



NATO RESILIENCE SYMPOSIUM

2023 REPORT







NATO RESILIENCE SYMPOSIUM

25-27 APRIL 2023 / RIGA, LATVIA



"Since Russia's first invasion of Ukraine in 2014, when it illegally annexed Crimea, NATO has supported Ukraine to become not only stronger militarily, but also a stronger, more resilient society. When President Putin first ordered his tanks to roll across the border, he expected Kyiv to fall within days and the rest of the country to follow in a matter of weeks. He was wrong. He underestimated the resilience of Ukraine and the Ukrainian people. This shows just how important resilience is. By boosting our ability to prevent, persevere and bounce back from attacks of all forms, we reduce the chances of them happening in the first place."

Vice Admiral Guy Robinson
Chief of Staff
Allied Command Transformation

INTRODUCTION



The NATO International Staff Defence Planning and Policy (IS DPP) Division and Allied Command Transformation (ACT) co-organized the NATO Resilience Symposium 2023. Hosted by the Latvian government in Riga on 25-27 April 2023, the theme of this year's event was **"Resilience in the Age of Disruption"**. The overarching aim of the Symposium was to promote resilience as a national responsibility and as a collective commitment. Participants explored key issues on the resilience agenda to **understand them better and decide faster** to reduce vulnerabilities and enhance NATO's capacity to prepare for, resist, respond to, and quickly recover from strategic shocks and disruptions. Moreover, the

2023 Resilience Symposium reflected increased levels of collective and national ambition in building resilience across the Alliance.

The symposium built on a successful series of events, including the 2022 Resilience Symposium and the two Resilience Conferences organized by ACT in 2017 and 2019. The Resilience Symposium was held for the second time in the context of the war in Ukraine, which was reflected in discussions throughout the event. The Resilience Symposium 2023 also took place at a time when NATO collectively and Allies individually embark on an ambitious coordinated process of enhancing their resilience in both the civilian and military domains.

Over 250 participants attended the Symposium, including senior civilian and military leaders from Allied and selected partner nations, NATO entities, academia, NATO Centres of Excellence (COEs), the European Commission and industry.

During the Symposium, a number of key themes emerged:

- Resilience is a key enabler for deterrence and defence.
- The on-going conflict clearly illustrates the importance of resilience for a nation. It underpins the requirement for a holistic approach to resilience while acknowledging that it is a national responsibility.
- Building resilience is resource-intensive and long-term in nature.
- Societal cohesion, with a particular emphasis on psychological resilience, is very important for national resilience as the basic 'unit' of resilience is each and every individual.
- There is a need for continuous communication and dialogue between governments and their people, with emphasis on a common understanding of threats, challenges and solutions.
- Nations and NATO need to be responsive, but even more so - proactive and thus able to shape strategic environments.
- Nations and NATO need to conduct an honest review of vulnerabilities and gaps in national and critical infrastructure.
- Nations and NATO need to realistically plan and include key resilience elements in exercises

based on shared data and information between national and organizational stakeholders.

- There is the need for clear demand signals and requirements for stakeholders to act upon.

To further facilitate and promote the civil-military nature of NATO's resilience, the Symposium addressed key topics that represent both challenges and opportunities for Allies and partners: strengthening Allied resilience in the context of deterrence and defence; critical infrastructure and security of supply; data potential and pitfalls; and societal resilience across the physical, virtual and cognitive dimensions. Likewise, a separate Principals' Session facilitated open discussions on revitalizing civil-military cooperation on resilience.

The Symposium closed with a dedicated session taking stock of the event and providing reflections on the "So What for NATO and Allies?" from a collective, national, civil and military perspective.

OPENING SESSION



Speakers:

- Mr Krišjānis Kariņš, Latvian Prime Minister;
- Mrs Inarā Murniece, Latvian Minister of Defence;
- Ambassador Mircea Geoană, NATO Deputy Secretary General;
- Vice Admiral Guy Robinson, Chief of Staff, Allied Command Transformation

Speakers noted that:

- Russia represents the most significant and direct threat to Allies' security and to peace and stability in the Euro-Atlantic area.
- NATO needs to increase resilience to counter the full range of risks

and threats posed to the Alliance by leveraging mutually reinforcing civil and military aspects of national and collective resilience.

- Resilience is one of the cornerstones of collective and national deterrence and defence, encompassing political, military, civilian and individual (psychological) resilience.
- Russia's war of aggression against Ukraine has brought new challenges, highlighting the importance of resilience as a mindset. This entails commitment to protect one's country, cultivating stoicism and determination throughout Allied populations.

- Resilience requires preparation in peacetime, training, simulation of scenarios, allocation of financial resources and a commitment to stand up for freedom, democracy, and the rule of law.
- The Alliance needs to remain united politically and to resolve issues in times of peace so that it can move quickly in times of crises.
- Collaboration among various NATO and non-NATO entities, including ACT, Allied Command Operations (ACO), COEs, International Organizations (IOs), Non-Governmental Organizations (NGOs), academia and industry, is necessary to advance resilience efforts.
- Incorporating resilience into the transformation of the NATO Military Instrument of Power (MloP), under ACT leadership, including through the defence planning processes, exercises and training, is one of the key military forward-looking areas of work at NATO.





STRENGTHENING ALLIANCE RESILIENCE - CHALLENGES AND OPPORTUNITIES

NATO faces multifaceted threats and growing systemic competition from assertive and authoritarian powers. A resilient NATO and resilient Allies underpin a credible deterrence and defence posture and the broader implementation of the Alliance's core tasks. By denying the success of hostile actions (deterrence), and by withstanding, deflecting and adapting in the face of hostile actions, we can make an adversary think twice and, in the event of an attack, NATO is more ready to respond (defence).

Russia's ongoing aggression against Ukraine reminds us of the importance of resilience for national defence. Ukraine's resistance shows how crucial preparedness in peacetime becomes in crisis and conflict. But it is not just the war in Ukraine or the impact of Covid-19 that have highlighted the need for a more resilient NATO. With growing geopolitical competition, climate change, and the impact of emerging technologies, our societies' interconnectedness and interdependence means that resilience, while a national responsibility, has important consequences for our common security.

In response to this changing strategic environment, NATO Heads of State and Government set the course for the Alliance's resilience agenda at the 2022 Madrid Summit. Allies have agreed to implement the 2021 Strengthened Resilience Commitment and to establish a more strategic, integrated, measurable and coordinated approach to resilience. This includes the establishment of the Resilience Committee, a designation of Senior National Officials responsible for Allied national resilience, and a new four-year resilience planning and review cycle with Alliance-wide resilience objectives guiding nationally-developed resilience goals and implementation plans.

In parallel, Allied Command Transformation (ACT) leads the military adaptation of the Alliance and is operationalizing the NATO Warfighting Capstone Concept. This includes the Layered Resilience Warfare Development Imperative, under which ACT is developing the Layered Resilience Concept, the NATO Military Resilience Risk Assessment and Lines of Delivery for Resilience in Training and Exercises. ACT's work on Layered Resilience will inter alia inform the NATO Defence Planning Process, complementing the civil preparedness work strands.

This panel will explore both the opportunities and challenges that NATO and Allies face on their way towards becoming more resilient, and stimulate debate on how Allied resilience can be further strengthened in support of NATO's ongoing military adaptation. The participants in the Strengthening Alliance Resilience – Challenges and Opportunities session are invited to consider:

- What lessons can NATO and Allies begin to draw from Ukraine's resistance and resilience against Russian aggression to inform their own efforts to strengthen their civil preparedness and defence?
- How can we better connect NATO's resilience agenda with its deterrence and defence posture?
- Strengthening resilience is resource intensive and demands long-term vision, commitment and effective stakeholder management. How can NATO better communicate to Allies and our populations the importance of peacetime preparedness?

"Resilience is in NATO's DNA. Article Three of the Washington Treaty places a duty on Allies to become more resilient."

- NATO Secretary General Jens Stoltenberg, 07 October 2020



Moderator:

- ***Ms Sarah Tarry, Director, Defence Policy and Capabilities Directorate, International Staff, NATO***

Panelists:

- ***Mr Jānis Garisons, State Secretary of Latvian Minister of Defence***
- ***Major General Tony Wright, Deputy Chief of Staff Strategic Plans & Policy, ACT***
- ***Ambassador Nataliia Galibarenko, Ukrainian Ambassador to NATO***
- ***Ms Anca Agachi, Associate Director, Atlantic Council***

The first session focused on strengthening NATO's collective

resilience in the context of deterrence and defence. Panellists discussed the opportunities the Alliance should seize and the challenges we need to be ready for when building our resilience. This session considered both civil and military aspects of resilience, while drawing on Ukraine's experience from the war.

Discussion points of note:

- Resilient Allies underpin the credibility of our deterrence and defence posture and support the broader implementation of the Alliance's core tasks. Resilience is an important part of deterrence by denial – we make it more costly for an adversary to succeed.
- NATO's focus remains on ensuring

that national and NATO military forces are at all times adequately supported with civilian resources and infrastructure so they can carry out NATO's core tasks, especially collective defence.

- Resilience is neither easy, fast, nor cheap. Building resilience requires being honest about vulnerabilities and putting in place concrete solutions to mitigate and address these issues.
- Stove-piping is one of the main challenges we face. From this perspective, it is necessary to bring together civil and military actors working on deterrence and defence to have a joint conversation.
- There are different ways of understanding resilience. While the academic community conceptualize resilience at the systemic (interwoven societies), operational (continuity of communications, transport, logistics, etc.) and human levels (including institutions and how they learn lessons), defence experts see resilience as a "complex" civil military relationship. In essence, to enable armed forces to operate, needs and requirements must be integrated and de-conflicted whilst protecting societal needs and considerations (e.g. provision of critical services, degree of self-sufficiency, etc).
- Ukraine is a "battlefield" for resilience. Ukraine's efforts demonstrate how highly interconnected societies are and that building resilience early and working together prevents chaos

and panic in times of crisis and war.

- From a military perspective, NATO needs to ask whether and how the character of conflict has changed (e.g. where and when kinetic fighting may not be as important), what warfare of tomorrow is going to be like and what impact these changes will have on our resilience.
- We need to have a deep discussion and we must be honest with ourselves regarding the gaps and vulnerabilities of our armed forces, especially because our militaries are end users of overwhelmingly civilian supply chains. Therefore, any disruption to these supply chains will have a negative impact on military effectiveness and operations.
- On communication, it is important to "meet people where they are" and to "talk to them in a language they understand" (simple messaging and constructive dialogue). We must build trust with our populations and proactively shape the narrative by providing information early and by effectively challenging false narratives.
- Overreliance on superior military technological can result in underestimating simple, honest and continuous communication with the public. Governments need to engage various societal elements, such as churches, NGOs, schools, etc, about their appropriate roles in resilience and in building a collective narrative.

- Developing communities of interest and communicating effectively to engage them is an important task for governments. In this context, it takes political initiatives/decisions to bring all aspects of our societies, not just the military and civil agencies, together.
- The private sector works on a different set of principles, incentives and assumptions and therefore needs contracts and funding to start producing and delivering equipment, which is in turn necessary to handle crises.
- The Alliance should gain a better understanding of how our economic model would operate under crisis and war conditions. In particular, we should consider whether there are sufficient resources available for a protracted war.
- While the main focus is on Russia, the Alliance should keep China in mind as its stated ambitions and coercive policies challenge the Alliance's interests, security and values.
- The concept of "resistance" is closely linked with "resilience". Resistance necessitates the support of the population and represents one of the most challenging aspects of the comprehensive defence model.
- Governments should not shy away from emotions in the context of resilience. They can utilize powerful public emotions like "hope" to rally the public and counter "fear". However, emotions by themselves are not sufficient and they must be paired with concrete actions.
- Law enforcement plays an important role and should be more effectively integrated into national resilience-building efforts. Public order is extremely important during crisis and war, especially at the onset of events.





CRITICAL INFRASTRUCTURE AND SECURITY OF SUPPLY - THE DOUBLE HELIX

Critical Infrastructure (CI) is often dual-use and vital for both civilian and military purposes. A secure and steady supply of raw materials, components and consumer goods is critical to the functioning of our economies and infrastructure. This also plays a key role for the sustainment of military operations, especially in facilitating secured supply of equipment, material, repair parts and munitions from the defence industrial base to the front lines. The past few years has highlighted the extent to which critical infrastructure and security of supply are vulnerable, whether to natural or human-induced disasters (like the Covid-19 pandemic, or the blockage of the Suez Canal in March 2021) or to deliberate targeting (such as Russia has inflicted on Ukraine's energy and communications infrastructure).

It is fundamentally impossible to protect all CI against all threats and hazards, all the time. CI is widely dispersed (often between several nations), largely owned and/or operated by the private sector, in many cases easily accessible and dependent on the global supply chains. Global supply chains are generally designed according to economic and practical considerations, not with resilience and redundancy in mind. CI also includes intangible services, like the data required to balance a power grid and the technicians required to maintain vital equipment. The service CI provides has to remain financially viable, meaning that strong defensive measures are often unaffordable. Moreover, companies from outside NATO may play a role in financing, building, or operating critical infrastructure, adding additional layers of complexity.

Therefore, while the private sector is a key stakeholder and partner in ensuring both resilient critical infrastructure and resilient supply chains, security is not their primary motivation. Allies and organizations like NATO can help to provide greater awareness of potential security concerns and showcase how making CI more resilient can make disruption less likely, minimize the negative effects when disruptions do happen and ensure a quick resumption of services afterwards. This underlines the importance of two-way public-private cooperation. The focus should be on strengthening the resilience of the infrastructure network, not simply protecting individual components. In this context, NATO-EU strategic cooperation is unique and essential. The EU's strong role in establishing relevant legislation that shapes its Member States' and private sector's decisions and planning contributes to strengthening resilience in a complementary way to NATO.

This panel will consider how resilient critical infrastructure and security of supply support Allies' ability to fulfil both civilian and military tasks and, more broadly, underpin our economic security. It should also consider additional measures that Allies, NATO, other like-minded organizations, such as the EU, and the private sector can take to enhance national and collective resilience. The participants in the Critical Infrastructure and Security of Supply session are invited to consider:

- *Much critical infrastructure is privately owned and/or operated. How can we create incentives for the private sector to invest in strengthening resilience?*
- *Supply chains span the globe and are driven by economic and practical factors more than by security considerations. How can we ensure potential security issues are taken into account in supply chains for critical infrastructure?*
- *How can the military ensure the resilience of critical infrastructure and supply chains essential to its activities, given its dependencies on the commercial/private sector?*
- *In what ways can NATO and the EU work together to strengthen the resilience of critical infrastructure?*

"The last two years have revealed critical gaps in the industrial base and an over-reliance on foreign manufacturing. As such, supply chain resilience has become not just an economic priority — it's not just about quality of life issues — it's become a national security imperative."

*- Mrs Deborah Rosenblum,
US Assistant Secretary of Defense for Industrial Base Policy*



Scene Setter:

- **Mr Tom Keatinge, Director of the Centre for Financial Crime and Security Studies, Royal United Services Institute**

Moderator:

- **Mr Richard S. Girven, Senior Defense Research Analyst, RAND Corporation**

Panelists:

- **Mr Olivier Onidi, EU Deputy Director-General of the Directorate-General for Migration and Home Affairs**

- **General (ret.) Hans-Werner Wiermann, Head of the Critical Undersea Infrastructure Coordination Cell, NATO HQ**
- **Mr Joel Thomas, Chief Executive Officer, SPIN Global**
- **Mr Janne Känkänen, Chief Executive Officer, Finnish National Emergency Supply Agency**

The second session explored how resilient critical infrastructure and security of supply can support Allies' ability to fulfil both civilian and military tasks and, more broadly, underpin our

economic security. The participants discussed additional measures that Allies, NATO, other like-minded organizations (such as the EU) and the private sector can take to enhance national and collective resilience.

Discussion points of note:

- Without including economic and financial security in our resilience considerations, the Alliance is weaker and less able to act.
- The Alliance needs to consider specific companies and sectors that underpin our economic security. Concurrently, Allies must defend and protect supply chains, critical infrastructure, and, more broadly, the rules-based international order.
- We need to acknowledge that we are still reliant on global value and supply chains driven by economic efficiency and factor these considerations into our planning.
- Complete self-sufficiency is not realistic. In this context, strategic autonomy should not be seen as the capacity to build in-house, but rather as the capacity to maintain supply chains and act autonomously in different kinds of crisis.
- Adversaries and competitors seek to influence and control our freedom of action through financial and economic means.
- On the one hand, the Alliance needs to shift from a responsive mode and to a strategic forward-thinking/planning mode in its engagements with the private sector. On the other hand, a whole-

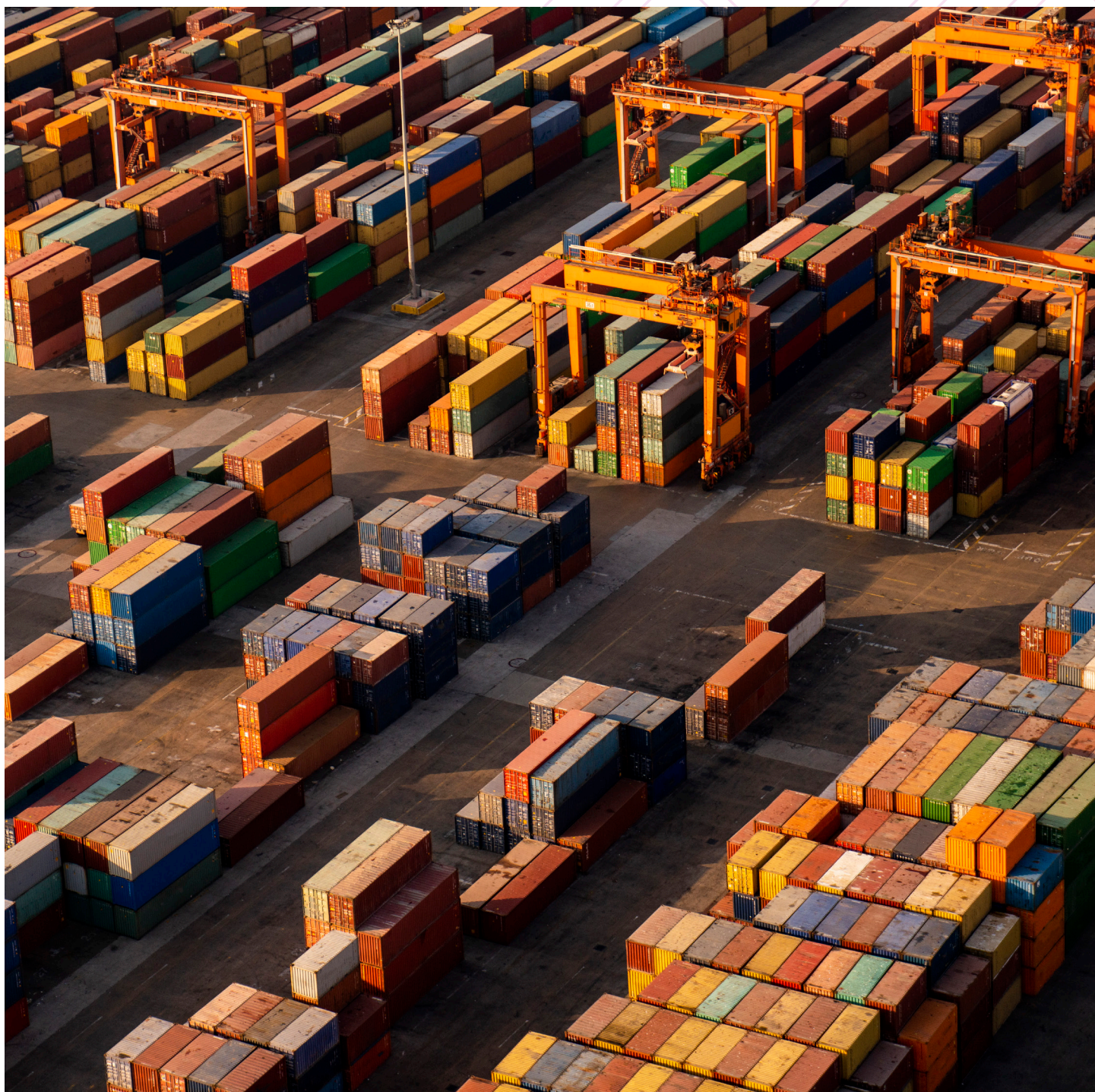
of-society approach requires a cooperative (or patriotic) response from the private sector.

- It is not sufficient to rely on past experience for our planning. By involving the private sector in resilience planning, Allies will have plans enabling effective and predictable behaviour from both public and private stakeholders.
- Allies should explore different ways of organizing preparedness. For example, government representatives could start attending private sector exercises and training to gain exposure to best practices.
- NATO and Allies could consider approaching government-industry relationships in a novel way by organizing around businesses to achieve resilience, rather than providing incentives only.
- Putting in place a framework to facilitate national government-industry partnerships will enable Allies to better understand businesses, prioritize resilience and hold transparent consultations.
- In a number of Allied countries, there is already strong engagement with the private sector because there is a "personal" and "business" interest to be resilient. This should be further enabled by governments in their role as bureaucracy owners, conveners and coordinators.
- A government's role is critical in the context of information sharing, situational awareness (e.g. opening up the intelligence

community for the private sector to report incidents) and stress testing systems and organizations.

- While enabling the private sector, Allies nationally and NATO collectively should avoid increasing already existing dependencies.

- We see a steady move from protecting critical infrastructure to a concept of “critical entities”, which emphasizes the resilience and capacity to deliver services rather than solely focusing on protecting physical infrastructure.





DATA - POTENTIAL AND PITFALLS

New information technology has exponentially increased the amount of digital data available to consumers and decision-makers. NATO citizens, governments and critical infrastructure owner/operators are constantly producing and consuming data, and as the 'Internet of Things' grows there will be evermore of it. Access to and exploitation of data is increasingly important to modern life as it fuels critical services like transportation, energy, banking and is the lifeblood of modern communications.

Data can bring many benefits but also vulnerabilities for national and collective resilience. In combination with systems to collect, process and analyse it, data can effectively and efficiently detect and correct anomalies in critical services before humans even notice them. It can also help us understand multiple orders of consequences stemming from the climate change, or complex interrelationships between regions and sectors. From a military perspective, data plays an important role in multi-domain operations, logistics, situational awareness, intelligence analysis and in assisting decision making, to name a few examples. To benefit from the advantages data offers in these functions and to foster trust in the sharing of data and its use by Artificial Intelligence (AI), data needs to be well managed and governed.

Data enables and is enabled by several of NATO's Emerging and Disruptive Technologies (EDTs). These include AI; Next Generation Communications Networks such as 5G and 6G; and in the near future, Quantum-enabled capabilities such as quantum encryption and decryption. Driven by private sector innovation, EDTs are evolving quickly. Their constant evolution means that the challenges associated with making the most out of data will become more complex in the future.

Data is also useful to our strategic competitors and potential adversaries, whether in a commercial or in a geopolitical context. Data is vulnerable to being harvested by potentially hostile actors because it is ubiquitous and largely unprotected. It may be collected, or purchased from consumer sites, but also hacked or stolen particularly if stored outside of NATO territory. Even data perceived as unimportant, when aggregated can provide useful indicators or insights to our competitors. Moreover, data that today seems of little value can bring advantage in the future as constant innovation in AI unlocks new uses.

This panel will explore both the potential and pitfalls that data presents for resilience, and stimulate debate on how data can be addressed in NATO's work, including in the Baseline Requirements, in a way that safeguards and enhances overall resilience. Participants in the Data - potential and pitfalls in strengthening resilience session are invited to consider:

- *How can Allies stay a step ahead in protecting data, when competitors' ability to harvest it is constantly improving?*
- *How can we encourage trusted data sharing between owner/operators of critical infrastructure, Allies and NATO to support an understanding of resilience in real-time as it affects NATO's ability to deliver its three core tasks?*
- *How can we distinguish critical data that needs to be protected from less important data?*

"Future conflicts will be increasingly defined by bytes and big data, as much as bullets and battleships."

*- NATO Deputy Secretary General Mircea Geoană,
27 September 2021*



Scene Setter:

- **Mr Jean-Marc Rickli, Head of Global and Emerging Risks, Geneva Centre for Security Policy**

Moderator:

- **Mr Nikolaos Loutas, Head of Data and Artificial Intelligence Policy Unit, Emerging Security Challenges Division, International Staff, NATO HQ**

Panelists:

- **Brigadier General Didier Polome, Digital Transformation Champion, ACT**
- **Mr Antonio Calderon, Chief Technology Officer, NATO Communications and Information Agency**

- **Brigadier General Sean Conroy, US Air Force reserves / Microsoft**
- **Mr Ingmārs Pūkis, Board Member, Latvijas Mobilais Telefons**

The third session explored both the potential and pitfalls that data presents for resilience. It stimulated debate on how data can be addressed in NATO's work, including in the Baseline Requirements, in a way that safeguards and enhances overall resilience.

Discussion points of note:

- Data is at the heart of our resilience. However, it is not just about having the data but about being able to share it and use it meaningfully.

Correspondingly, focus should not be on how data is created (90% of all data was created in the last 2 years) but on how it is used.

- Today's challenge is that data is based on exponential growth, while we are used to linear growth, which means that the further in the future we try to infer what will happen, the further it will be from reality. This can heavily skew our planning assumptions, including those relevant for resilience.
- On a practical level, the Alliance needs to embed data and technology into all of its processes, including in supporting decision-making and strategic foresight.
- Failing to maintain a technological edge can and will lead to significant risk and strategic disadvantages. The Alliance should retain data today, even if not for immediate use, as it may prove valuable for future resilience.
- We need to have a clear purpose. Defining what kind of data is needed and for what purpose will provide clarity on future steps. Data should responsibly flow in both directions, from citizens to governments and from governments to citizens. Data sharing should be embedded in everything we do.
- Hybrid and redundant military-civilian data architecture makes us more resilient.
- Our resilience is not only contingent on having or protecting data but it is also highly dependent on the human factor and our ability

to responsibly generate, analyse, use and protect it. In this context, the human is the weakest link.

- Governments and, more broadly, civil society need to understand how data is collected and used. Industry and the military have a role in informing those limits, but there is an imperative for them to operate within society's boundaries.
- Cooperation between industry and NATO provides practical insight for developers into what is useful for customers (i.e. NATO and governments). Therefore, we should develop mechanisms through which government staff, including military specialists, can regularly work embedded within industry and with private sector experts. These experts could in turn be embedded in government structures, thus resulting in both sides learning from each other, understanding vulnerabilities and strengths, and sharing best practices.
- While NATO needs clear messaging about industry taking its share of responsibility, patriotic and corporate social responsibility should not be underestimated, as many private companies understand their role and their impact on society as a whole.
- Industry investments are significantly outpacing government investments, which highlights the need for continued and deepened dialogue with industry. In addition, dual use technologies are becoming

increasingly important. Aligning roadmaps with industry can yield improved coordination and an effective application of technology.

- IOs and governments represent safety belts and brakes. Whilst they can slow innovation, they can also ensure technologies conform to rules and values. While NATO's role is related to setting standards among Allies, nations have a leading role in aspects of data collection, protection, retention

and management.

- Looking forward, private ledgers and private block chains will have a large-scale impact on the integrity of data. Similarly, quantum computing, massive modelling and analysis, biotechnology development, and autonomous systems will have a large impact on our resilience.





SOCIETAL RESILIENCE - PHYSICAL, VIRTUAL AND COGNITIVE

Through the Strengthened Resilience Commitment agreed at the 2021 Brussels' Summit, Allied Heads of State and Government called for more engagement with our societies, private and non-governmental sectors. Allies can bolster their societal resilience by drawing upon all elements of society in national civil preparedness and crisis response through a whole-of-society approach.

Societal resilience implies empowering individual citizens and civil society as a whole to play their appropriate roles during the natural disasters, but also throughout the spectrum of conflict – from peace and crisis to war. While the strong military forces are essential for the Alliance's security, they rely on a resilient civil society as the first line of defence. The armed forces also have an important role in developing a collaborative whole-of-society approach by participating in joint planning, sharing information, education, training and exercises. This joint civil-military approach strengthens the resilience, builds trust and increases shared understanding.

Citizens should be empowered in three dimensions. Firstly, they need capacity and capability to resist and recover in the physical dimension. This includes shelters, early warning systems, emergency equipment, etc. Secondly, the current digital age requires strengthened and reliable skills to navigate and tackle virtual dimensions (e.g. cyber, communication, information, entertainment platforms), while using opportunities wisely. Lastly, to promote a resilience culture, to protect from disruptive power of disinformation, and to embrace risk management mindset, we need to strengthen the cognitive dimension. Trust and communication, public access to information and education, together with access to the necessary capabilities, allows citizens to appropriately support themselves in crisis, while creating conditions where they can also contribute to national defence. Enhancing societal resilience across these three dimensions results in citizens and societies becoming partners for governments, the armed forces, relevant private sector stakeholders and contributors to security rather than being a liability.

One of the key focus areas for NATO is building societal resilience against hostile information, including disinformation, and activities designed to weaken societal cohesion and disrupt decision-making. NATO aims to mitigate the impact of hostile activities by state and non-state actors by enhancing Allied capacity to assess the information environment and tackle challenges. This entails use of audience-research and data analytics tools to increase understanding of hostile information activities conducted by state and non-state actors, and efficiently countering it via proactive communications, collaboration with Allies, partners, international organizations, civil society, academia, media and the private sector.

The Societal Resilience – Physical, Virtual and Cognitive session panellists are invited to consider:

- *How should Allies position themselves to build resilient national societies that withstand, recover from and respond to strategic shocks?*
- *How do we enhance collaboration and interactions between citizens and national armed forces?*
- *How should we create government capacity to understand and resist hostile information activities, including disinformation with wide networks of a society?*
- *Of the three dimensions to strengthen societal resilience (physical, virtual, cognitive), which do you believe is the most difficult to achieve?*

“Whether persons are able to cope with threats, learn from them, and adjust to future crises is not only decided by the persons themselves (...) it is a question involving all those societal factors that both facilitate and constrain people’s abilities to access assets, to gain capabilities for learning, and to become part of the decision-making process.”
- Prof. Daniel F. Lorenz (2010)



Moderator:

- Ambassador Baiba Braže, Assistant Secretary General Public Diplomacy Division, International Staff, NATO

Panelists:

- Colonel Kaspars Pudāns, Commander of Latvian National Guard
- Ms Charlotte Petri Gornitzka, Director General, Swedish Civil Contingencies Agency
- Ms Julia Stewart-David, Acting Director for Disaster

Preparedness and Prevention, EU's Directorate General for European Civil Protection and Humanitarian Aid Operation

- Mr Adrian Duță, Vice President, Euro-Atlantic Centre for Resilience
- Dr Solvita Denisa-Liepniece, Assistant Professor, Vidzeme University of Applied Sciences, Latvia

The fourth session explored how NATO is building societal resilience across physical, virtual and cognitive

domains with an emphasis on hostile information, including disinformation and activities designed to weaken societal cohesion and disrupt decision-making. Participants discussed how Allies should position themselves to build resilient national societies that withstand, recover and respond to strategic shocks.

Discussion points of note:

- Societies are the first line of defence. From this perspective, resilience is not about governments imposing control but about empowering and enabling society.
- Three main principles for engagement with society are (1) frank, open and clear communication about the individual's roles and responsibilities; (2) education, exercising and joint training; and (3) active involvement in planning and preparation. These principles are operationalized through local structures.
- In some Allied and partner countries there are long traditions of civil society, public sector and private sector cooperating without a need for specific rules and regulations. This cooperation is typically based on a strong tradition of trust.
- The future will likely be increasingly unpredictable, due in part to the effects of climate change. We can learn a great deal in the moment, but with the increasing frequency of crises and shorter intervals between them, there is little time to draw relevant lessons or implement them.
- Societies are composed of a multitude of different groups and sub-groups. To enhance societal





resilience, governments and international institutions need to involve the whole of society from the beginning of the process.

- NATO and the EU act as centres of networks that can leverage collective best practices and resources. In doing so, they transform interdependencies and interconnectedness from vulnerabilities to strengths.
- Despite national and collective structures, both societal resilience and society itself are messy. We need to be ready for chaos and factor in a degree of unpredictability into our planning.
- NATO is committed to defending every inch of its territory. In addition to the physical and virtual dimensions (i.e. defending every "byte"), NATO needs to consider the cognitive dimension (defending every "neuron") as well. To do that, the Alliance needs to understand the target audience and their values.
- Cognitive resilience and micro-targeted audience analysis should be accompanied by clear communication, trust, learning

by doing, dialogue, inclusiveness, and diversity.

- Communication with our populations should be based on a human-centric approach and not a media-centric approach.
- Lack of media literacy represents a challenge to informing our audiences.
- Exercises are gradually becoming more inclusive but governments and militaries still have room for improvement.
- Individuals are able to interact with and participate in the exercises but for practical reasons the primary focus remains on civil society actors as focal points for connecting people. It is not feasible to identify a clear plan for every individual person.
- Education represents a key component of enhancing societal resilience. In particular, incorporating critical thinking skills and an all-hazards approach into age-appropriate curricula will cultivate better understanding of roles and responsibilities (and their limits) among students.

PRINCIPALS' SESSIONS

REVITALIZING CIVIL AND MILITARY COOPERATION ON RESILIENCE

*FACILITATOR: DR. VLASTA ZEKULIC,
BRANCH HEAD STRATEGIC ISSUES AND ENGAGEMENT, ACT*

The complexity and abundance of recent security challenges has reinforced the importance of a whole-of-society approach to crisis, incorporating enhanced cooperation between the military, public and private sectors of society. However, achieving this synchronization is all but easy.

Since its inception, NATO placed considerable effort into establishing and maintaining the ability to mobilize civil resources in the event of war. With the end of the Soviet threat, these efforts faded and Allies engaged in expeditionary operations, which led to gradual over-reliance on contracted support for many logistical and some security functions. At the same time, national investment in resilience declined, while private ownership of critical infrastructure, transportation and just-in-time supply models increased.

Russia's invasion of Ukraine in 2014 and resulting occupation of Crimea, and in particular the 2022 full-scale war of aggression against Ukraine, have once again refocused NATO efforts on deterrence, defence and the necessity to be resilient against all threats. In 2016, Allies pledged to increase their resilience, noting that "being resilient requires Allies to maintain and protect critical civilian capabilities, alongside and in support of military capabilities, and to work across the whole government and with the private sector."²

So what does "supporting military capabilities" mean? Meeting military requirements in a non-competitive environment within a functioning state has been manageable. However, in the new security environment, deployed NATO troops may have to use the same resources and services as the local population. The Seven Baseline Requirements for resilience, defined in 2016 and revised in 2021, assigned qualitative and quantitative values to the most critical of these dual-need areas. However, in the ever-changing security environment where natural and adversary-driven crises can happen simultaneously, how much is enough? Who decides on prioritization? For the military authorities, the question is how NATO's current level of resilience effects Supreme Allied Commander Europe (SACEUR) military activities across the full spectrum of conflict.

One of the challenges in answering this question stems from the fact that military and civilian plans, at NATO and national levels, are developed primarily in isolation from each other. This leads to restricted risk analysis and mapping of vulnerabilities and reduced understanding of the cumulative consequences. The civilian population and critical infrastructure, upon which the military may rely, can become highly vulnerable to external attack and internal disruption. However, as the war against Ukraine shows us, civilians should not be viewed solely as victims or objects of protection, but as important and vital building blocks of a resilient society and defence effort, and we need to plan for this.

This leads to another two-fold challenge: How much capacity vs. capability do militaries need to conduct full scale operations and simultaneously support the civilian population? In this regard, the two NATO Strategic Military Commands differ in focus. While ACT, through the Layered Resilience concept, aims to define how to improve the resilience and sustainability of NATO's Military Instrument of Power; ACO colleagues approach this challenge predominantly from the Civil-Military perspective and focus on the impact of military plans and operations on the civilian population.

Although the military, civil and private sectors may approach resilience from different angles, in the contemporary security environment they are interdependent. The Military Instrument of Power is an essential component of any strategy to mitigate vulnerabilities in a whole-of-society approach to resilience. This session considered the changes in relationships that occurred between civil and military authorities in building resilience over time and discussed how we can generate more synergies between civilian and military resilience efforts.

² https://www.nato.int/cps/en/natohq/official_texts_133180.htm

SYMPOSIUM DINNER



Selected attendees participated in a Leaders Working Dinner. The theme of the dinner was digital infrastructure resilience. Following welcoming remarks from ACT's Chief of Staff and from Mr Igors Rajevs, Head of the Comprehensive National Defence Subcommittee of the Parliament of Latvia, a senior-level executive from NOKIA, Dr Olaf Schulz, Vice President for Government Affairs Europe, provided a keynote address on NOKIA's views on digital networks and a vision for technology evolution. Highlights from the address reflect on the ever greater importance of national digital infrastructure and aspects of trade, trust and innovative leadership for resilience:

- Whilst a large part of our environment has already been digitalized, the lines between the digital and physical domains will become even more blurred in the future.
- There is no resilience without the backbone of resilient digital infrastructure: it includes 5G networks, optical networks, IP infrastructure and cloud technology as well as the digital infrastructure used by specific sectors like energy, water, transport, health, and other systems.
- There is no resilient digital infrastructure if it runs on untrusted technology. Transparency about the suppliers of all elements of the digital infrastructure is urgently needed.
- Changing to trusted, Alliance-based vendors is not a question of technology availability or of the capability to deliver at scale, but of a political decision.
- Change starts with knowing: avoiding decisions due to a lack of knowledge should not be an option.



- Resilience is linked to innovation leadership: lagging behind results in a dependency that can be exploited. Innovation needs to be incentivized and countries need to foster fair competition, where the best ideas and technologies win, while considering the long-term consequences of market distortion, changes in standard setting and the intellectual property rights systems.
- Digitalization and connectivity will dictate the competitiveness of countries. These elements will be decisive in the strategic competitions of tomorrow.



CLOSING SESSION



Facilitator:

- Ms Anca Agachi, Associate Director, Atlantic Council

Speakers:

- Mr Angus Lapsley, Assistant Secretary General, Defence Policy and Planning Division, International Staff, NATO
- Mr Jānis Garisons, State Secretary, Latvian MOD
- Vice Admiral Guy Robinson, Chief of Staff, ACT

The NATO Resilience Symposium 2023 concluded with a facilitated discussion. The session addressed the “So What for NATO and Allies?,” reflecting on the discussions from the two days of the Symposium, while highlighting what is needed from the nations’ and NATO’s perspectives in order to enhance the Alliance’s resilience.

The panellists noted:

- NATO exists to defend its members in a war with a peer nuclear-powered adversary and this Alliance mission cannot be handled by anyone else. This is at the core of deterrence and defence issues, which drives the need for resilience and enablement of the Euro-Atlantic area. If we are faced with a war scenario, the resilience of all Allies will be affected in different ways.
- In the Alliance, military and civilian stakeholders must work together to understand what demand signals will be coming from our militaries and to ensure we will be able to meet them in advance of any conflict.
- The Alliance takes its responsibility seriously to do more and be more proactive in shaping the security environment. A number



of NATO workstrands are already addressing this requirement, including NATO 2030, the NATO Warfighting Capstone Concept, the Layered Resilience Warfare Development Imperative, the Long-Term Military Strategic Shaping, as well as advancements in wargaming.

- Going forward, the Alliance will require dedicated exercises focused on resilience as well as Day Zero Integration with critical enablers (including industry).
- NATO needs to strengthen planning relationships between NATO HQ, ACO and ACT. Military plans require in-depth consideration of the civil environment, and there is a need for a stronger demand signal from military planning authorities. It would be useful for Allies to provide national expertise to close civil-military planning

gaps.

- NATO could draw some lessons from Cold War planning and best practices.
- There is a need for Allies to have a body that brings together resilience-related conversations at the national level and operationalizes them.
- More realistic exercises are a key precondition for success. Significant progress on conducting realistic exercises has been made in recent years, but there is still some way to go, for example, through wargaming that introduces unscripted training and the option to train to failure in order to learn.
- Building resilience requires positivity and positive messaging.



CONCLUSION



- *The NATO Resilience Symposium 2023 in Riga was an important touchpoint as NATO continues to take concrete and ambitious steps to strengthen the resilience of Allies and the Alliance in a changed security environment. The event provided timely informal reflection on NATO's broader resilience agenda, including ACT's ongoing work on various resilience work strands, as NATO prepared for the Vilnius Summit. The event allowed Allied civilian and military participants, as well as representatives from partner nations and industry, to share views and best practices, to strengthen existing relationships and to forge new ones. Moreover, the symposium continued to consider the implications of the war in Ukraine as one of its central themes.*
- *The value of organizing the NATO Resilience Symposium is that it brought together civil and military stakeholders who would not otherwise have had the opportunity to meet and share their knowledge, experiences and proposals on improving resilience.*
- *The success of the symposium was a direct reflection of the contributions of the moderators, panellists, facilitators and audience. It would not have been possible without our Latvian hosts, NATO's Allied Command Transformation, the NATO International Defence Planning and Policy Division Staff and the multitude of organizations and individuals that provided support.*

MRS INĀRA MURNIECE LATVIAN MINISTER OF DEFENCE

OPENING KEYNOTE ADDRESS



Good morning, dear ladies and gentlemen!

It is my great honour and pleasure to be here today to support NATO's resilience agenda.

National and collective resilience is one of the cornerstones of military defence. As NATO Allies has agreed at Madrid Summit the main threat to NATO's unity comes from Russia.

Unfortunately, Russia's aggressive politics and imperialistic ambitions will prevail in the nearest future and Russia will continue to use a wide spectrum of hybrid warfare tools against the collective West.

Therefore, we need to improve resilience against hybrid threats as well as to build resilient systems of critical infrastructure.

In the current security environment, it is crucial to consider resilience as our collective and individual responsibility towards NATO's deterrence and defence.

War in Ukraine has significantly altered global economic and geopolitical order and brought new risks and threats. We have all witnessed what Russia brings to the world – war, destruction, war crimes.

And we, Latvians, deeply understand what Ukrainians are going through. The history of Latvia has had its own Buchas and Irpins.

We have memories of Latvian armed resistance movement – from the end of World War Two up until 1956. For more than a decade our National armed resistance movement was fighting against Soviet occupants. Latvians continued non-armed resistance to the occupation and nurtured the idea of a free and democratic Latvia for several decades – till regaining our independence.

Today, one of Latvia's top priorities is development of Comprehensive National Defence system, which is designed to ensure security and crisis preparedness across all sectors including preparedness for military conflicts.

Comprehensive National Defence requires Latvia to develop all capabilities – from modern weapon systems to well-prepared society and state institutions. Responding to the new security challenges, we are reintroducing conscription already this summer.

Preparedness, readiness and willingness of whole society is essential to overcome any type of crisis, therefore we are strengthening our psychological resilience. With this aim in mind, we are implementing State Defence studies curriculum that will be compulsory for all Latvian schools in 2024.

Ladies and Gentlemen!

Resilience first arises in people's minds and hearts and only then it is implemented in real

life actions.

Today, Ukraine shows us the importance of psychological resilience – trust in their own strength and a common goal – to defend their country. The resilience of Ukrainian people and their leadership – President Zelensky has been a powerful and iconic example to the whole world.

From the message that was dedicated to Russian warship or giving Russian soldiers sunflower seeds, knocking down Russian drones with jars of canned pickles and to the engagement of locals in rebuilding infrastructure after missile attacks – all these actions demonstrate a strong commitment to protect their country – Ukraine.

We must learn the critical lesson from ongoing war in Ukraine and work to improve our own national and collective resilience capacity.

Dear colleagues,

I am sure that the discussions we will have during the Symposium will facilitate the overall NATO's resilience agenda. Modern weapons systems are crucial for resilience, but still the main factor is the determination of the people.

Thank you!

MR KRIŠJĀNIS KARIŅŠ LATVIAN PRIME MINISTER

OPENING KEYNOTE ADDRESS



In his opening remarks, Mr Kariņš noted that Russia's war in Ukraine was a wake up call for all of us. By highlighting Ukraine as an example, he unpacked the interconnectedness and interdependencies of civil, military and political resilience. Moreover, Mr Kariņš emphasized the importance of preparation for crises and shocks in peace time.

AMBASSADOR MIRCEA GEOANĂ

DEPUTY SECRETARY GENERAL, NATO

OPENING KEYNOTE ADDRESS



Good morning from Brussels.

And my thanks to Prime Minister Karinš, Assistant Secretary General Lapsley and Vice Admiral Robinson for hosting the fourth NATO Resilience Symposium.

My thanks also to Minister of Defence Murniece for her warm words of welcome and for inviting me to speak today.

Vice Admiral, you and your team at ACT are working tirelessly to future-proof the Alliance, and resilience is an integral part of this effort. The last few years have clearly

demonstrated how strengthening our resilience is not a luxury. It is a necessity.

It is appropriate that this symposium is being held in Latvia. Latvia makes important contributions to our shared security. You lead by example on defence spending, committing more than 2% of GDP to defence and investing in major equipment.

Latvia contributes actively to regional exercises, ensuring our forces are well trained and well prepared. And you provide expertise on strategic communications, which including countering disinformation, through the NATO Centre of Excellence here in Riga.

And, of course, Latvia hosts the eleven allies of the multinational battlegroup in Adaži. These forces send a clear message: an attack on one ally is an attack on all.

Latvia is also providing significant support to Ukraine, exceeding 1% of its GDP, which includes a wide range of military equipment and humanitarian support.

Latvia's Comprehensive National Defence approach showcases the critical linkage between resilience and deterrence and defence.

This approach is aligned with the spirit and intent of NATO's founding document, the Washington Treaty, signed in 1949. For almost seventy-five years, Allies have been committed to self-help and mutual aid to resist armed attack. Or, in other words, to strengthening our resilience.

That commitment to resilience, to protecting our citizens and defending our territory, remains steadfast. More so than ever in the shadow of Russia's war of aggression against Ukraine.

Allies are united in their determination to stay the course and support Ukraine for as long as it takes. We are also determined to support other partner countries threatened by Russia's actions. For if Russia wins in Ukraine, it will not stop there.

Since Russia's first invasion of Ukraine in 2014, when it illegally annexed Crimea, NATO has supported Ukraine to become not only stronger militarily, but also a stronger, more resilient society.

When President Putin first ordered his tanks to roll cross the border, he expected Kyiv to fall within days and the rest of the country to follow in a matter of weeks. He was wrong. He underestimated the resilience of Ukraine and the Ukrainian people.

This shows just how important resilience is. By boosting our ability to prevent, persevere and bounce back from attacks of all forms, we reduce the chances of them happening in the first place.

Since last May, when I addressed the NATO Resilience Symposium in Warsaw, we have seen a number of developments that have had a significant impact on NATO's resilience.

NATO's latest Strategic Concept, agreed last summer in Madrid, recognizes resilience as an essential enabler of the Alliance's three core tasks: deterrence and defence, crisis prevention

and management, and cooperative security.

Earlier this year, NATO and the EU signed the third NATO-EU Joint Declaration. This further advanced our strategic partnership across a number of areas, including resilience and the protection of critical infrastructure.

Delivering on these words, NATO Secretary General Jens Stoltenberg and European Commission President Ursula von der Leyen set up a joint Task Force on resilience of critical infrastructure. The Task Force brings together senior officials from both organisations to share best practices, situational awareness, and develop principles to make our societies stronger and safer.

This month we welcomed Finland as a fully-fledged member of our Alliance, and Sweden will soon follow. Finland's membership transforms the security of the Baltic region, and both countries bring great knowledge, expertise and experience in building resilience.

Resilience will be high on the agenda at NATO's upcoming Summit in Vilnius. Ensuring our national and collective resilience underpins our efforts to safeguard our nations, societies and shared values. We take this task very seriously.

Last year in Warsaw, panellists identified 'unity of effort', 'building resilience by design' and 'projecting resilience beyond the Alliance's borders' as key elements for NATO to focus on. These elements are now reflected in NATO's actions.

First, Allies established a senior Resilience Committee. This builds on our extensive experience reaching back to the early 1950s, when NATO assumed a key role in supporting and promoting civil preparedness among Allies.

Second, the Secretary General convened the first annual meeting of Senior National Officials responsible for national resilience. This unique forum reinforces political engagement and enables closer high-level consultations.

Third, NATO and Allies launched a process to develop collective resilience objectives. Based on which, each Ally will later this year develop their own national resilience goals and implementation plans. In this way, NATO's framework helps Allies strengthen our collective resilience by addressing their own needs while also strategic vulnerabilities and gaps.

Related to this, Allies have also agreed to launch a four-year resilience planning and review cycle that will provide a structure for these efforts for years to come.

So, much has already been achieved, both collectively and nationally, but much remains to be done.

At this symposium, you have a focused but important programme ahead of you.

You will talk about some of the key topics on NATO's agenda: from strengthening critical infrastructure and the security of supply, to emerging technologies, and societal resilience.

I am confident this symposium will contribute to building an important community of interest and practice, deepening our understanding of the issues and generating important new ideas.

I particularly encourage you to reflect on the lessons from Ukraine's resilience, including its resistance, which can inform our own preparedness.

Last year, I spoke about resilience being a "team sport". This remains true and the symposium is a great example of that. It presents a unique opportunity for the resilience community to dedicate time and energy to sharing views and best practices, strengthening existing relationships and forging new ones.

Allied civil and military representatives, NATO staffs, like-minded partner organizations and countries, academia and think tanks as well as industry and civil society – we can – and MUST – all learn from one another.

The Alliance is facing a dramatically changed, volatile and contested international security environment.

In this context, resilience is our first line of defence. It offers a handrail that guides policy, strategy, planning, and capability development and helps us to successfully navigate the challenges of today and tomorrow.

Thank you. I wish you all a very successful symposium.

VICE ADMIRAL GUY ROBINSON, CB OBE CHIEF OF STAFF, ALLIED COMMAND TRANSFORMATION

OPENING REMARKS



*Prime Minister, Minister of Defence,
Assistant Secretary Generals; Admirals and
Generals,*

Ladies and Gentlemen, good morning.

*First, on behalf of General Philippe Lavigne,
Supreme Allied Commander Transformation,
may I add my warm welcome to this year's
resilience symposium. It is great to be here!*

*I must also offer my apologies for not being
able to open last night's ice-breaker due to travel
delays. Of course, the additional 12 hours it took
me to get here from Norfolk, Virginia afforded
me the time to conduct a short case study into
resilience; this included:*

*Transport Systems: the ability of United Airlines
to swap out one trans-Atlantic jet for another in
90 minutes.*

Perseverance: my ability to sustain and entertain myself in Munich Airport for 9 hours.

Resist and Recover: my ADC's resilience in his first foreign trip with me; well-done Connor!

*And, continuity of essential services, through Major General Wright stepping in seamlessly
for me at the icebreaker! Thanks Tony.*

*Second, my thanks to the previous speakers who have so eloquently set the stage for this
year's symposium with their insights into NATO's, and particularly Latvian, Resilience as it is
today; relevant observations from Russia's War of Aggression in Ukraine; identification of the
resilience opportunities and challenges of tomorrow; and the ambition of Allies at the Vilnius
Summit.*

*As the military voice in this opening session, my intent is to highlight the ongoing military
resilience activity at HQ SACT and to assure you that our work is being done in close
cooperation with NATO's International Staff to ensure that civil resilience and military
resilience effectively delivers Alliance Resilience.*

*SACT's mission is to lead the transformation of the Alliance's Military Instrument of Power.
This transformation is primarily described in the 2020 NATO Warfighting Capstone Concept.
For those who have yet to read it, a "non-classified" version will be released in the coming
weeks. For those who need an immediate digest, look no further than the ACT Twitter
feed or Website where you can find a precis of the 5 Warfare Development Imperatives
that the concept introduces. One of those 5 imperatives is "Layered Resilience", the ability
to anticipate and resist strategic shocks or surprises, manage consequences, fight through
and ultimately out-last and prevail against adversaries. This requires a layered approach,
comprising mutually reinforcing "layers" of military resilience and civilian resilience. In
support of this imperative, ACT continues to develop, in close cooperation with Allies, both*

the Layered Resilience Concept and the NATO Military Resilience Risk Assessment. In parallel, we continue to take into account, and incrementally integrate, the understanding and considerations of resilience into the NATO Defence Planning Process. And with our colleagues in SHAPE and through our 2 subordinate commands, the Joint Warfare Centre and the Joint Force Training Centre, we continue to build increasingly sophisticated resilience aspects into our exercises and wargames. Finally, we develop the requirements for Common Funded Capabilities, many of which seek to improve the resilience of military infrastructure, communications and logistics. These activities will be expanded upon by MG Tony Wright during the first session.

But I greatly value the opportunity that this symposium affords, by bringing together such a broad range of experts from across NATO HQ, Allied Command Operations and Allied Command Transformation, NATO Centres of Excellence, International Organisations, Non-Governmental Organisations, Academia and Industry. There remains much work to be done on the activity we have identified and I am certain there is more that we have yet to uncover. I sincerely hope that we can identify additional concrete steps to move forward, which build upon our success over the last year.

With the strong commitment from Allies outlined in the 2022 Strategic Concept, and a pressing urgency to address our collective resilience shortfalls, I look forward to capturing the best ideas and actions that emerge in the next day and a half.

Through the NWCC, NDPP and Common Funded Capabilities, ACT has much to contribute to Alliance Resilience.

Thank you for your attention, and I wish us all a fruitful Symposium.

BIOGRAPHIES (BY ORDER OF APPEARANCE)

MRS INĀRA MURNIECE LATVIAN MINISTER OF DEFENCE

**Languages:**

Latvian, English, Russian.

Awards:

The national award of Ukraine—the Order of Prince Yaroslav the Wise, II degree. Awarded for significant personal merits in strengthening international cooperation, supporting state sovereignty and territorial integrity of Ukraine, significant contribution to the promotion of the Ukrainian state in the world.

Education:

2009 - University of Latvia, Faculty of modern languages, qualification of translator.

2007 - School of Economics and Culture, professional bachelor's degree in translation.

Experience:

Since Dec 14 2022 -Minister for Defence of the Republic of Latvia.

2022 - Member of the Saeima Human Rights and Public Affairs Committee.

2022 - Member of the National Security Council.

2022 - Chairwoman of the Saeima National Security Committee.

2022 - Member of the 14th Saeima.

2018 - 2022 - Member of the Saeima Human Rights and Public Affairs Committee.

2018 - 2022 - Member of the Saeima National Security Committee.

2018 - 2022 - Member of the National Security Council.

2018 - 2022 - Member of the 13th Saeima, Speaker of the 13th Saeima.

2014 - 2018 - Member of the Saeima Human Rights and Public Affairs Committee.

2014 - 2018 - Member of the Saeima National Security Committee.

2014 - 2018 - Member of the National Security Council.

2014 - 2018 - Member of the 12th Saeima, Speaker of the 12th Saeima.

2011 - 2014 - Member of the Saeima National Upbringing subcommittee.

2011 - 2014 - Member of the Saeima Social Cohesion Committee.

2011 - 2014 - Chairwoman of the Saeima Human Rights and Public Affairs Committee.

2011 - 2014 - Member of the 11th Saeima.

1995 - 2011 - Journalist at "Latvijas Avīze" (prior "Lauku Avīze").

MR KRIŠJĀNIS KARIŅŠ

LATVIAN PRIME MINISTER



From July 8, 2023, the Prime Minister also temporarily executes the duties of the Minister of Foreign Affairs.

Education:

• 1990 – 1996 - PhD from the University of Pennsylvania, specialisation in linguistics; worked on natural language processing

• 1987 – 1988 - B. A. from the University of Pennsylvania, specialisation in linguistics, Summa Cum Laude,

Member of the Phi Beta Kappa Association

• 1984 – 1986 - St. John's College, B.A. studies in mathematics, philosophy and literature

Work and Political Experience:

- Since 23 January 2019 - Prime Minister of the Republic of Latvia*
- 2014 – 2019 - Member of the European Parliament, European People's Party Coordinator for the Committee on Industry, Research and Energy, Member of the Committee on Industry, Research and Energy Substitute of the Committee on Economic and Monetary Affairs, Member of the Special Committee on Financial Crimes, Tax Evasion and Tax Avoidance, Head of the Latvian Delegation to the Group of the European People's Party, Member of the Delegation for Relations with the United States, Substitute of the Special Committee on Tax Rulings and Other Measures Similar in Nature or Effect, Member of the Committee of Inquiry into Emission Measurements in the Automotive Sector, Member of the Delegation for the EU-Armenia, EU-Azerbaijan and EU-Georgia Parliamentary Cooperation Committees, Member of the Delegation to the Euronest Parliamentary Assembly*
- 2009 - 2014 - Member of the European Parliament, Member of the Committee on Industry, Research and Energy, Substitute of the Committee on Economic and Monetary Affairs, Substitute Member of the Committee on the Economic Crisis, Head of the Latvian Delegation to the Group of the European People's Party, Member of the Delegation for Relations with the United States, Member of the Delegation for the EU-Armenia, EU-Azerbaijan and EU-Georgia Parliamentary Cooperation Committees, Chairman of the New Era Party*
- 2004 – 2006 - Minister for Economics of the Republic of Latvia*
- 2002 – 2009 - Chairman of the New Era parliamentary group for many years; worked for the Economic, Agricultural, Environmental and Regional Policy Committee, the Budget and Finance (Taxation) Committee, the Audit Committee and the European Affairs Committee*
- 1999 – 2000 - President of LLC Formula, wholesale and retail trade of automobiles and office supplies*
- 1994 – 2002 - President and co-founder of LLC PK (Lāču ledus), manufacturing and distribution of frozen goods*

Language Skills:

Latvian, English, German – fluent, French and Russian – good command

AMBASSADOR MIRCEA GEOANĂ

DEPUTY SECRETARY GENERAL, NATO



Mircea Geoană became NATO Deputy Secretary General in October 2019, after a distinguished domestic and international career. Mr Geoană is the first Deputy Secretary General from Romania, and the first from any of the countries that joined the Alliance after the end of the Cold War.

Mr Geoană was born in Romania on 14 July 1958. He studied at the Polytechnic University in Bucharest, the Faculty of Law of the University of Bucharest, the Ecole Nationale d'Administration in Paris, and he holds a PhD from the Economic Studies Academy of Bucharest. Mr Geoana has served as a diplomat and a politician, and in 2009 was his party's candidate to be President of Romania.

- 1991-1995: Director at the Ministry of Foreign Affairs, Romania*
- 1993-1995: Spokesperson of the Ministry of Foreign Affairs*
- 1996-2000: Romanian Ambassador to the United States.*
- 2000-2004: Minister of Foreign Affairs*
- 2001: President in Office of OSCE*
- 2004-2016: Senator*
- 2004-2008: Chair of the Senate Foreign Policy Committee*
- 2005-2010: President of the Social Democratic Party*
- 2008-2011: President of the Romanian Senate*
- 2012-2014: High Representative of the Romanian Government for Strategic Economic Projects and Public Diplomacy*
- 2012-2014: Chair of the Parliamentary Committee for Romania's accession to the Schengen Area*

Mr. Geoana is a strong advocate of transatlantic integration and has held a number of international positions, including OSCE Chairperson-in-Office in 2001 and personal representative of the OSCE Chairperson-in-Office for Georgia in 2005. He is President and founder of the Aspen Institute Romania and has published extensively on domestic and international affairs.

In 2000, he was made a Commander of the National Order, The Star of Romania. He has also been awarded the French Legion d'Honneur and the Italian Stella della Solidarieta.

Mr Geoana is married to Mihaela, an architect by training and former President of the Romanian Red Cross. They have two children, Ana Maria and Alexandru.

He is fluent in English, French, Spanish and Italian.

VICE ADMIRAL GUY ROBINSON, CB OBE

CHIEF OF STAFF, ALLIED COMMAND TRANSFORMATION



Guy Robinson joined the Royal Navy in 1986 as a warfare officer. His seagoing career has been primarily spent in frigates and destroyers, serving as a bridge watchkeeping officer, navigator and then Principal Warfare Officer. He has been fortunate to command three warships: the patrol vessel HMS GUERNSEY, the Type 42 Destroyer HMS EDINBURGH and the Type 45 Destroyer HMS DARING. In 2003, he commanded EDINBURGH during the combat phase of the 2nd Gulf War and was subsequently awarded a Mention-in-Despatches. In 2008 he operated from the Iraqi Khawr al Amaya offshore oil terminal as Commander Task Group 158.1, running operations in the Northern Arabian Gulf. In 2012, he took DARING on the

first operational deployment of a Type 45 to the Middle East. From 2015 through 2016 he was the Deputy Commander of United Kingdom Maritime Forces, the Royal Navy's high readiness battle staff. During that assignment he assumed duties as Commander of Combined Task Force 150, the counter-terrorism task force operating in the Indian Ocean. In his most recent command assignment (2017-21) he was Deputy Commander at Naval Striking and Support Forces NATO (STRIKFORNATO) based at Oeiras, Portugal; a deployable Joint battle staff whose primary role is the integration of high-end U.S. maritime capabilities into NATO operations.

During assignments ashore, Vice Admiral Robinson has served in the UK's Ministry of Defence (MoD), working as the financial programmer in the above water equipment capability area. He also served on the staff of Flag Officer Sea Training staff as Commander Sea Training where he was responsible for the training of all Royal Naval major warships, from frigates to aircraft carriers, as well as a multitude of ships from both NATO and non-NATO navies. As a captain he served in the MoD's Development, Concepts & Doctrine Centre (DCDC) where he was responsible for generating maritime concepts and high-level doctrine. His most recent shore assignment (2013) has been in Navy Command Headquarters as the Assistant Chief of Staff (Warfare), where he was responsible for the assessment of the Fleet's warfighting capability. He became Chief of Staff at Headquarters Allied Command Transformation in July 2021.

When in the UK, Vice Admiral Robinson lives in Hampshire with his wife Mel, a Commodore in the Royal Navy, and their two adult children Max and Maisie. He is a graduate of the UK Higher Command and Staff Course (2013), the US Coalition Force Maritime Component Commanders' Course (2015), the Royal College of Defence Studies (2017) and is an alumnus of the Windsor Leadership Trust. He holds a master's degree in defence studies from King's College London. Her Majesty The Queen appointed him as an Officer in the Military Division of the Most Excellent Order of the British Empire in 2013.

MR ANGUS LAPSLEY

ASSISTANT SECRETARY GENERAL FOR DEFENCE POLICY AND PLANNING, NATO HQ



Angus Lapsley became NATO Assistant Secretary General for Defence Policy and Planning in September 2022. Within NATO's International Staff, Angus leads the team responsible for the Alliance's capability and force planning, posture, plans, and a range of defence policy questions, including nuclear issues.

After studying English Language and Literature at the University of Oxford, Angus spent over 30 years as a diplomat for the UK. He served as Director General Strategy & International in the Ministry of Defence, as Ambassador to the European Union's Political and Security Committee, and worked in the private offices of two Prime Ministers. He is married with two adult children.

Session 1: Strengthening Alliance Resilience – Challenges and Opportunities



Ms Sarah Tarry

Director of Defence
Policy and Capabilities
Directorate, IS DPP,
NATO HQ



MG Tony Wright

Deputy Chief of
Staff for Strategic
Plans and Policy,
HQ SACT



Ms Anca Agachi

Associate Director,
Atlantic Council



**Mr Jānis
Garisons**

State Secretary of
Latvian Ministry of
Defence



**Ambassador
Nataliia
Galibarenko**

Ukrainian Ambassador
to NATO

MS SARAH TARRY

**DIRECTOR OF DEFENCE POLICY AND CAPABILITIES DIRECTORATE,
DEFENCE POLICY AND PLANNING DIVISION,
NATO HQ INTERNATIONAL STAFF**

Sarah Tarry has been the Director of Defence Policy and Capabilities within the Defence Policy and Planning Division of NATO's International Staff since November 2018.

Prior to this she was the Head of the Operational Preparedness Section within NATO's Operations Division. Previously, she held a variety of positions in the Canadian Ministry of Defence, including as the Deputy Director for Peacekeeping Policy, and the Deputy Director of NATO Policy. Her most recent position prior to returning to Brussels was in Canada's Privy Council Office, where she worked in the Secretariat responsible for providing foreign and defence policy advice to Canada's Prime Minister. Between 2008 and 2012, Ms. Tarry served in the Canadian Joint Delegation to NATO and subsequently in the Defence Policy and Planning Division of the NATO International Staff.

MAJOR GENERAL TONY L. WRIGHT

DEPUTY CHIEF OF STAFF, STRATEGIC PLANS AND POLICY, ALLIED COMMAND TRANSFORMATION

Major General Tony L. Wright currently serves as the Deputy Chief of Staff for Strategic Plans and Policies (DCOS SPP) at NATO Headquarters, Supreme Allied Command Transformation in Norfolk, VA. He previously commanded the 98th Division at Ft. Benning, GA. He began his military career in 1983, enlisting as a 13B Cannon Crewman at Ft. Polk, Louisiana. He received his commission through the Reserve Officer Training Corps at Ohio University where he earned recognition as a Distinguished Military Graduate and completed his Bachelor of Science Degree in Industrial Technology/Manufacturing in 1989. After commissioning, Major General Wright held various positions including Platoon Leader G/333 FA, serving in Operation Desert Shield and Desert Storm; Company Fire Support Officer for 3/15 Infantry and 4/64 Armor; Fire Direction Officer and Platoon Leader 3/41 FA, Fort Stewart, Georgia. Following the Officer Advanced Course he was assigned as Assistant G-3 Headquarters V Corps Artillery and later as Commander A Battery 4/27 FA in Germany.

Major General Wright was honorably discharged from active duty in January 1997 to pursue a civilian career. He began his Army Reserve career with assignment to 1st Brigade, 95th Division (IT), Lawton, Oklahoma where he served in a variety of positions including Brigade S4, Battalion S3, and Executive Officer for 1/354 Field Artillery and later mobilized as the Brigade S3. He commanded the 2nd Battalion, 378th Regiment (Basic Combat Training) Monroe, Louisiana and later served two years on active duty as Mobilization Officer for the 95th Division (IET). He then served as the G-3, 95th Division (IET) and was selected to serve as Commander, 1st Brigade, Southern Division, 75th Training Command. He was then selected as the Assistant Division Commander for the 95th DIV (IET). His first general officer assignment was as the Deputy Commanding General of the 88th Readiness Division, Ft. McCoy, WI.

Major General Wright's military schools include the Field Artillery Basic and Advance Courses, the Field Artillery Target Acquisition and Survey Officers Course, the MLRS Cadre Course, Combined Arms and Services Staff School (CAS3), Intermediate-Level Education (ILE) Course, the Army War College, and Capstone. His awards and decorations include the Legion of Merit, Meritorious Service Medal (w/6 Oak Leaf Clusters), the Army Commendation Medal (w/2 Oak Leaf Cluster), the Army Achievement Medal, the Good Conduct Medal, the South West Asia Service Medal (w/ 2 bronze service stars), the Kuwait Liberation Medal (Saudi Arabia), Kuwait Liberation Medal (Kuwait), Global War on Terrorism Service Medal, and the Basic Parachutist and Air Assault Badges. Major General Wright is married to his wife of 35 years, Valerie. They have four children, two daughters in law, and three grandchildren.

MS ANCA AGACHI

ASSOCIATE DIRECTOR, ATLANTIC COUNCIL

Anca Agachi is an associate director and resident fellow for the Transatlantic Security Initiative in the Atlantic Council's Scowcroft Center for Strategy and Security. Her work in TSI focuses on transatlantic security and defense, conflict and stabilization, emerging threats and foresight. Anca's interest lies in understanding the long-term transformation of conflict and security and how policy structures can adapt to meet this changing landscape. Her analysis has appeared in Politico, Just Security, Defense One, and the National Interest, among others.

Her previous experience is at the intersection of security policy and development. Previously, she worked for the EU's European Defence Agency on defense capability development projects in the information security and space domains, and served as a United Nations Youth Representative for Romania, focusing extensively on the UN 2030 Agenda and sustainable development goals.

Anca holds a Master of International Affairs from Columbia University's School of International and Public Affairs, with a concentration in International Security Policy and a double specialization in Conflict Resolution and Africa. She holds a BA in International Relations and European Studies from the University of Bucharest, as well as a BA in International Business and Economics from the Bucharest Academy of Economic Studies. Anca is originally from Bucharest, Romania.

MR JĀNIS GARISONS

STATE SECRETARY OF LATVIAN MINISTRY OF DEFENCE

Languages:

English, Russian, Norwegian, French

Education:

2012-2014 - US Army War College, Master of Strategic Studies

06.2003 - Course ELOQUENT NUGGET 03

09.1998 - 07.1999 - International Training Course Geneva Centre for Security Policy

1996 - Training course for young diplomats Clingendael Institute, The Hague

1990-1996 - University of Latvia, Master of History

Experience:

Since 2015 - State Secretary of the Ministry of Defence of Latvia

03.2013-08.2015 - Undersecretary of State-Policy Director, Ministry of Defence of Latvia

01.2009-03.2013 - Policy Director, Ministry of Defence of Latvia

08.2007-01.2009 - Director of Crises Management Department, Ministry of Defence of Latvia

09.2005-08.2007 - Deputy Director of Crises Management and Mobilisation Department, Ministry of Defence of Latvia

09.2004-09.2005 - NATO and EU Security division, Ministry of Foreign Affairs of Latvia

10.2002-09.2003 - Head of the Regional Co-operation and Arms Control Division, Ministry of Foreign Affairs of Latvia

12.1999-10.2002 - First Secretary, Embassy of Latvia in Norway

09.1997-12.1999 - Head of the Division for Russia and CIS, Ministry of Foreign Affairs of Latvia

05.1996-09.1997 - Senior Desk Officer of the Division for Russia and CIS, Ministry of Foreign Affairs of Latvia

AMBASSADOR NATALIYA GALIBARENKO

UKRAINIAN AMBASSADOR, NATO

Born on 12 May 1978 in Kyiv, Ukraine.

Graduated from the Institute of International Relations of Taras Shevchenko National University of Kyiv in 2000, MA in International Relations.

2000-2001 - First category Specialist of the Department of Information Technology of the Ministry of Foreign Affairs of Ukraine (MFA).

2001-2003 - Attaché, Third Secretary, Private Office of Minister for Foreign Affairs of Ukraine.

2003-2006 - Third and Second Secretary, Mission of Ukraine to the European Union.

2007-2009 - Chief Consultant, Main Office for Foreign Policy, European and Euro-Atlantic Integration Processes of the Presidential Administration of Ukraine.

2009-2010 - Head of Private Office of Deputy Minister for Foreign Affairs of Ukraine.

2010-2012 - Deputy Director, EU Directorate General, MFA.

2012-2014 - Deputy Head, Permanent Mission of Ukraine to the International Organizations in Vienna (Austria).

2014-2015 - First Deputy Minister for Foreign Affairs of Ukraine.

2015-2020 - Ambassador Extraordinary and Plenipotentiary of Ukraine to the United Kingdom of Great Britain and Northern Ireland, Permanent Representative to the International Maritime Organization.

By the Decree of the President of Ukraine of July 30, 2021 № 334/2021 was appointed as Head of the Mission of Ukraine to NATO, Ambassador Extraordinary and Plenipotentiary.

Speaks English and Spanish.

Married, has a son.

MR TOM KEATINGE

DIRECTOR OF THE CENTRE FOR FINANCIAL CRIME AND SECURITY STUDIES,
RUSI LONDON



Tom Keatinge is the founding Director of the Centre for Financial Crime and Security Studies (CFCS) at RUSI, where his research focuses on matters at the intersection of finance and security.

He is also currently a specialist adviser on illicit finance to the UK Parliament's Foreign Affairs Committee ongoing enquiry.

He has a Master's in Intelligence and International Security from King's College London, where he studied the effectiveness of the global counterterror finance regime. Prior to joining RUSI in 2014, he was an investment banker for 20 years at J.P. Morgan.

His research on finance and security considers a number of themes including:

- The financial dimension of state threats: the methods by which adversaries seek to undermine Western democracies and exploit their financial systems via the use of 'active financial measures'.*
- Sanctions: the effectiveness and evolution of sanctions regimes.*
- Terrorist financing: the effectiveness of current approaches to terrorist financing; the use of financial intelligence as a security tool; and the evolution of terrorist financing methods and responses.*
- Proliferation financing: the role of finance as a tool of disruption in combatting state and non-state actor proliferation ambitions.*
- Organised crime: assessing the financial dimension of priority transnational threats, including the illegal wildlife trade, environmental crime and human trafficking.*
- New approaches to tackling financial crime: the role of public/private partnership and information sharing.*

Tom Keatinge has contributed to a variety of publications and media outlets; has given evidence to UK parliamentary and US congressional hearings and spoken at a range of high-level multilateral forums including the UN Security Council and the Financial Action Task Force and a number of its regional bodies.

Session 2: Critical Infrastructure and Security of Supply - The Double Helix?



Mr Richard Girven

Senior Defence Analyst, RAND



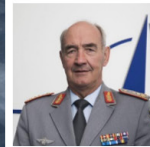
Mr Janne Kankänen

Chief Executive Officer of the National Emergency Supply Agency (FIN)



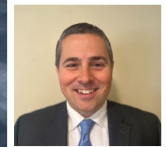
Mr Olivier Onidi

EU DG HOME's Deputy Director General



LtGen (ret) Hans-Werner Wiermann

Head of the Critical Undersea Infrastructure Coordination Cell, NATO HQ



Mr Joel Thomas

Chief Executive Officer, SPIN Global

MR RICHARD GIRVEN SENIOR DEFENCE ANALYST, RAND

Rich Girven is a senior international defense researcher at the RAND Corporation. He came to RAND from the Senate Select Committee on Intelligence, where he served as the Director of Analysis. A former career Army Foreign Area Officer focusing principally on South Asia, he served as a senior South Asia analyst at the Defense Intelligence Agency and on Army Staff, as the Assistant Defense Intelligence Officer for Middle East, South Asia and Terrorism, and as Chief of the Army's Foreign Language Office.

Rich's research interests are broad. He has led studies on Critical Infrastructure, Intelligence Community enterprise management, security clearance reform, generational change, security cooperation, foreign language education, supply chain risk and other national security topics.

Rich holds a Master of Arts in Asian Studies from the University of Hawaii, a Master in Military Arts and Sciences in Strategic Studies from the US Army CGSC, and a Master of Science in National Resource Strategy from the U.S. Industrial College of the Armed Forces. He is a recipient of the National Intelligence Medal of Achievement, the Department of State Superior Honor Award and the Defense Superior Service Medal. A linguist, Mr. Girven has studied German, Spanish, Hindi, Urdu, Sinhala, Tamil and two dead languages- Sanskrit and Pali and continues to work on his English.

MR JANNE KÄNKÄNEN

CHIEF EXECUTIVE OFFICER OF THE NATIONAL EMERGENCY SUPPLY AGENCY (FIN)

Janne Kähkönen was appointed Chief Executive Officer for the National Emergency Supply Agency (NESA) on September 1, 2020. Kähkönen has occupied the position as acting CEO since April 2020. In addition to long leadership experience, Kähkönen has experience in demanding special government projects (bail-out of distressed companies, financial restructuring, etc.) in the field of industrial policy as well as EU affairs. Before his current position, Kähkönen has served in several positions at the Ministry of Economic Affairs and Employment and has held several BoD positions since 2008. He holds a Master's degree in Economics from the University of Helsinki.

NESA is an independent central government organisation operating a 2 billion EUR National Emergency Supply Fund and coordinating a broad network of Finnish companies deemed critical for national resilience. The Agency is responsible for maintaining Finland's strategic stockpiles and involved in running programs aimed at ensuring resilience of critical infrastructure.

Work experience

- *Chief Executive Officer of NESA, September 2020–*
- *Interim Chief Executive Officer of NESA, April 2020–September 2020*
- *Director for EU and International Affairs at the Ministry of Economic Affairs and Employment, 2016–2020*
- *Director-General at the Ministry of Economic Affairs and Employment, 2016*
- *Head of Unit at Ministry of Economic Affairs and Employment, 2011–2015*
- *Director at Ministry of Economic Affairs and Employment, 2008–2010*
- *Deputy Director-General at the Ministry of Trade and Industry, 2005–2007*
- *Administrator at the European Commission, 1996–2005*

MR OLIVIER ONDI

DEPUTY DIRECTOR-GENERAL OF THE DIRECTORATE-GENERAL FOR MIGRATION AND HOME AFFAIRS, EU COMMISSION

Since May 2016, Olivier Onidi is Deputy Director-General of the Directorate-General for Migration and Home Affairs (DG HOME) at the European Commission with particular responsibility over Schengen and Internal Security. In this capacity, he oversees the activities in the fields of Schengen, borders, information systems, innovation, terrorism and violent extremism, organized crime and cybersecurity. He also led the European Commission's Task Force for the Security Union and held respectively the EU Anti-Trafficking Coordinator and Counter-Terrorism Coordinator positions. Since July 2022, Olivier Onidi is also the EU Schengen Coordinator.

Olivier Onidi's last assignment was Deputy Director-General of DG HOME with the specific task to coordinate the Commission-wide work in the context of the refugees' crisis 2015-2016.

Previously, he was Director for the European Mobility Network within the Directorate-General for Mobility and Transport, responsible for the development of the Trans-European Transport Network infrastructure, the implementation of the Connecting Europe Facility funding instrument, the creation of a Single European Rail Area and policy around ports. Prior to this, he was Director for Innovative and Sustainable Mobility in charge of transport security, clean and urban transport, intelligent transport systems and road safety.

Olivier Onidi also worked as Deputy Head of Cabinet of the Energy Commissioner, Mr Günther H. Oettinger, as Head of Unit for air transport services, aviation safety and environment and was Head of the Satellite Navigation System programme - GALILEO.

His first posts in the Commission were Assistant to Directors-General in the areas of Energy and Transport and External Relations. He then moved to the Secretariat General and afterwards became Member of Cabinet of the Commissioner for Research and Development, Innovation, Education and Training.

Before joining the Commission, Olivier Onidi worked as Adviser to the Executive Committee of Belgacom and as Public Policy Manager at American Express International.

Olivier Onidi holds Master degrees in International Economics, European Studies and Business Administration. He has French citizenship.

LTGEN (RET) HANS-WERNER WIERMANN

HEAD OF THE CRITICAL UNDERSEA INFRASTRUCTURE COORDINATION CELL, NATO HQ

Lieutenant General (retired) Wiermann joined the Bundeswehr in 1976.

His training as an Electrical and Mechanical Engineering Officer in the German Army included degree studies in Electrical and Communication Engineering. As a junior officer, he was repeatedly selected for advanced military education, attending the General Staff Officer Course in Hamburg from 1988 to 1990 and the British Army Staff College in Camberley in 1993.

His consistent professional development in politico-military affairs began early in his career, starting in 1994 with two successive assignments as Assistant Branch Chief Arms Control and Chemical Weapons Convention in the Joint Staff of the German Ministry of Defence and Assistant Branch Chief Treaty on Conventional Forces in Europe seconded to the Federal Foreign Office.

While the development of military policy in national, bilateral and international settings has become the hallmark of his formidable career, Lieutenant General Wiermann also has a solid operational background. He has served in G4 Logistics and G3 Operations functions on the staffs of 1 Armoured Division in Hannover and IV Corps in Potsdam. He has held Command at the lower tactical as well as the operational level.

Broadening his professional scope, Lieutenant General Wiermann then completed a two year tour as Assistant Branch Chief Force Planning in the Policy and Advisory Staff at the very heart of the German Ministry of Defence before his selection as a Military Assistant to the Chief of Defence in 2002. Equipped with his early experience in arms control and security policy and the impressions he gathered assisting the German Chief of Defence at the interface between the military and political arenas, he moved on to a succession of increasingly senior positions in the Ministry of Defence.

From 2004 to 2012, he rose from Deputy Assistant Chief of Staff for Politico Military Affairs and Arms Control to Director of Security Policy in the Ministry's newly established Security Policy Directorate. Before leaving the Ministry of Defence in 2013, Lieutenant General Wiermann collected extensive experience in bilateral and international security policy, travelling the globe and leading and directing staffs or staff elements handling issues comparable to content and nature to NATO Headquarters' International Military Staff.

In 2013, Lieutenant General Wiermann became the Bundeswehr's Commander Territorial Missions, gathering operational level command experience touching on some of NATO's and the European Union's most pressing adaptation challenges, including military mobility, the enablement of the European theatre, civil-military cooperation and civil preparedness. His command encompassed a network of liaison commands and staff elements establishing lasting relationships between military and civilian authorities in preparation for regional and national states of emergency.

On 12 August 2015, Lieutenant General Wiermann assumed the role as German Military Representative to NATO and the European Union. He was then Director General of NATO's International Military Staff from July 2019 to July 2022. In February 2023 the NATO Secretary General tapped Lieutenant General Hans-Werner Wiermann to lead the Critical Undersea Infrastructure Coordination Cell at NATO Headquarters.

Lieutenant General Wiermann is married to Susanne and has two daughters.

MR JOEL THOMAS

CEO OF SPIN GLOBAL

Joel Thomas is the Founder and CEO of SPIN Global, a public benefit company that exists to disrupt disasters from neighborhoods to nations.

Mr. Thomas is an internationally recognized expert on private-public partnerships, focused on the nexus of societal resilience, peace and security, economic development, and emergency management. He served as a principal author and contributor to U.S. national policy, guidance and doctrine related to disaster-oriented PPPs. This has included publication of "Building Private-Public Partnerships", published by the U.S. Federal Emergency Management Agency in 2021. He also authored several national-level PPP guides and management-level courses published by the U.S. Department of Homeland Security and FEMA focused on building resilience through supply chains, information sharing, economic resilience, business emergency operations, restoration and recovery, risk reduction, equity and inclusion. Mr. Thomas also led development of "Building Operational Public Private Partnerships", published by the National Emergency Management Association in 2017.

In his capacity as a consultant to the U.S. Department of Defense Institute for Security Governance, and he provides strategic policy and program expertise on resilience, private-public partnerships, and crisis management. He routinely provides national-level PPP expertise, institutional capacity building and regional security cooperation support to NATO Allies and Partners in support of the U.S. Department of Defense.

His disaster work is rooted in operational experience, as Mr. Thomas served as an urban campus first responder in Washington D.C. at The George Washington University, and has participated in numerous domestic and international response and recovery operations (e.g. COVID19, Hurricane Maria, Thailand/Indonesia Tsunami, Deepwater Horizon, Haiti Earthquake, et al). In his capacity and support to FEMA's Office of Business, Industry and Infrastructure Integration he has supported response to dozens of Presidentially declared disasters.

His small business perspectives have been shaped through his ownership and successful sale of several small businesses that created hundreds of jobs, including multiple "main street" restaurants, and a patented technology company.

Mr. Thomas is a Senior Fellow and Adjunct Faculty at Tulane University Disaster Resilience Leadership Academy, where he teaches on the "Economics of Disaster Recovery". He previously earned a Masters in Public Administration from The George Washington University, and a Bachelor of Arts in Business/Non-Profit Management from Trinity International University. To learn more, you may connect at <https://www.linkedin.com/in/joeldavidthomas> or contact Mr. Thomas at jthomas@spinglobal.org.

DR JEAN-MARC RICKLI

HEAD OF GLOBAL AND EMERGING RISKS, GCSP



Dr. Jean-Marc Rickli is the Head of Global and Emerging Risks at the Geneva Centre for Security Policy (GCSP) in Geneva, Switzerland. He is also the co-chair of the NATO Partnership for Peace Consortium (PfPC) Emerging Security Challenges Working Group and a senior advisor for the Artificial Intelligence Initiative at the Future Society. He represents the GCSP in the United Nations in the framework of the Governmental Group of Experts on Lethal Autonomous Weapons Systems (LAWS). He is the co-curator of the International Security Map of the Strategic Intelligence Platform of the World Economic Forum. He is also a member of the Geneva University Committee for Ethical Research and of the advisory board of Tech4Trust, the first Swiss startup acceleration program in the field of digital trust and cybersecurity.

*Prior to these appointments, Dr. Rickli was an assistant professor at the Department of Defence Studies of King's College London and at the Institute for International and Civil Security at Khalifa University in Abu Dhabi. In 2020, he was nominated as one of the 100 most influential French-speaking Swiss by the Swiss newspaper Le Temps. Dr. Rickli received his PhD in International Relations from Oxford University. His latest book published by Georgetown University is entitled *Surrogate Warfare: The Transformation of War in the Twenty-first Century*.*

Session 3: Data – Potential and Pitfalls in Strengthening Resilience



Mr Nikos Loutas

Head of Data and
Artificial Intelligence
Policy Unit, NATO HQ



**BG Didier
Polome**

Digital Transformation
Champion, HQ SACT



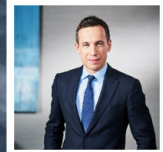
**Mr Antonio
Calderon**

NCIA Chief Technology
Officer



BG Sean Conroy

USAF
Reserve/Microsoft



**Mr Ingmārs
Pūķis**

LMT Board Member

MR NIKOS LOUTAS

HEAD OF DATA AND ARTIFICIAL INTELLIGENCE UNIT,
NATO HQ INTERNATIONAL STAFF

Nikos Loutas is the head of NATO's Data and AI Policy unit, which provides policy leadership, drives policy adoption, and coordinates NATO's efforts to use data as a strategic asset, and to adopt Artificial Intelligence and other digital technologies in line with NATO's Principles of Responsible Use. Before joining NATO, he worked as a data policy officer in the European Commission's Secretariat-General, and held several positions in the private sector and in research. He has a PhD in semantic web and data analytics.

BRIGADIER GENERAL DIDIER POLOME

DIGITAL TRANSFORMATION CHAMPION, ALLIED COMMAND TRANSFORMATION

Brigadier General Didier Polomé started his military career in 1988 at the Belgian Royal Military Academy followed by his fighter pilot training course in the ENJJPT located in Sheppard AFB. He joined the 350th Fighter Squadron in Florennes in 1997, and subsequently participated in NATO operations above former Yugoslavia.

In 2004, he was appointed as staff officer in AIRCOM Ramstein where he coordinated the Baltic Air Policing mission and multiple NATO large-scale flying exercises. In 2006, he was deployed to ISAF HQ in Kabul as Mission Director in the ASOC.

In 2007, he assumed command of the 350th Fighter Squadron and led the first Belgian F -16 detachment to Kandahar in support of ISAF in 2008. Upon completion of his command tour in 2009, he was selected for the U.S. Air War College in Maxwell AFB.

In 2010, he was assigned as Chief, Crisis Response Planning in the Belgian Joint Staff. This gave him the opportunity to lead the operational planning for the Belgian contributions to different operations such as ISAF, Unified Protector in Libya, Serval in Mali, and Baltic Air Policing. In 2013, he attended the U.S. National War College in Washington D.C.

In 2014, he became the Commander of the Air Ops Division (A3) in the Belgian Air Force staff. His responsibilities included the planning and preparation of all Belgian air combat, transport, helicopter, and ISR assets for operations such as Operation Inherent Resolve (OIR) above Iraq and Syria.

In June 2016, he became the commander of the 2nd Tactical Wing at Florennes Air Base that participated during the three following years in numerous operations in Syria, Iraq, the Baltic States, Mali, and on the national territory in the fight against terrorism.

In July 2019, he was appointed to become Assistant Chief Of Staff Strategic Plans and Policy and Defense Planning (ACOS SPP / DP) at the NATO HQ Supreme Allied Commander Transformation (SACT) HQ in Norfolk, USA. In his primary responsibilities, he supervised all military activities related to the NATO Defense Planning Process. Additionally, he lead multiple key work strands for the Alliance such as the development of the NATO Warfighting Capstone Concept (NWCC) and the initial Warfare Development Agenda.

In August 2022, Brigadier General Didier Polomé was appointed to lead two major initiatives on behalf of SACT to implement the NWCC. The implementation of the Alliance Multi-Domain Operations concept and the Digital Transformation. He also inherited the role of special advisor to SACT for NATO-EU relations for transformation activities.

MR ANTONIO CALDERON

CHIEF TECHNOLOGY OFFICER, NATO COMMUNICATION AND INFORMATION AGENCY

Antonio Calderon was appointed Chief Technology Officer (Acting) at the NATO Communications and Information Agency (NCI Agency) on 1 December 2020. In his role, he is responsible for developing the Agency's innovation and C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) technology strategies, as well as designing and executing their associated roadmaps. His mandate is to address the power of emerging and disruptive technologies, bringing the business benefits of digital innovation with its opportunities and challenges to the NATO enterprise.

Between 2017 and 2020, Calderon served as Chief of the Network Services and IT Infrastructure Service Line, supporting deployed operations and exercises for NATO Joint Forces, as well as political consultations between NATO Headquarters and Nations' capitals. He led a team of 300+ highly skilled and motivated professionals, including NATO civilians, military and contractors, geographically distributed over 15 locations worldwide. His mission was to provide strategic leadership for the planning and execution of all lifecycle management activities enabling NATO networks and mission-critical collaboration services worldwide.

He was previously the acting Chief for the NCI Agency Core Enterprise Service Line, leading the team delivering capability areas related to corporate IT services, hybrid private-public cloud infrastructure and platform services, supporting NATO applications, data centres and secure information exchange services.

Before taking up executive positions in the Agency, Calderon was a Principal Project Management Officer based in NATO Headquarters Brussels. In that role, Calderon was responsible for the implementation of complex projects and programmes in different domains, specifically focused on improving our NATO enterprise cyber security and optimising- via synergies and outsourcing- our mission-critical CIS services in our major theatres of operations.

Before joining NATO in 2006, Calderon began his career working for a telecommunications service provider, engineering the initial rollout of mobile networks in Spain. After a short period studying in London, United Kingdom, he moved in 2002 to a global telecommunications operator based in the Netherlands. In his new role as a Project Manager, he led an engineering team designing and introducing one of the first 3G services in Europe.

Calderon has a master's degree in Telecommunications Engineering, he is a certified cybersecurity professional and attended several post-graduate business and management programmes.

He is married with three children, and has enjoyed playing international football in national amateur leagues in the Netherlands and Belgium. He now plays paddle, and enjoys exploring the principles of open-source machine learning algorithms in the cloud.

BRIGADIER GENERAL SEAN CONROY

USAF RESERVE/MICROSOFT

Brig Gen Sean F. Conroy is the Chief of Staff of the Louisiana Air National Guard. He is responsible for leading the LAANG headquarters staff as well as developing plans and publishing policies that support the field units.

Career highlights include three mobilizations in support of Operations NOBLE EAGLE, ENDURING FREEDOM, and IRAQI FREEDOM, serving in the combined air operations centers for First Air Force, Tyndall AFB, and CENTCOM, Al-Udeid Air Base, Qatar. In addition, he mobilized in response to Hurricanes Dennis, Katrina, Isaac, Laura, and Ida, serving as Jefferson Parish liaison officer, Staff Judge Advocate, commander of the Point of Distribution mission, and Senior Military Advisor. He has commanded three times, the 159th Mission Support Group, the 159th Security Forces Squadron, and the 113th Security Forces Squadron.

Sean Conroy holds a PhD in Political Science from the University of New Orleans, a law degree from St. John's University School of Law, and a Master's degree in public policy from Stonybrook University. He is an in-residence graduate of the Marine Corps Command and Staff College, the School of Advanced Air and Space Studies (SAASS) and the Air War College.

MR INGMĀRS PŪKIS

LMT BOARD MEMBER

Ingmārs Pūkis is the Vice President and Member of the Board of LMT, the Latvian mobile network innovator, and holds over two decades of experience in telecommunications, marketing and business development. During his tenure, he has participated in developing LMT's competence from mobile operator to mobile innovator, spearheading a variety of initiatives that demonstrate the possibilities of harnessing mobile technologies and 5G. Those include areas such as smart cities, mobility, as well as public safety and defence. He's led LMT's participation in various international defence projects, such as the NATO CCDCOE Crossed Swords exercise, various European Defence Fund R&D projects, as well as participated in hosting the first NATO 5G experiment, testing AR/VR solutions in the military field. He is also a voluntary member of the National Guard of the Armed Forces of Latvia.

DR VLASTA ZEKULIC

BRANCH HEAD, STRATEGIC ISSUES AND ENGAGEMENT, ALLIED COMMAND TRANSFORMATION



Dr Zekulic was commissioned as an Infantry officer to the Croatian Armed Forces in 2002. During her military career she held numerous command and staff positions and deployed several times to NATO's operational theatres. From late 2014, she served two consecutive tours in NATO military commands - in ACT leading the work on hybrid warfare and resilience, and in IMS as a deputy head of the Strategic Assessment Element.

In 2017, LTC Zekulic ended her military career and transitioned to the NATO HQ Operations Division. She led the work on posture management and deterrence messaging, and developed political-military assessments of the conventional and hybrid security challenges in the Black and Mediterranean Sea.

As of July 2021, Dr. Zekulic leads Strategic Issues and Engagement Branch in the ACT developing strategic issues identified by SACT, coordinating and designing engagements with NATO's senior leadership, industry and academia and managing Command's overall strategic engagements and communications output.

Parallel to her military career, Dr. Zekulic built her academic career. She gained bachelor degrees in Computer Science and Management of Information Systems, and Criminalistics and Criminology. In 2007, she got her Master Degree and, in 2012, PhD degrees in international relations and national security. She is also a graduate of the NATO Executive Development Program, and Executive Masters in Strategic Leadership and Digital Transformation. Dr. Zekulic is a Scientific Associate at the Faculty of Political Sciences, University of Zagreb, and a regular lecturer at the NATO School Oberammergau.

Session 4: Societal Resilience – Physical, Virtual and Cognitive



**Ambassador
Baiba Braže**

Assistant
Secretary General
for Public
Diplomacy
Division, NATO HQ



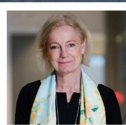
**Col Kaspars
Pudāns**

Commander of
Latvian National
Guard



**Dr Solvita
Denisa-
Liepniece**

Assistant Prof.,
Vidzeme University
of Applied
Sciences



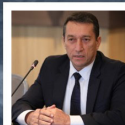
**Ms Charlotte
Petri Gornitzka**

Director General
for the Swedish
Civil Contingencies
Agency (MSB)



**Ms Julia
Stewart-David**

Acting Director for
Disaster
Preparedness and
Prevention, EU's
DG ECHO



Mr Adrian Duță

Vice President of
the Euro-Atlantic
Center for
Resilience

AMBASSADOR BAIBA BRAŽE ASSISTANT SECRETARY GENERAL PUBLIC DIPLOMACY DIVISION, NATO HQ

Ambassador Baiba Braže was appointed Assistant Secretary General for Public Diplomacy in May 2020. The Public Diplomacy Division (PDD) works to raise the Alliance's profile with audiences world-wide and to build support for Alliance operations and policies.

Ambassador Braže advises the Secretary General on issues within her remit, oversees the coordination of all Strategic Communications activities across all NATO civilian and military bodies and commands, and also directs all public diplomacy activities (except press and media, which are directed by the NATO Spokesperson on behalf of the Secretary General).

ASG PDD directs the Public Diplomacy Division (PDD), which plays a key role in conveying the Alliance's strategic and political messages to opinion formers and to the public in general.

Baiba Braže was born in Riga, Latvia. She holds two Masters degrees from the University of Latvia: one in Law (1990) and another in Communication Science (2002).

Ambassador Braže served most recently as Latvia's Ambassador to the United Kingdom (August 2016-early May 2020), prior to which she was Director General Security Policy and International Organizations (June 2011-January 2016) and Director General of the Communications Directorate (February 2016-July 2016) at the Latvian Foreign Ministry in Riga.

Ambassador Braže previously served as Latvia's Ambassador to the Netherlands and Permanent Representative to the Organization for the Prohibition of Chemical Weapons (July 2003-August 2008), prior to which she was Director of the Europe Department, served as Foreign Policy and National Security Advisor to the Prime Minister in Riga. She has held numerous other posts since joining the Foreign Ministry in August 1993, both at home (Legal Department, International Organizations Department) and abroad (United Nations, New York).

In addition to Latvian, Ambassador Braže is fluent in English and Russian, and speaks Dutch proficiently.

COL KASPARS PUDĀNS

BRANCH HEAD, STRATEGIC ISSUES AND ENGAGEMENT, ALLIED COMMAND TRANSFORMATION

Born:

23 March 1976, Jēkabpils, Latvia

Education:

Bachelor in Law, National Defence Academy, 1998

Master in Quality Management, Riga Technical University, 2012

Military education:

1994-1998 - National Defence Academy, Latvia – Infantry platoon leader

1999 - Army Infantry School, U.S. – Infantry Basic Officer Course

2002 - École d'Application d'Infanterie, France – Company Commanders Course

2007 - École d'État-major, France – Staff Officer Course

2013 - General Jonas Žemaitis Military Academy, Lithuania – Army Command and Staff Course

2013-2014 - Baltic Defense College, Estonia – Joint Command and General Staff Course

2021 - Baltic Defense College, Estonia – Higher Command Studies Course

Military service:

1998-1999 - Training Instructor, National Guard Training center

1999-2003 - Training and Operational staff, National Guard Command

2003-2007 - Staff Officer, Operations department (J-3), Joint Headquarters

2007-2010 - Staff Officer, Military representation to the EU

2010-2013 - Chief Operations Section (G-3/7 Ops), Land Forces Infantry Brigade

2014-2016 - Chief Plans and Operations branch (G-3/7), Land Forces Mechanized Infantry Brigade

2016-2018 - Chief Operations branch (J-3 Ops), Joint Headquarters

2018-2021 - Chief Intelligence department (J-2), Joint Headquarters

2021-2023 - Commander, Zemessardze 1st Riga Brigade

2023 - Commander of National Guard of Latvia

DR SOLVITA DENISA-LIEPNIECE

ASSISTANT PROFESSOR

VIDZEME UNIVERSITY OF APPLIED SCIENCES

Dr. Denisa-Liepniece serves on the Committee of Experts on Increasing Resilience of the Media (MSI-RES) in the Council of Europe. From 2016 to 2022, Dr. Denisa-Liepniece was a principal media literacy advisor at the Baltic Centre for Media Excellence (BCME). In this position, she focused on long-term strategy to more comprehensively address harmful information and increase resilience.

In academic year 2021/2022, she was a Visiting Scholar at the Jordan Centre for Advanced Study of Russia at New York University. Previously, she also was an Associate Research Scholar at Yale University (Juris Pageds Visiting Fellow, Fall 2020). Dr. Denisa-Liepniece served as a country expert for several international organizations, focusing on the Baltic States and Eastern Europe.

Dr. Denisa-Liepniece completed her Ph.D. at the University of Antwerp (Belgium). Her doctoral research focused on political communication in Belarus. She is primarily interested in media and cognitive resilience, and more broadly in strategic political communication and intercultural communication. In addition to her academic activities, she has built a career in journalism and worked for the Public Broadcasting of Latvia.

MS CHARLOTTE PETRI GORNITZKA

DIRECTOR GENERAL

SWEDISH CIVIL CONTINGENCIES AGENCY (MSB)

Ms. Charlotte Petri Gornitzka took up her position as Director General for the Swedish Civil Contingencies Agency (MSB), in December 2021.

Ms. Petri Gornitzka has over twenty years of experience in international development cooperation. For the past three years, she has served as Assistant Secretary-General for the United Nations Children's Fund (UNICEF).

Before joining UNICEF she was the Chair of the Development Assistance Committee at the Organisation for Economic Co-operation and Development (OECD) and prior to that she was the Director General for the Swedish International Development Cooperation Agency (Sida) for six years.

She has also served as Secretary-General of the International Save the Children Alliance, Save the Children Sweden, and as Under Secretary-General and Director of Communications at the Swedish Red Cross.

In addition, Ms. Petri Gornitzka has served as co-Sherpa to The World Economic Forum's Global future council for Resilience and as Co-chair on the Global Future Council for Sustainable Development. She has also served on the board of the Global Challenges Foundation, the Water Resources Group Governing Council as well on the board of the Swedish Research Council.

Ms. Petri Gornitzka has a background in management consulting with a focus on change management and communications. She holds a master's degree from Stockholm University College of Music Education (SMI) as well as a degree in Business and Marketing studies from IHM Business School.

MS JULIA STEWART-DAVID

ACTING DIRECTOR

DISASTER PREPAREDNESS AND PREVENTION, EU'S DG ECHO

Acting Director of the Disaster Preparedness and Prevention Directorate, European Commission's Directorate General for European Civil Protection and Humanitarian Aid Operations (ECHO), Belgium

Julia Stewart-David has worked on EU external relations and global issues for over twenty years. She is currently Acting Director of the Disaster Preparedness and Prevention Directorate and Head of Unit responsible for policy, cross-sectoral, institutional and Neighbourhood cooperation on the Union's Civil Protection Mechanism. Her previous roles included EU-US relations, Neighbourhood policy and over a decade of humanitarian system and disaster risk management representational and policy roles. Julia's wider professional interests include organisational learning, on which she focused her research efforts while on sabbatical as the 'EU fellow' at the Fletcher School of Law and Diplomacy, Tufts University (Boston, USA) in 2015-16. She is also active in the EU's community of practice of 'Participatory Leadership'.

MR ADRIAN DUȚĂ

VICE PRESIDENT

EURO-ATLANTIC CENTER FOR RESILIENCE

Mr. Adrian Duță is the Vice-president of the Euro-Atlantic Resilience Center, bearing the rank of Undersecretary of state within the Romanian Ministry of Foreign Affairs.

Mr. Duță has held various positions within the Ministry of National Defense, being an active officer with rank of Colonel, qualified as an Air Force pilot and Intelligence officer. He has also served as a Defence Attaché to the Hellenic Republic, Republic of Cyprus and the Portuguese Republic, as well as the Head of Intelligence, Surveillance, Reconnaissance Department, and Head of Defense Intelligence Management Department within MoND. He is active with the academic community as visiting lecturer at the National Defense University.

Adrian Duță graduated from the Air Force Military School "Aurel Vlaicu" in 1988, and the Bucharest University of Economic Studies in 2000 with a M.Sc. in International Business and Economics, and he received a Postgraduate degree in strategic leadership and intelligence management in 2013 from National Defense University.

He has completed multiple courses on international relations, defense, and security at renowned schools abroad, such as the European Security and Defense College, and the George C. Marshall European Center for Security Studies. For his activity, he was awarded the Medal "Saint George' Cross - First Class" in 2018 by the Portuguese Chief of Defense, and other NATO and national distinctions and medals.

MR OLAF SCHULZ

VICE PRESIDENT

GOVERNMENT AFFAIRS EUROPE

Olaf is Nokia's Vice President Government Affairs Europe.

Olaf has been at Nokia since 2014, where he has worked in different leadership positions in Government Relations including Head of Regions and Strategy, and Head of EMEA.

Prior to working at Nokia, Olaf worked at Nokia Siemens Networks, first as a Senior Manager for Market Access and Trade Policy from 2007 to 2011, then as the Head of European Affairs and as Global Head of Government Relations from 2011 to 2014.

Olaf was Manager for Environmental Protection and Product Safety at Siemens from 2002 until 2007.

Olaf started his career in 1997 at the German Federal Office for Radiation Protection, where he gained experience in risk communication and research management. Olaf has worked as a researcher and lecturer in biophysics at the Free University of Berlin.

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