commissioned by the UK Ministry of Defence to conduct a comprehensive review of publications

by Russian military experts between 2010 and 2024 to provide policymakers with a better understanding of Russia's evolving perceptions of the British and the French nuclear deterrents.

In the reviewed literature, our Defence team found that Russian military experts largely regard the United Kingdom's nuclear deterrent as technically capable and credible yet heavily dependent on the United States – an interpreted weakness. Our researchers also found that Russia tends to view the principal purpose of the UK's nuclear deterrent as a tool to reinforce Britain's status as a global power, rather than it serving as a direct deterrent to adversaries.

The French nuclear deterrent, by contrast, is perceived by Russian sources as being the most advanced and independent in Europe. But as with the British deterrent, our analysis found that questions remain around its perceived intent. Russian commentators frequently note France's historically 'friendly' stance towards Moscow, leading them to perceive French nuclear

capabilities as credible in substance, but not directed against Russia.

This perception could, however, evolve as recent remarks by President Macron considering the potential extension of France's deterrence umbrella to European allies may prompt Russia to reassess the Élysée's intent.

When extending the Russian lens to NATO deterrence, our research revealed that Russian thinking is shaped by its view of the alliance as a mechanism for US foreign, defence and security policy, strengthening America's position globally. As such, the British and French nuclear deterrents are rarely discussed in the context of NATO's nuclear deterrence, which primarily focuses on the US nuclear arsenal.

Our work concluded that strengthening European nuclear and conventional capabilities, through increased Franco-British cooperation among other things, is no longer simply a desirable option. It is becoming an unavoidable necessity.



RAND Europe's recent work for the Ministry of Defence through the Nuclear Deterrence Fund has brought fresh analytical perspectives to long-standing deterrence questions. By empowering emerging researchers to lead key studies, we are shaping the next generation of nuclear scholars and strengthening informed debate at a moment of global uncertainty.

Mattias Eken, Senior Analyst



Understanding Russian strategic culture

In order for the UK to fully grasp Russia's deterrence strategy, the UK Ministry of Defence and the Nuclear Deterrence Fund commissioned RAND Europe to examine Russia's strategic culture.

The team at RAND Europe investigated how Russian strategic culture drives nuclear decision making, uncovering how historical, cultural and ideological factors profoundly influence Russia's military and nuclear strategies. Central to this strategic culture is a zero-sum worldview: any gain by an adversarial external power is viewed as a loss for Russia. This is compounded by a persistent sense of vulnerability and enduring narratives of state survival. Together, these characteristics foster an environment in which militarism, and by extension nuclear weapons, remain a deeply embedded part of Russia's strategic culture.

Building on these insights, our researchers sought to understand how underlying Russian beliefs translate into practical nuclear decision making. Through scenario planning and expert interviews,

we found that the circumstances for Russian use of non-strategic nuclear weapons (NSNWs) are highly context dependent – driven less by rigid doctrine than by perception of existential threat. In other words, Moscow appears most likely to consider the employment of NSNWs in situations it interprets as threatening the survival of its regime.

That said, our research also points to a certain degree of caution within the Russian approach, noting that the country's preference would be to undertake significant pre-emptive and signalling measures such as repositioning its nuclear forces or raising alert levels, as steps to manage escalation without immediately resorting to nuclear strike.

Throughout the research, there is a clear thread pointing to deep-seated mistrust between NATO and the Kremlin, highlighting the need for NATO and European Allies to better understand Russian strategic culture in order to inform effective deterrence and crisis management. This understanding will also enhance communications with Russia, mitigating the critical risks associated with misperception and escalation.

RESEARCH IN ACTION

RAND's eight decades as a leader in the field of nuclear deterrence meant we were well placed to deliver a high-profile, in-person Defence Futures Forum, titled 'Deterrence in the 21st Century'. This event, delivered on behalf of Military Strategic Headquarters, featured keynote addresses by Luke Pollard MP, Minister of State for the Armed Forces, and Gen. Sir Jim Hockenhull, Commander UK Strategic Command. RAND Europe experts facilitated sessions on the challenges of navigating increased tensions in the Third Nuclear Age, as well as the risks and opportunities associated with integrated deterrence. The conference attracted a sizeable and high-level audience that included military officers, government officials, academics and other key stakeholders.



Advancing the UK's metascience goals

Investing in research and development (R&D) is vital to the UK's economic growth and prosperity, with government estimates indicating that, on average, £1 of civil public R&D investment generates £8 in net economic benefits for the UK over the long term. Public R&D is a key part of the government's Industrial Strategy and supports the UK Plan for Change.

It is widely acknowledged, however, that the way in which R&D in the UK is currently organised, funded and incentivised, far from creating optimal

conditions for a vibrant and dynamic ecosystem, may in fact hamper progress in many areas. Barriers include inefficiencies in the way R&D funding is allocated, potential issues of bias and conservatism in traditional approaches to peer review, and structural barriers to the commercialisation of R&D.

In autumn 2025, the Department for Science, Innovation & Technology (DSIT) set out how it will spend its R&D budget over the four years from April 2026. This included an allocation of around £9.2bn



in 2026–27 for UK Research and Innovation (UKRI), the UK's national R&D funding agency, representing a real-term increase over the period.

Simply injecting more funding into an overstretched system runs the risk, however, of failing to address the underlying issues which currently limit the impact of UK R&D. Thus, when detailing the allocation of its R&D budget, DSIT also announced that it will adopt 'a new, more agile approach' to managing its R&D funding.

Key to delivering on this approach will be the UK Metascience Unit. Established in 2024 by the UK government, alongside UK Research and Innovation (UKRI), and with RAND Europe as its

technical partner, it is the first body of its type to be formally based within government. The Unit was established in recognition of the fact that despite billions of pounds of public funding being invested in the R&D system, limited attention has been paid to how science itself is funded and managed, and how we might systematically optimise UK investment in R&D, and in turn boost economic growth and prosperity.

A year in metascience

In its first year, the UK Metascience Unit has launched a wide range of initiatives to strengthen the evidence base on how science operates. It is



Solving the societal challenges of the 21st century crucially depends on scientific progress. Scientific discoveries, in turn, need to be enabled by a system that effectively supports researchers and their research. Our work on metascience helps build a robust body of evidence on questions such as how best to organise peer review processes, methodological innovations in research evaluation, and scientific novelty itself. Working in direct cooperation with UKRI's Metascience Unit, we are well positioned to achieve immediate practical impact.

Lara Marie Otto, Analyst



funding 28 UK-led international research projects on metascience, and supporting 29 early-career fellows exploring how AI is reshaping science, in collaboration with funders in the US and Canada. The Unit has also opened up UKRI award data to researchers for the first time, supporting multi-university collaborations to better understand funding systems.

RAND Europe is working with the Unit to run a global competition to identify AI-driven indicators of scientific novelty. In addition, a major observational study is underway to assess what drives success in interdisciplinary research through UKRI's Cross Research Council Responsive Mode scheme.

A year after its launch, the UK Metascience Unit is already delivering practical insights to strengthen

the nation's research and innovation system. Working alongside the Unit, RAND Europe has helped to better understand distributed peer-review processes, generated evidence on the financial health and sustainability of UK university R&D, and provided insight on how to strengthen international collaboration in R&D, and is contributing to the UK government's AI for Science Strategy UK.

The impact of artificial intelligence

The significant role of AI in society cannot be ignored; it offers huge opportunities, but also challenges. AI is seen as a means to enhance the speed and productivity of scientific research, enabling researchers to dedicate more time

to meaningful tasks and work. However, there are also concerns about the potential negative impacts of integrating AI into research, such as its reliability, reproducibility and transparency; ethical risks related to privacy, bias and access; and long-term impacts such as the potential degradation of certain skills amongst researchers. AI can potentially help streamline the grant application process by analysing vast amounts of data to select research proposals that align with funding priorities, avoiding

duplication. The lack of transparency and accountability in this process, however could perpetuate biases, such as prioritising past success rather than novelty and innovation. Establishing ways of sharing learning before bad practice is embedded across the system is therefore critical and RAND Europe is working with the Metascience Unit to gather insights into the existing evidence and perspectives regarding the use of AI in research and scholarly practices.

Case study

UK Metascience Unit: Insights to improve the peer review system



This year, a key focus of the Metascience Unit has been UKRI's grant allocation processes, responding to calls for action and experimentation in the independent Tickell Review of Research Bureaucracy, and UKRI's own Review of Peer Review. This work has been echoed in the recent National Audit Office's report on *UK Research and Innovation: providing support through grants*.

Peer review remains central to the integrity of the UK's research system, shaping nearly all of UKRI's £8.8 billion annual funding portfolio. By ensuring that expert judgment underpins funding decisions, peer review safeguards scientific quality and accountability. However, as highlighted in the Tickell Review, the process is often criticised for being slow, bureaucratic and resource-intensive for funders, reviewers and applicants. Streamlining this multi-stage process would enable faster, more responsive funding decisions, allowing researchers to act quickly on emerging trends, while enabling UKRI staff to focus on strategic engagement and the translation of research into impact.



Enabling innovation in healthcare systems

Across the globe, health systems are under pressure from the growing and changing nature of demand for health services. This is in part related to ageing populations and the increasing burden of chronic diseases and comorbidities, and from the related long-standing challenge of paying for innovation in health. The pressure is particularly acute in the UK's NHS, accentuated by the lasting effects of the Covid-19 pandemic and extreme financial pressures.

Fit for the Future, the government's 10 Year Health Plan for England, aims to put the health system on a more sustainable footing, by making better use of digital technologies, delivering more healthcare outside of hospitals and in the community, focusing more on prevention, empowering and building capacity and capabilities amongst NHS staff, improving productivity, and making the most of enhanced data infrastructure and scientific advances.

Innovation is key to achieving these ambitions. Novel biological and health technology paradigms have the potential to bring fundamental changes

to the quality and safety of patient care and to the efficiency and effectiveness of the NHS. While at different stages of maturity, some examples include advances in genomic medicine, digital- and data-enabled therapeutics, robotic surgery, and progress with artificial intelligence technologies. Some of these approaches are already transforming patient care in areas such as cancer, obesity, rare diseases and mental health.

Leveraging the potential of research and innovation to help transform the NHS in this way will require a shift from seeing research and innovation as nice to have, to seeing it as essential, embedded across the system and connected through collaboration. Healthcare is a knowledge-intensive endeavour; without active support for research and innovation, the gap between what is possible to achieve for patients and the NHS, and what is accomplished, is likely to grow. RAND Europe's work focuses on bridging that gap, turning research into reality to build a more resilient, equitable and future-ready health system.



Through evidence-based analysis, we have identified opportunities for the EU Biotech Act to orchestrate a coherent financial, regulatory and governance approach that balances scientific advancement with societal benefits and security considerations. As we highlighted to Politico, the landscape is complex – so understanding the best evidence on support for biotech innovation and adoption is crucial.

Hampton Toole, Analyst



Innovation related to the 10 Year Health Plan

RAND Europe was supported by the Wellcome Trust to consider how to shape a healthcare system with innovation embedded into its fabric. A part of this work was commissioned by Lord Ara Darzi to inform the Future State Programme and wider government thinking about innovation in relation to the 10 Year Health Plan.

Our analysis of the evidence base suggests that research-active NHS settings deliver better quality and safer healthcare. They have lower patient mortality, and clinical trials in the NHS support earlier patient access to novel treatments. We also found evidence suggesting that research-active NHS organisations support improved productivity, both within the NHS workforce and across wider society, and that research and innovation in the wider health system also creates jobs and revenue.

Looking ahead, there is untapped potential for innovation to further support more personalised care, including through advances in genomic medicine; more precise care, for example through novel immunotherapies; and more timely healthcare, including outside of hospitals and in the community. Some examples include making the most of remote monitoring of health indicators such as blood pressure, and of digitally enabled mental health therapies to improve access to healthcare. It is key to ensure that innovation helps mitigate inequalities in access and does not exacerbate them.

Preparing and shaping health and innovation systems to make this potential a reality requires visionary and timely policy action. We identified that responsible government policy will need to balance short-term priorities with a long-term vision that captures the unique potential of research and innovation to support NHS reforms.

Our work provided actionable recommendations on how to leverage the potential of research and innovation throughout the NHS, outlining seven mechanisms:



Workforce education and opportunities to engage with innovation. This will enable the NHS workforce to understand what innovation is, thus promoting a culture of best practice.



Improved access to, use of and sharing of data, information and evidence. This requires public trust, alongside effective public engagement to help steer an evidence pipeline for emerging diagnostics, treatments and service model innovation.



Upgrades to basic physical infrastructure in the NHS in order to make the most of high-tech facilities.



Focus on enhanced strategic demand. This needs to be accompanied by longer-term budget cycles, and cost-effectiveness assessments that have impact on the NHS, wider society and the economy.



Opportunities for more streamlined and efficient R&D governance and for leaner and less bureaucratic regulation will support a smoother translation of innovation from lab to practice.



Closer working and better coordination between health policy and industrial strategy, and regional and national efforts. This will prevent unhelpful siloes, duplications of effort, and resource wastage.



Inclusive patient and public engagement in research and innovation to ensure that the UK population has a fair say in shaping what the NHS does and how it does it.

RESEARCH IN ACTION

RAND Europe's work on life sciences and technology innovation in healthcare has achieved significant impact and prominence not only in the UK but also internationally.

Insights from this portfolio and associated public reports on research and innovation in the NHS and on novel treatment paradigms, were disseminated to senior UK government policymakers to help inform policy decisions. They have also been widely disseminated at both national and international conferences and summits, including the King's Fund conference, the Politico Health Summit, the JP Morgan European Health Summit. Our wider expertise on innovation and health systems transformation also underpins a book introducing the field to policymakers by the European Observatory for Health Systems and Policies (*From ideas to reality: An introduction to generating and implementing innovation in health systems*) and fed into the first European Evaluation Forum collaboration between RAND Europe and the European Evaluation Society.

REGIONAL PROFILE

The Arctic and High North

Evolving geopolitics on NATO's northern flank

Long viewed as a region of peace and cooperation, the Arctic has become a zone of renewed strategic competition. The security landscape shifted decisively after Russia's full-scale invasion of Ukraine in 2022, which paralysed the Arctic Council and aggravated tensions with Western counterparts. Today, the region is experiencing a worsening security environment fed by international rivalries.

Finland and Sweden's accessions to NATO as a reaction to the Ukraine conflict have left Russia as the only non-NATO Arctic state, cementing the Alliance's strategic position in the High North but also fuelling Moscow's rhetoric of encirclement. Unfortunately, despite its numerical advantage, NATO still lacks an integrated strategy, sufficient naval presence, and adequate investment in Arctic-specific defence assets. The UK, Canada and Denmark struggle to maintain readiness in the region, and the US is eager to prioritise the defence of North America.

Climate science collaboration, a traditional fixture of Arctic diplomacy, has also deteriorated. Before

2022, the Nordic states and Russia shared data on permafrost and emissions under the Arctic Council framework. Most joint projects are now frozen, leaving major research gaps. Fisheries further illustrate the precarious balance between pragmatism and rivalry. Norway continues ad hoc quota negotiations with Russia, but Greenland and the Faroe Islands have barred Russian vessels, creating uncertainty over long-term agreements such as the 2021 Central Arctic Ocean Fisheries Agreement.

Pressure on Moscow is, however, unlikely to reduce its ambitions in the region. Russia views the Arctic as central to its national survival, with its Northern Fleet and nuclear deterrence concentrated around Murmansk and a large share of its GDP coming from resource extraction above the Arctic circle. Moscow's rearmament and expansion of bases such as Nagurskoye have reinforced its grip on a region it already dominates with its landmass.

At the same time, China has become a consequential partner for Russia in the Arctic,



The balance of power in the Arctic reflects an asymmetry of interest between the parties. Russia wants to assert its influence in a region of primordial strategic, economic and military importance for it, while NATO remains committed to monitoring access to the North Atlantic and securing sea lines of communication. The burden is falling on Europe however, as the United States aims to focus its strengths on the defence of North America.

Nicolas Jouan, Senior Analyst



particularly since Western sanctions curbed foreign investment. Chinese companies have funded Yamal LNG, a major liquefied natural gas project in the Russian Arctic aimed at supplying China, while Beijing's 2017 Polar Silk Road strategy aimed to integrate Arctic shipping into global trade.

Concurrently, Western states have sought to replace Russian gas and reduce reliance on Chinese critical minerals. The European Union's 2024 Critical Raw Materials Act has aided exploration projects in Sweden and Finland where mining investments have surged; intensive extraction threatens fragile ecosystems and the livelihoods of Arctic indigenous populations.

Another approach to the Arctic could prove more fruitful for Europe. Instead of pursuing a

decoupling, renewed Western engagement with China on Arctic governance, scientific cooperation and climate data sharing could drive a wedge in the Sino-Russian partnership and reintegrate Beijing into multilateral forums. This could help counterbalance Russian dominance and ease the current polarisation.

Overall, the Arctic has transformed into a focal point of geopolitical tension, combining environmental fragility with great-power rivalry. NATO enlargement, the breakdown of Russian cooperation with the West, and the fragile Sino-Russian alignment have redrawn the regional map. Selectively engaging China could serve not only to constrain Russian leverage but also to reopen dialogue on environmental protection and inclusive governance to achieve stability in the region.

COUNTRY PROFILE

China

Pursuing economic resilience and global influence

China's economic resilience in the face of mounting global trade tensions, combined with its rapid technological advancement and pivotal role in international supply chains, defines a complex and evolving landscape with serious implications for the rest of the world. Alongside its expanding global influence, China continues to grapple with a range of domestic and international obstacles that its leadership is determined to address as the country seeks to secure its position as a world power.

RAND Europe's China Initiative (RECI) consolidates our analysis of China, focusing on its policies and assessing their consequences for the EU and the UK. Our research spans a broad spectrum of pivotal areas, including defence, economics, and science and technology (S&T). In 2025, we launched RECI with a webinar on the sources of China's economic resilience and, over the course of the year, released a series of articles and webinars exploring China's wider economic strategies and trajectory.

Decision makers in Beijing are contending with a number of policy challenges stemming from the country's economy, from local government debt to deflation and low consumption. China's forthcoming 15th Five-Year Plan (2026–2030) is a useful window into the government's response to these issues, maintaining the established

focus on innovation-driven growth (high-quality production), technological self-reliance and green development. The Plan also aims to strengthen resilience amid global economic uncertainty, and advance China's 2035 modernisation goals.

On top of these domestic issues, 2025 saw attempts from the Trump administration to impose severe trade tariffs on China, along with many other trading partners. Yet China has demonstrated a considerable capacity to withstand economic pressure, with an evolving approach to economic deterrence that discourages economic coercion from third parties, in part supported by China's track record of economic retaliation. In the perspective paper *China's Economic Deterrence Playbook*, RAND Europe authors identify five core elements underpinning this strategy: enhancing resilience in critical sectors, fostering strategic interdependencies, maintaining a ready-to-deploy economic retaliation toolbox, building credibility through consistent coercive actions, and preparing the domestic population to absorb economic shocks.

China's demographic shifts present another significant challenge to the country. To address this, the Chinese government has prioritised

automation, leading to the emergence of so-called 'dark factories' operated by AI, robotics and advanced manufacturing technologies. This approach fits into Beijing's broader techno-industrial policy, which aims to move up the value chain, lead in future technologies, expand its global market share, and achieve greater self-reliance – all with national security in mind. Thus, despite the substantial waves caused by DeepSeek, Beijing's developments in science and technology should not come as a surprise; increasing R&D spending, expanding tax incentives for technology-related R&D, and recently advocating to boost basic research all point to a stronger S&T focus. While private enterprises bear the majority of R&D costs, government investment has risen sharply, with China's S&T budget exceeding 0.8 per cent of GDP for over a decade.

Throughout 2025, the consequences of China's pivotal role as a hub for global supply chains

became increasingly apparent. International value chains depend on China for everything from upstream inputs such as critical minerals, to midstream components, and for final-stage assembly of downstream products. This strategic position held by China is the product of years or even decades of proactive policy planning, granting the country a distinct comparative advantage. Despite increased European interest in stockpiling and reshoring, policy responses remain inadequate, as demonstrated by the recent controversy in the Netherlands over export controls and the chipmaker Nexperia.

China is undoubtedly a global superpower, boasting a resilient economy, significant military capabilities, and a growing voice on the international agenda. To navigate the ripple effects of China's burgeoning role on the global stage, more nuanced thinking is required from Europe and the rest of the world.



In Europe, efficiency long masked a profound dependency, until it became clear that prosperity rested on supply chains beyond its control, and that China was willing to weaponise them. Now, things have changed, and if Europe continues to trade resilience for convenience, it risks not only sacrificing security but also forfeiting the very growth and prosperity that justified the trade-off in the first place.

Francesca Ghiretti, Research Leader



COUNTRY PROFILE

Ukraine

Crafting the technological future of warfare

The full-scale Russian invasion in February 2022 caused Ukraine's Ministry for Digital Transformation (MDT) to pivot from its prior civilian focus towards putting high technology to work in defence of the nation. That pivot reflects a straightforward truth: the war represents an existential threat to Ukraine, and all its institutions have had to adjust accordingly. In the summer of 2024, RAND sent two research delegations to Kyiv to engage with Ukrainian government officials, military officers and political figures. Following the second visit, the MDT commissioned us to provide analytical support on the intersection of modern technology and contemporary warfare.

This work had both moral and pragmatic imperatives at its heart. Even setting aside the basic moral calculus – that, at least for the moment, the cost in lives is being paid by Ukraine, not its European allies – the reality is that the war is happening and is driving rapid changes to the technology of warfare and the tactical and strategic frameworks around it.

In February 2025, a group of RAND Europe researchers travelled to Kyiv and spent a further week interviewing drone operators, technologists, software engineers, and government and military officials. In May and July, we briefed the Ministry

and their partners at Ukraine's defence industrial partnerships organisation BRAVE1 on our findings. One key observation was that, due to historical, organisational and practical reasons, Ukraine is not fighting the war as NATO would. To some extent, this reflects tactical realities: NATO doctrine assumes that enemy forces can be destroyed, confused or fixed in place by airpower, allowing relatively small ground formations to accomplish their objectives. That is not possible for Ukraine, which has managed to deny Russia control of the air but does not have the means to establish air superiority itself. But it also reflects a fundamental difference in the way Ukraine's defence forces are arranged, with traditional military hierarchies coexisting with informal, horizontal structures with their origins in the Maidan Revolution and earlier.

An effective system which takes those structures into account will not look like NATO's centralised doctrinal processes. Instead, we proposed opening the process via a wiki, with broad but controlled access, which would allow Ukraine's defenders – both in and out of uniform – to contribute their own experiences and lessons, with a centralised cell whose role is editorial rather than authorial control.

Based on our work on futures and foresight, we made a series of recommendations to the Ministry about methods and tools which can be used to identify promising technologies at earlier stages to steer investment at the crucial point. We also developed a horizon scanning tool to assist Ukrainian policymakers identifying technological developments earlier, to begin understanding what their potential defence applications are and lay the groundwork for their adaptation while they are still in developmental stages, keeping Ukraine's forces technologically competitive while the war continues.

Finally, and perhaps most crucially for readers outside of Ukraine, we identified a series of key steps that Ukraine and its European partners can take together to deepen and strengthen cooperation across the defence industrial space. We identified specific steps that Ukraine can take to better communicate the realities of its business environment to European investors; in turn, European partners can support initiatives such as the Danish model of direct investment in Ukrainian industry, understanding Ukraine's central place in the future European security architecture.



Ukraine represents a future of war, rather than the future of war. A land battlefield dominated by persistent surveillance, small but lethal drones and intensive electronic warfare is certainly a significant part of what militaries should be preparing for, but the weapons and tactics used there do not represent a fully inclusive picture of what conflict might look like in the years to come.

Jacob Parakilas, Research Leader





Understanding the dynamics of violence and identity in education

Across England and Wales, schools are facing a critical challenge. Rates of absence, suspension and permanent exclusion have risen significantly since before the Covid-19 pandemic, pulling increasing numbers of young people away from one of their most important sources of safety and support. Robust evidence demonstrates that disengagement from education significantly raises the risk of involvement in serious violence. With many forms of youth violence rising over the past decade, schools have become a vital front line in prevention.

Evidence from the Youth Endowment Fund (YEF) highlights what works: keeping children engaged in education, providing trusted relationships with adults, and developing children's social and emotional skills. Schools can be transformative spaces, but lasting progress relies on policy frameworks and resourcing structures that enable them to put proven approaches into action.

RAND Europe's recent qualitative study, funded by the Department for Education and conducted in partnership with Dartington Service Design Lab, explored the role of services in children's identity formation, and how this influences children's involvement in violence in England. Through in-depth interviews, we explored how everyday interactions with services shape how children view themselves and the paths they take.

Strikingly, we found that school exclusion can be experienced by young people as a profound rejection, eroding their sense of belonging and aspiration, and sometimes driving them towards peers or environments where violence offers connection, belonging or a means to assert agency. However, we found positive school experiences to be equally powerful. Young people described how teachers who listen, notice their strengths and hold them in positive regard can foster a different narrative – one rooted in possibility rather than deficit.



Through rigorous evaluation, we have shown that accessible, high-quality, evidence-informed professional development empowers early years practitioners and drives better outcomes for children – proving that investing in CPD is investing in the future.

Elena Rosa Speciani, Senior Research Leader



Strengthening the system: identifying what works and what needs to change

Recognising the heightened need to support education settings in their efforts to prevent violence, RAND Europe conducted a major ‘state of the nation’ research project for YEF: *Education and Violence: A Policy and Practice Review of England and Wales*. The review examined how national policy supports (and inhibits) schools’ ability to prevent youth violence, identifying the policy- and system-level changes that are needed to strengthen practice.

Our findings were based on a comprehensive review of policy and evidence, interviews with 50 education stakeholders, and Delphi workshops to develop policy recommendations. We also incorporated emerging evidence from our YEF-funded evaluations of two flagship government programmes focused on education-based

violence prevention: SAFE (Support, Attend, Fulfil, Exceed) and APST (Alternative Provision Specialist Taskforces).

This work, which combined robust impact evaluation with in-depth, mixed-methods process evaluation, played a central role in informing government decisions to extend both programmes. While final impact findings from SAFE are forthcoming, APST had mixed impact results, though these included a small positive impact on Year 11 pupils progressing to post-GCSE study and moderate improvements in attendance. Leaders and practitioners viewed APST positively, reporting that co-located teams of multidisciplinary professionals providing support to pupils in school enabled faster, more coordinated support, improved safeguarding, and strengthened engagement with pupils and families.

Drawing all this evidence together, our policy review identified five system-level changes that would enable more schools to deliver effective violence prevention:

- 1 Target funding towards evidence-based approaches that improve attendance, build social and emotional skills, and provide access to trusted adults.
- 2 Create multidisciplinary support hubs in schools, introducing models such as APST at scale.
- 3 Ensure the ongoing review of the national curriculum in England comprehensively embeds social-emotional learning and relationship-violence prevention.
- 4 Strengthen staff training and continuing professional development, equipping staff to keep children safe from violence.
- 5 Ensure Ofsted reforms include a focus on inclusive practice while recognising schools' differing contexts and needs.

These recommendations aim to shift the system from reactive responses to proactive prevention, recognising that education is one of the most powerful protective factors available.

RESEARCH IN ACTION

YEF's System Guidance

RAND Europe's work has made a significant contribution to shaping the UK's understanding of how the education system can help prevent youth violence. Our evidence base underpins YEF's System Guidance – a set of recommendations for policymakers to drive national change. YEF has taken this forward, convening a group of leading figures from across the education sector, including the Children's Commissioner for England and the Chief Inspector of Ofsted, who aim to engage with government to champion progress and maintain momentum for implementation.





Highlighting evidence for global workplace safety

Every day, more than 8,000 people die from work-related accidents and diseases. Behind these numbers lie lives upended, families affected and communities weakened, highlighting the moral and economic imperative of improving occupational safety and health (OSH). Unsafe workplaces erode morale, disrupt operations and cost businesses through diminished productivity and reputation, with developing countries suffering the greatest toll due to weak regulation and enforcement. The associated costs equate to a global GDP loss of nearly 4 per cent each year.

To confront this global challenge, RAND Europe supported the Lloyd's Register Foundation to establish the Global Safety Evidence Centre, an initiative dedicated to advancing understanding of the complex factors that drive workplace safety, and to equip policymakers, regulators and industries with the evidence base needed to build safer, more resilient economies worldwide.

Researchers from all teams in RAND Europe contributed to this initiative, undertaking six studies in 18 months that covered a variety of topics relevant to the Global Safety Evidence Centre.

New technologies can transform how we support the safety of workers

Researchers from RAND Europe mapped the evidence on the interaction between emerging technologies and OSH through reviewing key sectoral evidence, collecting expert voices, and running a workshop on the impact of emerging technology on OSH.

We found that the evidence base on technology and workplace safety is limited and uneven across sectors, with most studies small-scale and lacking robust counterfactuals. Evidence is strongest in areas such as safety-related smartphone apps and AR/VR training, but rapidly evolving technologies like safetytech, algorithmic management and emotional AI could have greater impact. Continuous innovation, limited monitoring of safety outcomes, and employers' reluctance to share commercially sensitive data make generating comprehensive and reliable evidence bases particularly challenging.

RAND Europe research also explored how emerging technologies are reshaping OSH, yet their full effects remain largely unexplored. Some



The evidence base for occupational health and safety has long been fragmented and uneven, but that is changing. Through our research, RAND Europe has helped lay the foundation for the Global Safety Evidence Centre – a hub that will empower policymakers and practitioners worldwide with stronger, more reliable evidence to make work safer for everyone.

Giulia Maistrello, Senior Analyst



tools show clear benefits for improving workers' physical and mental wellbeing. However, wider technologies like algorithmic management and emotional AI may increase psychosocial risks, while safetytech solutions such as wearables raise concerns around privacy, responsibility and complacency. Overall, we found that the impact of new technologies on OSH is significant but unevenly understood.

Our work highlights the need for additional research to understand existing demand for, and use of, emerging technologies in workplaces, and to map how these technologies impact workers' safety and health. The report indicates that the establishment of the Global Safety Evidence Centre could add value by producing, collating, and disseminating evidence about how emerging technologies are used in workplaces, as well as facilitating knowledge sharing and good practice in this area.

Impacts of climate change on occupational safety and health

Our team also examined how climate change amplifies health and safety risks across seven high-risk sectors: agriculture, construction, disaster response, energy, manufacturing, mining and transportation.

We found that workers face growing exposure to incidents and illnesses triggered by the changing climate. While risks such as heat stress and UV exposure are well understood, others, including biological hazards and mental health impacts, would benefit from more research given their growing relevance to worker safety and wellbeing.

RAND Europe's analysis also examined how climate change impacts differ by geography, finding that although all regions are affected, research coverage is uneven. The greatest risks to worker health and safety are concentrated in

low- and middle-income countries, yet most of the available data and studies originate from Europe and North America, leaving significant evidence gaps in the areas most severely impacted by climate-related hazards.

Although climate change affects every sector, the level of research varies widely across occupations and industries. Most evidence focuses on outdoor workers in sectors such as agriculture and construction, while the risks faced by indoor workers remain under-investigated. A lot of research also tends to address the general population rather than specific workforces. RAND Europe's findings highlight the need for targeted, evidence-based guidance and regulation to help organisations in all sectors adapt and protect their workers from the growing impacts of climate change.

Addressing the implications of climate change on OSH demands a global perspective combined with locally tailored action. Although research in this area is expanding, RAND Europe's work shows that many specific contexts remain under-studied, leaving critical gaps in understanding how best to design effective, context-specific policies and interventions.



The Lloyd's Register Foundation's Global Safety Evidence Centre

The Lloyd's Register Foundation's Global Safety Evidence Centre is a hub for anyone who needs to know 'what works' to make people safer. The Centre collates, creates and communicates the best available safety evidence from the Foundation, partners and other sources on both the nature and scale of global safety challenges, and what works to address them. It works with partners to identify and fill gaps in the evidence, and to use the evidence for action.

RAND Europe has been supporting Lloyd's Register Foundation in its establishment of the Global Safety Evidence Centre, to better understand the complex factors that affect safety across the world.



Bringing healthcare to communities and neighbourhoods

Patient access to the right care, at the right time and in the right place – including closer to where people live – is currently a major priority for healthcare policymakers.

The NHS 10 Year Health Plan puts significant emphasis on enabling this, setting out ambitions to bring healthcare closer to communities and neighbourhoods. This focus is central to wider policy efforts to improve access to care and patient experience, support more integrated health and care services, and relieve system pressures to minimise inappropriate and unnecessary use of hospital services.

Neighbourhood health approaches hold the potential to improve population health, including through greater collaboration between health, social and community care services, local authorities, and voluntary sector organisations. Technology advances, including remote monitoring of people in their own homes, also have an important role to play.

However, various challenges, for example those related to governance, leadership, workforce capacity and skills, the effective use of digital technologies, and the scope and boundaries of neighbourhood health models, must be overcome.

RAND Europe researchers are generating much-needed evidence on neighbourhood health and care models that will be relevant to policymakers.

Through our NIHR DECIDE centre (a partnership between RAND Europe and the University of Oxford), we have evaluated technology-enabled remote monitoring pathways in key public health and care areas. These pathways rely on the use of various devices, apps, and data conveyance technologies to help people to monitor and manage their health and wellbeing from home, with remote information exchange and support from health and care professionals when needed.

We have also evaluated clinical services offered in community pharmacies in England, including how they work and what influences successful care delivery. Located on most high streets and staffed by trusted community members, community pharmacies currently play a key role in clinical service provision, from health promotion to disease prevention counselling, making up a vital component of neighbourhood-based care.

Insights from our work on technology-enabled remote monitoring and community pharmacies underscore important lessons for those



The DECIDE centre has strengthened evidence for technology-enabled remote monitoring, identifying effective approaches and areas for improvement. Our research supports national policy and local implementation, guiding system enhancements and scaling of digital health innovations across social care, contributing valuable insights to future policy and practical delivery discussions.

Manon Richard-Sheridan, Junior Analyst



looking to design, implement, spread and scale neighbourhood-based health and care models.

Firstly, neighbourhood health and care models can only succeed with sufficient, well-trained and motivated staff. In a context of ongoing workforce shortages, recruiting and equipping the right mix of professionals is essential. For example, the introduction of tech-enabled remote monitoring adds new roles and responsibilities for non-clinical staff, and necessitates clear workflows, training and coordination. While such technology can ease pressure on GPs, it may increase workloads elsewhere through tasks like troubleshooting to obtain readings from patients and supporting patients to effectively use remote monitoring devices and apps. Building an incentivised workforce that understands and embraces the value of technology-enabled care is therefore key to sustaining high-quality services. Similarly, appropriate resourcing is key for enabling pharmacies to adapt their staffing

model and upskill their workforce to optimise how pharmacists, trainee pharmacists, and technicians and counter-assistance engage with the delivery of community-pharmacy based clinical services.

Secondly, neighbourhood health services must be designed around accessibility and community engagement, demonstrating clear value in neighbourhood health models. For example, offering a neighbourhood health hub that is much further away than a local hospital is counterproductive, which is a risk if what constitutes 'a neighbourhood' is too vast in scope. Tech-enabled remote monitoring can be helpful for enabling convenient access to healthcare in the comfort of people's homes but has to be accompanied by trust and reassurance that health and care professionals are actively engaging with the resulting data (e.g. blood pressure, respiratory conditions) and responding to patient needs. Evidence from RAND Europe's community pharmacy evaluation reinforces this

point: pharmacies often provide trusted, local access to care, particularly for those who might not otherwise seek help. Their integration into local communities, including multilingual staff and familiarity with residents, can help build trust and improves access for diverse populations. However, barriers such as poor coordination with GP surgeries, limited accessibility for people with disabilities, and language-related communication gaps must be addressed to ensure neighbourhood health is truly inclusive and effective

Moreover, the governance and management of neighbourhood health must outline clear responsibilities and accountabilities across different actors in health and care systems. This is critical to avoid unnecessary duplication of effort and to manage multiple incentives as well as resource needs for the delivery of more integrated care. Implementing effective governance requires balancing oversight by regulatory bodies and health system leaders in integrated

care boards and local authorities with ensuring the requisite flexibility and autonomy of staff in provider organisations, such as GP practices and community pharmacies.

Finally, our portfolio of work suggests that neighbourhood health commissioning should focus on solutions over siloed products and services, taking into account how a combination of services, alongside technology, can help deliver intended outcomes. Commissioning and contractual arrangements for clinical services in community pharmacies influence whether pharmacy owners and managers decide to offer certain advanced services and whether they believe these services are financially viable for their business. On the technology front, suppliers and buyers need clear commissioning criteria and standards for functionality, interoperability and data governance, while retaining flexibility to adapt pathways to local populations, healthcare provider needs, and resources.

RESEARCH IN ACTION

RAND Europe's work on key models of relevance to the delivery of neighbourhood health has supported impact on policy and practice.

Our work on community pharmacies was used by NHS England to inform the recent community pharmacy contractual framework on how clinical services should be commissioned and delivered. Furthermore, our work through the DECIDE centre for evaluating tech-enabled remote monitoring and associated tech-enabled care has impacted vital policy thinking – engaging regularly with senior decision makers in NHS England and DHSC, feeding into evolving thinking about programme design and implementation, and inputting into a Parliamentary Office of Science and Technology briefing.



Building resilient societies in an age of uncertainty

The European and global security environment is worsening. The war in Ukraine has further highlighted challenges in maintaining domestic support and ensuring the necessary resources for defence efforts, raising questions about the roles of the private sector and government. Meanwhile, the complexity of trends such as political polarisation, rapid technological diffusion, accelerating climate change and increased geopolitical rivalries, pose significant questions for governments across Europe regarding their ability to respond to shocks. From cyber-attacks and extremism to health pandemics

and climate-related events, global disruptions could exert significant pressures that collectively test the resilience of modern societies.

Research from RAND Europe shows that while these pressures expose societal vulnerabilities, they also present opportunities for building societal resilience and renewal. Across our research groups we have explored the underpinnings of societal resilience from many angles – from the protection of critical infrastructure to our preparedness plans for the security risks of emerging technologies.



Protecting critical national infrastructure

Services such as electricity, internet access and secure payment systems are essential for daily life and economic stability. When these systems fail or are disrupted, the consequences ripple throughout economies and societies. Protection of critical infrastructure is therefore fundamental to maintaining safety, trust and continuity in our society.

In 2025, RAND Europe explored this issue with particular emphasis on critical undersea infrastructure (CUI), the vast network of cables and pipelines which sustains Europe's energy and information connectivity. Disruptions to CUI can cascade across sectors – affecting critical services such as banking, energy, defence, food supply and healthcare – with far-reaching implications for national and societal resilience. A new perspective published in June set out Europe's vulnerabilities beneath the waves, and considered how governments, companies and

organisations like the EU and NATO could respond. Key recommendations were also submitted to a major UK Parliamentary enquiry on undersea cables coordinated by the Joint Committee on the National Security Strategy.

Due to the harsh conditions and specific physical characteristics of the seabed, CUI faces unique vulnerabilities, as well as challenges with allocation of responsibilities and coordination between stakeholders. A string of recent incidents has highlighted this vulnerability, showing how CUI could be disrupted in both grey-zone warfare and open conflict. Our research indicates that, while most disruptions historically stem from accidents or negligence, since 2022 hostile state and non-state activity has become a growing concern, enhanced by the rapid proliferation of uncrewed vehicle technology. Protecting CUI demands urgent, coordinated action and active UK engagement in multilateral frameworks such as the Joint Expeditionary Force and NATO, to reinforce collective societal resilience.



Based on the report by the Joint Committee on the National Security Strategy (JCNSS) on undersea cables, the UK government has announced the launch of new initiatives for the protection of undersea infrastructure. These initiatives, which mark an important step in improving the security of undersea assets, correspond to the key recommendations in RAND Europe's evidence submission.

Henri van Soest, Research Leader



A further evolving threat to critical infrastructure, and to societal resilience more broadly, stems from loss of control (LOC) incidents involving advanced artificial intelligence (AI) systems. In a report funded by the UK government, RAND Europe experts examined the risks and emergency response strategies for scenarios in which AI systems behave in unintended, dangerous ways beyond human control, leading to potentially catastrophic consequences.

Our experts observed that LOC risks are increasingly plausible yet remain unaddressed. We identified early indicators of control-undermining capabilities in advanced AI models – including deception, self-preservation and autonomous replication – which could enable increasingly capable models to evade human oversight. To enhance societal resilience in the face of these vulnerabilities, RAND Europe's report recommends establishing robust mechanisms for early detection, clear escalation protocols and coordinated mitigation strategies.

Countering radicalisation

Another and increasingly visible threat to societal resilience is the disruption of social cohesion. Disinformation campaigns by state and non-state actors are eroding trust in democratic institutions and amplifying instability within societies, facilitating an environment for polarisation and division. Extremist actors have been quick to exploit these fractures, using online and offline spaces to radicalise and mobilise tensions. If not addressed adequately, the rise of extremism has the potential to undermine the social fabric of our country and the wellbeing of our democracy.

In response to the UK government's Home Affairs Committee's call for evidence, on the subject of 'Combating New Forms of Extremism', RAND Europe discussed the impact of the internet and social media on the ability of extremists to recruit, radicalise and engage audiences. We also explored the impact that new technologies, such as AI, LLMs and deepfakes have had on

extremist activities, as well as on preventing and countering violent extremism.

Our researchers noted that the digital age has transformed the extremism landscape, allowing extremists to thrive across a diverse range of online environments, from mainstream platforms to encrypted messaging apps and gaming servers. These spaces are used to recruit, radicalise and engage audiences. Extremists have also learned to capitalise on societal crises such as the Covid-19 pandemic and climate change, with climate issues driving the growth of eco-extremism across ideological divides.

Anticipating tech-enabled biosecurity risks

Rapid advances in AI tools and capabilities applied to life sciences offer transformative benefits for science and medicine whilst also creating new risks for global biosecurity. Tools and capabilities could potentially be misused by various threat actors but challenges such as outdated conventions and a lack of comprehensive understanding hamper the ability to develop preventative and defensive capabilities to safeguard against societal harm.

To address these threats, in partnership with the Nuclear Threat Initiative, RAND Europe and RAND Global and Emerging Risks ran a vital and timely workshop which convened leading experts from government, industry and research institutions. Held on the fringes of the 2025 AI Action Summit in Paris, the discussion identified practical steps to reduce risks and build resilient systems, from convening ‘coalitions of the willing’ and fostering cross-sector collaboration, to developing international standards and investing in risk measurement.



RESEARCH IN ACTION

NATO Defence Education Enhancement Programme Resilience Curriculum

Defence education is a key agent of transformation and NATO is using it to support institutional reform across member countries and stakeholders of the Alliance. Through the Defence Education Enhancement Programme (DEEP), the Alliance advises partners on how to build, develop and reform educational institutions in the defence and military domain in the form of a peer-to-peer conversation. In 2025, RAND Europe experts contributed to a new Resilience Reference Curriculum published by DEEP. The aim of the Curriculum was to provide guidance to professional defence education institutions on developing courses and training related to resilience, and ultimately to develop a shared culture of resilience among civil and military stakeholders.



Anticipating change through futures and foresight

As characterised by the UK government in its 2025 National Security Strategy, we are living in an ‘era of radical uncertainty’. Faced with an ever-increasing pace of change, our ability to anticipate and prepare for future scenarios has rarely been as important and yet so difficult. To anticipate these challenges, RAND Europe’s Centre for Futures and Foresight Studies (CFFS) harnesses a range of methodologies to help governments and wider society to navigate possible futures. Our innovative approach allows us to:

- Forecast future change using methods such as horizon scanning, trends analysis, and driver and systems mapping.
- Anticipate future scenarios, including potential urgent developments, and understand how these may impact organisations or societies.
- Develop and explore possible futures, by using evidence-driven approaches to create plausible scenarios of what different futures may look like.
- Explore options for action through traditional and innovative methods, drawing on the expertise of RAND’s other methods centres.

Trends in focus

Our 2025 *Trends in Focus* report sheds light on the major forces reshaping the policy landscape across the UK and Europe – trends our researchers believe will have a profound impact on society over the next five years yet risk being underestimated or ignored.

To identify these themes, the CFFS team combined a targeted literature review with internal crowdsourcing across its multidisciplinary research community. Reviewing around two dozen open-source trend publications, the process blended external evidence with in-house expertise to develop a rich longlist of potential trends. From this, the team homed in on the most credible and consequential developments – those grounded in strong evidence yet often overlooked – ensuring the final shortlist identified trends that truly matter for decision makers preparing for the challenges of the next five years. After identifying the longlist, RAND Europe brought together 15 senior experts from across its four research groups for a shortlisting workshop to refine and prioritise the emerging trends. Through a structured



The Centre for Futures and Foresight Studies (CFFS) uses different future and foresight methods to support clients and partners across different topic areas, such as defence, transport and emerging technologies. Using future and foresight methods can help clients explore a range of future scenarios to enhance preparedness and early adaptation, stress-test and validate policy decisions to ensure they are robust in the face of uncertainty, and explore policy questions from multiple perspectives to uncover cognitive biases.

Zsafia Wolford, Senior Analyst



scoring exercise, participants assessed each trend according to its likely impact over the next five years and the extent to which it has been overlooked in current discourse.

The resulting report highlights nine key trends, grouped into three overarching themes: balancing security and society, addressing the challenges of a disconnected youth, and strengthening resilience for a changing planet and society. Together, they offer a forward-looking lens on the issues that will define the coming decade of policymaking.

Balancing security and society

Faced with an increasingly hostile international environment, as well as NATO defence and security spending commitments, defence spending will likely continue increasing significantly among European countries in the

coming years, with our research indicating that this will trigger difficult economic and societal decisions. Complicating this situation is the rapid transformation in military technologies, alongside persistent structural issues across the defence-industrial base and the acquisition system. Together, these factors create a complex scenario that could hinder rearmament efforts and exacerbate societal divides regarding defence.

Our researchers explored how a significant part of the solution lies in European allies collaborating more effectively, leveraging their respective industrial strengths and enhancing cross-border cooperation. We also highlighted the importance of avoiding the temptation to view defence spending as a ‘silver bullet’ for prosperity and concentrate instead on the prosperity that emerges from maintaining a secure international environment.

Challenges of a disconnected youth

Younger generations face a stark set of challenges, including limited social mobility, rising relative child poverty, and an increasing reliance on social and digital media. The effects manifest in various concerning ways, including growing levels of economic inactivity among those aged 18–24, a rise in violence among young people, and declining mental health among adolescents. These are interconnected issues that will have lasting effects on society as a whole as they do not only limit young people's opportunities to flourish, but also worsen existing inequalities and weaken the resilience of our society and economy.

Our researchers concluded that, as today's youth will play a crucial role in shaping the future, it is vital that we pay attention to current trends. Further research is needed to better understand the factors driving these trends and identify effective solutions.

Resilience for a changing planet and society

Resilience has become an ever-broadening buzzword across multiple contexts, from pandemic preparedness and cybersecurity for critical infrastructure, to the physical and mental health of individual citizens.

National governments often struggle to address systemic resilience challenges, not due to a lack of awareness, but because of their short-term focus: even when the facts are clear, priorities change slowly, and the full costs – such as those associated with untreated mental health problems – are often underestimated. Preventing crises is almost always less expensive and more effective than responding to them. However, the benefits and savings associated with prevention are often less tangible than the immediate, visible impact of reactive measures.

RAND Europe Foresight Forum 2025



In October, RAND Europe hosted the inaugural Foresight Forum, which brought together policymakers, industry leaders and academic experts working at the intersection of strategy and geopolitical risk to discuss the dynamics shaping the world in 2025 and beyond.

Attendees participated in a brand-new war game on the application of AI in healthcare, interacted with RAND-developed crowd-sourced forecasting tools, and conducted a three horizons workshop on balancing security and other forms of public spending. Our Centre for Futures and Foresight Studies launched the latest *Trends in Focus* report at the event.

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Ipsos	Elklan	Royal College of Obstetricians and Gynaecologists
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Körber	European Health and Digital Executive Agency (HaDEA)	Swedish Defence Research Agency
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RAND Europe is a not-for-profit research organisation that helps to improve policy and decision making through research and analysis.

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