



The Hague Centre
for Strategic Studies

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HCSS Annual Report 2022

Authors:

Alessandra Barrow, Patrick Willemsen.

Contributions by:

Rob de Wijk, Paul Sinning, Han ten Broeke, Frank Bekkers, Laura Birkman, Paul van Hooft, Irina Patrahau, Joris Teer, Saskia Heyster and Arthur Laudrain.

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The Hague Centre for Strategic Studies
info@hcss.nl
hcss.nl
Lange Voorhout 1
2514EA The Hague
The Netherlands

A Message from our Founder

2022 has become an extraordinary year for HCSS. Great power competition between the United States and China accelerated. Russia started a war against Ukraine. The consequences of these geopolitical changes became clear to everyone.

Global change hit us directly in the form of an accumulation of crises. Many realized for the first time how dependent we are on autocracies and countries that don't share our ethics for our energy and raw material needs.

At the same time we also saw America becoming more assertive under President Biden. The Inflation Reduction Act, which among other things enables the US government to subsidize sustainable industry, came as a shock to the European Union, because subsidies could lead to unfair competition and the relocation of economic activity from Europe to America.

HCSS has been concerning itself with geopolitics and the application of instruments of power such as military power and economic power since its inception. Anyone who has followed our studies for the past 16 years will not be surprised about what is happening in the world now, even if the consequences did come as a shock.

Productivity was also high this year. The HCSS studies on our critical infrastructure in the North Sea, China and Russia, the availability of critical raw materials and semi-conductors, risk reduction measures for Russia, as well as our analyses of the war in Ukraine and of course the energy supply and energy transition have received a lot of attention and provided an important contribution to public debate and policymaking.

HCSS also contributed to the debate with hundreds of radio and television appearances and opinion pieces in newspapers.

It is more than we wished for when we founded the Hague Centre for Strategic Studies almost 16 years ago.



[Rob de Wijk](#)

Introduction from our CEO

As we find ourselves on the threshold of the year 2023, you might look back and assess the past year as being stressful and disrupting. If that's the case, it is time to brace yourself. Our balancing act towards a multipolar order is going to become even more precarious and nerve-racking.

According to the International Monetary Fund one-third of the world's economy will be in recession in 2023. The impact of the war between Russia and Ukraine on the energy and food markets will lead to a rethinking of our global supply chains and governance. The Biden administration's CHIPS and Science Act marks a new chapter in great power competition focused on securing access and gaining leverage on strategic 'dual-use' technologies. While entering the long and complex process of decarbonizing the economy, climate change will become a national security threat, will further trigger resource conflicts, food and energy shortages and force great-power competition. Meanwhile a war between China and Taiwan is unfortunately, still on the table and North-Korea has launched another intercontinental ballistic missile.



Business can no longer afford to ignore geopolitics. Global companies are assumed political entities, they will have to take on this responsibility while also securing energy supplies, restraining inflation, ensuring supply chain resilience, guaranteeing security, rebalancing the distribution of wealth, while also achieving sustainability. It seems inevitable that (geo)politics and cultural values will lead to supply chains becoming more and more local and regional. Against this background markets and governments should be regarded as complements, not as substitutes.

The geopolitical implications of reshaping the world's economic framework are yet to be determined. Placing our economies on a safer and more sustainable footing requires a new balancing between markets and governance, with enough room for nations to make varying choices depending on their needs and values. Strong nations need to take the lead domestically and to collaborate internationally. Transitions lead to insecurity and instability. Transitions put pressure on the way we relate to each other, who we identify with and on our social contract.

At the same time, we are approaching Christmas and closing of the year. A time to get together with friends and family, sharing food and drinks, to celebrate past, present, and future. This Annual Report contains food for thought, as we focus on some of the highlights of 2022 and on future developments in the world. Through this we hope to look ahead to a brighter future beyond the gloom of the daily headlines.

At HCSS we do not pretend to know the future, to solve all highly complex problems with our analyses, or to instantaneously improve the relations between nations or mankind in an age of great-power competition, technology breakthroughs and climate change. But we expect that our fact-based analyses contribute to an increased understanding of the future path of the world and to provide ideas of how governments, businesses, and individuals, can help to make this world a better and safer place to live in.

The HCSS team wishes you a very merry Christmas and a happy New Year!

Paul Sinning

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1. Focus Area: The Russian invasion of Ukraine

War on our own continent. Who would have thought or predicted that. Well, in January a few HCSS analysts sat down because the Russian military build-up on the borders with Ukraine had surpassed 100,000 troops; because worrying signals were heard from NATO-Brussels since October of the year before; because Russia's 8 demands delivered to NATO capitals by their ambassadors were impossible; and because, retrospectively, the essay Putin wrote at the beginning of summer 2021 left nothing to be desired in terms of clarity: Ukraine has no right to exist outside the Russian community – the Russki Mir.



And so, on the morning of February 24, 2022, the date that will go down in history as the start of the Russian invasion war in Ukraine, HCSS was present on television, radio, social media and at a rapidly increasing number of online gatherings all over the world, to provide analysis and clarification.

The Balkan wars in the early 1990s had already led to a renewed sense of security on our old and war-ravaged continent. But that conflict could still be qualified as a civil war after the breakup of a country. It would have major consequences for our naïve belief that our liberal order was untouchable, that horror and inhuman barbarism had disappeared forever into the history books. Except now, well into the 21st century, here is a full-scale war and invasion by Russia to subdue an independent and sovereign country and push the post-Berlin Wall security order to the history books forever.

But then something happened. Slowly and restrained, but steadily firmer and with unparalleled unity, our old continent lifted itself up, NATO awoke from its apparent brain death, and we fully stood behind a courageous people with a charismatic leader. No one could have foreseen a year ago that Ukraine would so clearly determine world history and the future of our own freedom, prosperity and security. Neither did HCSS, which has emerged not only as an explicator, chronicler, but also as a government advisor in less than 9 months since the start of this conflict.

The result was so much more visibility for our thinktank, which brought to the forefront its expertise precisely on these issues of hard security and peace, resulting in a flourishing 2022. Security awareness grew from citizen to boardroom. An unending stream of requests for clarification came our way and analysts and experts became welcome talking heads. As a result, almost all of HCSS work and publications were in some way touch by the war.

The year 2022 was also a commercially good one for HCSS, as a growing acquisition led to more projects and more employees. As Americans would say, “we are through the looking glass”. And with a structural increase in the Defence budget, for which HCSS has been advocating since its inception, the imminent establishment of a Security Council to keep the government geopolitically informed and the enormous attention from the business community to what we at HCSS call geopolitical “due diligence” – the extent to which companies and boardrooms consistently factor geopolitics into their strategic decisions – the circumstances for a thinktank like ours have also fundamentally changed.

We can therefore look to the future with confidence, despite the dark times for our continent. Because our expertise is not only more in demand than ever before, but also more necessary than ever.

Han ten Broeke



Image 1. HCSS analysts and directors at the Foreign Affairs Committee.

Emergency briefing for the Dutch Parliament's Foreign Affairs Committee

Russia's war in Ukraine has a major impact on the Netherlands. In addition to the European and international perspective, the Foreign Affairs Committee of the Dutch House of Representatives wished to gain a better insight into the consequences of the war on vulnerabilities for the Netherlands. [HCSS was asked to provide an emergency briefing](#) on these vulnerabilities, and the various scenarios that the Netherlands government must take into account.

Of particular concern was the impact that may be the result of (new) targeted threats from the Russian Federation (whether or not using proxies) on Dutch territory, as well as the effects of imposed sanctions that increase the pressure on certain sectors.

On September 29, a delegation of HCSS experts consisting of Han ten Broeke, Director of Political Affairs, Frank Bekkers, Director of the Security Programme, Lucia van Geuns, Strategic Advisor Energy and Michel Rademaker, Deputy Director, presented the results to the Foreign Affairs Committee, on the basis of threat scenarios drawn up by HCSS.

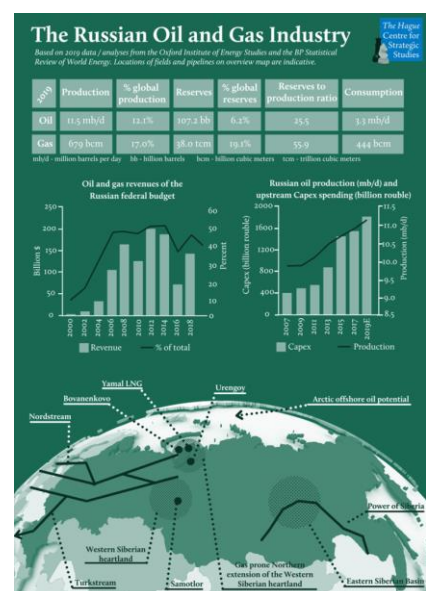
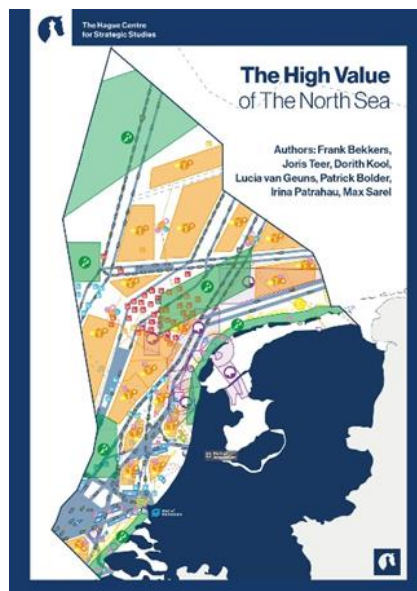
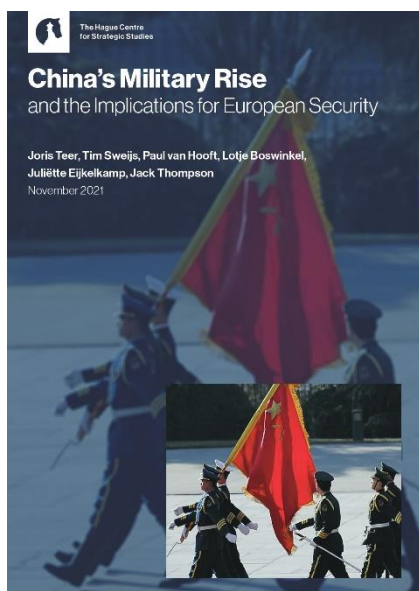
The briefing focus particularly on the following sub-topics:

- Territorial security
- Energy and critical raw materials
- Vital infrastructure
- Social and political stability
- Food crisis
- Refugees

War on the European continent puts geopolitics in the spotlight

The number of downloads of PDF reports from our website almost doubled in 2022, and the growth didn't just pertain to publications from 2022. Several of our reports from 2021 proved to still be very relevant this year, ranking them among our best read and downloaded publications again, particularly, our research on topics that were directly effected by the war in Ukraine and its consequences:

- [Russia's Unsustainable Business Model: Going All In on Oil and Gas \(2021\)](#)
- [The High Value of The North Sea \(2021\)](#)
- [China's Military Rise and the Implications for European Security \(2021\)](#)



Publications inspired by the war in Ukraine

1.1.1. Paper | How Wars End: War terminations: insights for the Russia-Ukraine War (May)

Authors: Tim Sweijts and Mattia Bertolini

How and when does the Russia-Ukraine war end? HCSS director of research Tim Sweijts and assistant analyst Mattia Bertolini consider [what we can learn from war terminations in the past](#): how long they lasted, how they ended, whether they relapsed, and what factors contributed to their end. These insights are used to assess the prospects of war termination in the ongoing Russia-Ukraine conflict and provide recommendations to European policymakers to bring an end to the current war and ensure durable peace between Russia and Ukraine.

An end of the war between Russia and Ukraine is not yet in sight. On the contrary, recent attacks on Russian territory, instability in Transnistria, and renewed military support for Ukraine indicate the war is evolving with significant risk of escalation. European policymakers should take note of the lessons learnt from past war terminations and peace agreements to bring an end to the current war and ensure durable peace between Russia and Ukraine.

A summary of this paper was also translated and published in *Postimees*, the largest newspaper of Estonia, as "[Lahingulised kaotused on Venemaa ladviku sõdimissoovi kasvatanud](#)".

Author Tim Sweijts subsequently appeared in a [video explainer on 'how to stop a war'](#) for NOS op 3, a cross medial platform targeted specifically at young people. The video has received over 391.000 views so far on their [YouTube channel](#) and over 30.000 views on their [Instagram account](#).



Image 2: Clip from NOS op 3

1.1.2. Snapshot | Preventing the (Un)thinkable: Escalation Scenarios and Risk Reduction Measures for Russia and NATO following the War in Ukraine (September)

Authors: Daan Sanders, Tim Sweijts and Paul van Hooft

The Russian invasion of Ukraine in 2022 has reawakened thinking in terms of risks and 'escalation'. Since both Russia and NATO-states US, UK and France have nuclear arsenals, the nuclear threat has also returned to the forefront. Clearly, Putin's Russia is engaging in brinkmanship and one-sided escalation of the conflict in Ukraine, and thus the risk of escalation must therefore be taken seriously. At the same time, European and American accommodation and acceptance of Russian aggression and threats are a recipe for further escalation from the Russian side and a problematic international precedent to set. [This snapshot raises](#) the question, which pathways of intentional or unintentional escalation exist between Russia and NATO as a consequence of the war in Ukraine? By "thinking about the unthinkable" through the exploration of six escalation scenarios, the snapshot identifies preventative policies to avoid escalation to major war, potentially even with nuclear arms.

1.1.3. Snapshot | India's approach to the Russian Invasion of Ukraine: An Example of the BJP's 'India First' Thinking and What it Means for the West (September)

Authors: Alessandra Barrow and Paul van Hooft

India's approach to the Russian invasion of Ukraine, described as "strategic ambivalence" has disappointed many in the US and Europe who hoped that India, as a democracy, would join them in criticising Russia's actions. Instead, India has chosen to keep public criticism of Russia's invasion to a minimum, stressing dialogue and diplomacy. [This paper argues that this](#) can be explained in part due to India's longstanding arms partnership with Russia and the common perception in India that USSR and then the Russian Federation has been an enduring partner to India in a way Western states have not. However, India's approach to the Russian invasion of Ukraine is not a continuation of anti-colonial non-Alignment (NAM) of the spirit of India's first prime minister Jawaharlal Nehru, as some have argued. Instead, it is better understood as an example of reactionary internationalism of India's government under the Hindu nationalist *Bharatiya Janata Party* (BJP). This paper was also summarised and translated into Dutch by [Carré, tijdschrift van de Nederlandse Officieren Vereniging](#).

1.1.4. Essay: Russian Nuclear Bluff: Insane or Communication? | 10 recommendations for NATO allies (October)

Guest author: Frederik A.J.J. Wintermans

What do the [Russian nuclear signals](#) mean? Does further isolation of Moscow increase the likelihood of nuclear retaliation? Nuclear threats since February are not only morally reprehensible, but at the same time a means of communication that sends out signals, argues guest author Major Frederik A.J.J. Wintermans in his essay. Moscow is using nuclear threats to manage tensions with NATO without letting escalation spiral out of control. That does not mean that the risk of escalation has disappeared, because the question is whether the West receives these signals sufficiently and, more importantly, understands them.

Opinion Pieces

1.1.5. Opinion | Mad Scientist: 401. The Pivotal Role of Small and Middle Powers in Conflict: Poland and the War in Ukraine (June)

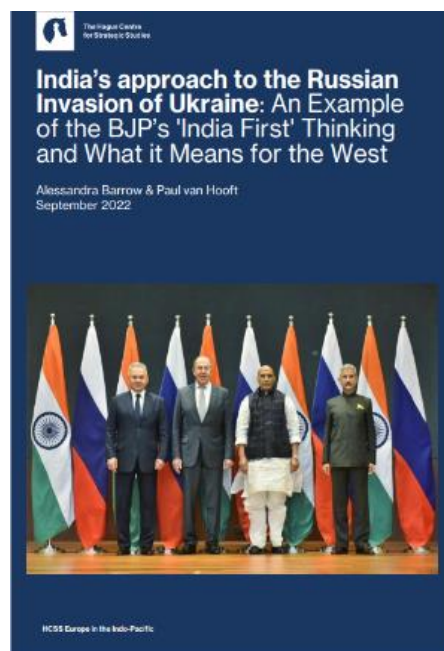
Authors: Collin Meisel and Tim Sweijs

From Poland's pivotal role in the continuing conflict in Ukraine, Messrs. Meisel and Sweijs extrapolate the roles similarly-sized powers could play in the China-US competition in Southeast Asia, both as effective allies and partners, as well as "poison frogs" – whose potential occupation could present our pacing threat with exorbitant and untenable military, diplomatic, and economic costs. In recognizing these small and middle powers' capacity for regional influence, pursuing opportunities for collaboration, and strengthening bilateral ties, the U.S. can help ensure future global stability. [Read the full piece here.](#)

1.1.6. Opinion | NRC: Continue the sanctions: it does destroy the Russian war machine (September)

The West must continue to make it clear that sticking to sanctions is the only way to destroy the Russian war machine, write Paul van Hooft and Sofia Romansky in [an opinion piece for NRC](#). It is therefore imperative that the Dutch government, as well as European allies, tell its people a clear and convincing story about the sense and nonsense of the sanctions and the Russian prospects in the war.

Sanctions are often presented as punishment, designed to undermine the will to go to war, but there are few successful historical examples of this. However, sanctions do undermine Russia's ability to continue the war. The purposeful and long-term destruction of the Russian war machine is a clear story that needs to be told. It offers Dutch society – and that of Western European neighbours – the prospect of light at the end of the tunnel in this devastating war.



The Russian invasion of Ukraine and the Energy Crisis

Paper: Gas Markets and Russian Gas | Input for a roundtable discussion of the Parliamentary Committee for Economic Affairs and Climate Policy (March)

Authors: Jilles van den Beukel and Lucia van Geuns

On March 9, the Parliamentary Committee on Economic Affairs and Climate held a [“Russian Gas” roundtable](#), discussing current developments in the gas markets, in particular our dependence on Russia. HCSS energy expert Jilles van den Beukel was (virtually) present to answer questions. Together with Lucia van Geuns he wrote this [short position paper](#) for the MPs.

Report: From the War in Ukraine to the Energy Transition: Searching for a New Balance in the Oil Market (August)

Authors: Irina Patrahau, Lucia van Geuns and Jilles van den Beukel

Two years ago, oil prices fell to unprecedented low levels. Currently, we are seeing oil prices of the order of \$100 per barrel again. Whilst the effects of the Covid-19 pandemic are decreasing, demand for oil has been rising rapidly, in a world where the effects of relatively low investments in the oil industry are becoming more evident and where Russian oil and oil products are being sanctioned. In this uncertain world, investments in new oil (if any) will tend to go to low-cost oil with a limited carbon footprint and a short payback time. The result is a redirection of oil flows and more volatile markets. This [HCCS paper](#) by Irina Patrahau, Lucia van Geuns and Jilles van den Beukel aims to shed light on some of the structural issues that contributed to the current crisis, as well as look ahead into some important trends in the oil market up to 2050.

Workshop: The impact of sanctions on Russian oil on bunkering in Dutch ports (October and November)

Organisers: Irina Patrahau, Michel Rademaker, and Lucia van Geuns

The Ministry of Infrastructure and Waterworks (IenW) has asked HCSS and CE Delft to analyse the potential impacts of the EU Sanctions on the import of Russian oil on the bunker market in Dutch ports, and especially on the emerging market for low- and zero-carbon maritime fuels and the goals of the Fit for 55 packages. As part of this bunkering project HCSS and CE Delft organised two stakeholder workshops to collect participants' thoughts through a moderated discussion. These workshops will contribute to a report that will be published in December.

Nord Stream Pipeline damage and the High Value of the North Sea

In September 2022, following Russia's invasion of Ukraine, a series of explosions led to significant damage of the subsea Nord Stream pipeline system. The pipelines are believed to have been sabotaged by Russia itself as an example of the disruption it could inflict on Europe's energy infrastructure. Fatefully, HCSS had published a report in November 2021, titled [The High Value of the North Sea](#), which had specifically addressed sea-based critical infrastructure and its vulnerability to attack, including from state like Russia. As a result of HCSS's foresight, attention once again focused on the conclusions and recommendations of the report and HCSS experts provided the [analysis of the events](#) that followed. A Dutch summary of the High Value of the North Sea report was also published in the [Militaire Courant](#) in September 2022.

Media Highlights

- Frank Bekkers, Nieuwsuur: [Hoe kwetsbaar zijn kabels en pijpleidingen in de Noordzee?](#) (July 2022)
- Joris Teer, Follow The Money: [Wie beveiligt de bodem van de Noordzee tegen sabotage?](#) (June 2022)
- Jilles van den Beukel, MIT Technology Review: [Here's how the Nord Stream gas pipelines could be fixed](#) (October 2022)
- Frank Bekkers and Lucia van Geuns, NOS: [Ontploffingen Nord Stream 1 en 2 onderstrepen kwetsbaarheid infrastructuur op zee](#) (September 2022)
- Joris Teer, Podcast De Dag: [Onze Kwetsbaarheid Onderzee](#) (September 2022)
- Joris Teer, Studio Energie: [De kwetsbaarheid van ons energiesysteem in tijden van grote geopolitieke spanning](#) (November 2022)



Image 3. Clip from Nieuwsuur of the High Value of the North Sea Report.

Panels, Workshops, Events

1.1.7. Estonian Parliament's Foreign Relations Committee visit (May)

Accompanied by ambassador Lauri Kuusing, the [Estonian Parliament's Foreign Relations Committee](#) visited HCSS on May 11 2022. Representatives of all parties in the Estonian parliament were present. The longer-term consequences of the Russian invasion in Ukraine were discussed. In the face of a protracted conflict, a shared concern was Western commitment to continued maximum support to Ukraine's war efforts.

Chair of the Foreign Affairs Committee Marko Mihkelson said that the main topic of all meetings held in the Netherlands would be giving even stronger military, economic and political support to Ukraine to help the country win the war with Russia. "Ukraine is fighting for the whole Europe. We will certainly discuss with our colleagues how to help Ukraine also on their path to the European Union," he added.

1.1.8. Prime Minister of the Slovak Republic Eduard Heger (November)

Prime Minister Eduard Heger of Slovakia visited HCSS in November to hold a roundtable discussion with analyst on developments in Ukraine and its post conflict reconstruction. Mr Heger also met with HCSS political director Han ten Broeke and founder Rob de Wijk.



Image 4. Visit by the Prime Minister of the Slovak Republic Eduard Heger.

2. Geopolitics and Geo-economics

Twenty-first century politics is moving fast. The international distribution of power has drastically shifted since the unipolar moment at the turn of the century. This was a moment when the United States led any potential competitors across a vast range of military and economic dimensions, and when Europe was still the main region over which competition took place. Today the war in Ukraine, where Russia sought China's tacit support prior to invading, has again highlighted the multipolarity and interconnectedness of modern geopolitics. Russia's return to the global stage has renewed old alliances and ambitions whilst forging new ones, including the [EU's aim to take on the geopolitical](#). Russia is a factor to be reckoned with, even for the Netherlands, on areas of cyber security, trade, and political influence. [HCSS's knowledge base on Russia, Rubase](#), has continued its epistemic work on Russia and its international thinking.



However, the 2022 war in Ukraine and Russian revanchism notwithstanding, the Indo-Pacific region has taken over as the primary site of competition and contestation over the hegemonic order the United States established. China has emerged as a challenger to both US order and hegemony, across an array of military, diplomatic, economic, and legal indicators. Particularly cutting-edge technologies have pushed the region to the forefront.

The access to the global sea lines of communication that connect European economies to those in Asia is a key economic concern of Europe. The increased militarization of the Asia may come to impede that access and undermines the multilateral order upon which small and middle powers in Europe and Asia depend. The HCSS report "[Guarding the Maritime Commons: What role for Europe in the Indo-Pacific](#)" by Paul van Hooft, Benedetta Girardi, and Tim Sweijs examines how Europeans can secure that access and contribute to the multilateral order; it particularly looks at which Indo-Pacific states to cooperate with and on which issues, and which costs and risks these entail. The report's key messages are to carefully pick whether to work through NATO, the EU, the limited naval capacity of European navies – including the Dutch – and the how best to use naval presence to support other foreign policy objectives. The research completed during 2022 by [Paul van Hooft and Tim Sweijs further delves into which naval capacities European states should particularly invest in](#) should they want to contribute to maintain access to, upholding the multilateral order in, or, alternatively, supporting US hegemony over the Indo-Pacific, while facing the Chinese challenges to each.

Global supply chains running through the Indo-Pacific can be weaponized due to rising tensions between industrialized blocs, similar to how Russia has weaponized its supply of natural gas to Europe following its war in Ukraine. The report [Reaching breaking point: The semiconductor and critical raw material ecosystem at a time of great power rivalry](#) by Joris Teer and Mattia Bertolini shows that the semiconductor and CRM ecosystem is a fragile balance: whereas the semiconductor value chain is dominated by technologically advanced democracies allied to the United States, supply chains of CRM currently used for the production of semiconductors are dominated by rival states, namely China and Russia, and non-rival states, such as the DRC. Sino-European relations, unlike European-Russian relations, have not yet reached breaking point, but are similarly characterised by a downward trajectory over the course of the past decade. In the face of looming breaking points ensuring security of supply is becoming a central motivation behind policies of states and companies. The deliberate weaponization of access is also a powerful tool that European states need to

explore. Ongoing research started in 2022 by Paul van Hooft, Tim Sweijts, Joris Teer, Benedetta Girardi, and Mattia Bertolini looks the interaction between access to technologies, energy, and key technologies, and maritime access. In 2023, there is upcoming work on the impact of the US shift to the Indo-Pacific for transatlantic cooperation and we have begun to examine how European states can utilize their market and standard-setting power better.

Paul van Hooft

Foresight: Strategic Monitor

2.1.1. Strategic Monitor 2021-2022 | Hanging Together: Partners and Policies for the Netherlands and EU in Turbulent Times (March)

Authors: Jack Thompson (HCSS) and Danny Pronk (Clingendael). Reviewers: Pieter Bindt, Dan Hamilton, Ed Kronenburg, Frank Bekkers, Tim Sweijts, and Dick Zandee.

In order to remain on top of the rapid changes in the international environment, the Dutch Ministry of Foreign Affairs and Ministry of Defence have tasked The Hague Centre for Strategic Studies (HCSS) and the Clingendael Institute to conduct research within the PROGRESS framework, delivering an annual Strategic Monitor which monitors trends and developments in the international order and presents a risk analysis on the national security of the Netherlands.

The [yearly report](#) by the Clingendael Institute and The Hague Centre for Strategic Studies (HCSS) analyses the most important trends and developments in the international regimes that form the international order, taking stock of the world of today and tomorrow.

This year's [Strategic Monitor report](#) seeks to identify policies and partners intended to advance the goal of strategic autonomy. It argues that if EU member states do not hang together – if they do not forge a common vision for foreign and security policy – they will be left to shift for themselves in a world characterized by accelerating great power competition and eroding multilateral institutions. In a nutshell, the failure to solidify Europe's global role would mean reduced prosperity and sovereignty for states such as the Netherlands.

The report reaches two main conclusions. First, encouraging progress has been made in the five areas evaluated in the report: the problem of techno-nationalism, intelligence cooperation, arms control, collaborative armaments programs, and the security implications of climate change (though much remains to be done). The second principal conclusion of the report is that two big hurdles still face the EU. It is hampered by significant shortcomings in capabilities, especially in the realm of defence. It is also struggling with the problem of insufficient political will, a problem driven in large part by tension between the supranational and national components of the EU, and the influence of nationalist and anti-EU political parties.



Europe in the Indo-Pacific

HCSS has addressed the changing geopolitical and geoeconomic world order through [the Europe in the Indo-Pacific Hub](#). The hub looks at both military, geopolitical and geoeconomic trends and developments to understand the changing role of the Indo-Pacific region and the relation of Europe to it, [China](#), and the United States. The Hub has done so in several ways. One key theme is the protection of access to the world's major economies, both physical and technological.



Guarding the Commons Paper Series

2.1.2. Keystone Paper: Guarding the Maritime Commons | What role for Europe in the Indo-Pacific (February)

Authors: Paul van Hooft, Benedetta Girardi, Tim Sweijs

What role should Europe play in the Indo-Pacific? The EU strategy for the region outlines interests and policies. [This new HCSS report](#) by Paul van Hooft, Benedetta Girardi and Tim Sweijs makes these explicit and offers concrete levers for action. The European role in the Indo-Pacific has grown over the past years, as part of Europe's slow geopolitical reawakening, evidenced by increased European naval visits to the region and national and EU policy statements focusing on the Indo-Pacific. What the implications are of this growing role is not yet clear, this report examines what that European role should and could feasibly be.

2.1.3. Paper: Thucydides Lives in Asia: Power Transition Traps Are Real (February)

Author: Professor Patrick Porter (University of Birmingham)

The so-called Thucydides trap that Graham Allison has most famously invoked to describe the intensifying competition between China and the US has been dismissed as irrelevant for current developments in East Asia and evidence of Euro-centrism. [In this essay](#), guest author [Patrick Porter](#) instead argues that the power transition crisis Thucydides saw in the Peloponnesian war between a rising Athens and a declining Sparta in

fact does have lessons for the current relationship between China and the US. As China continues to pursue prestige, influence and wealth, it will not back down when faced with robust international coalition. Consequently, if Europeans involve themselves in the Indo-Pacific region, they will face difficult choices.

2.1.4. Paper: Between AUKUS and the Quad: Scaling European Interest in the Indo-Pacific (February)

Author: Jagannath Panda, Senior Fellow Indo-Pacific, Europe, India & East Asia (Japan, Korea & China).

The creation of AUKUS – the new security alliance between the US, United Kingdom (UK), and Australia – in September 2021 marked a milestone in the Indo-Pacific geopolitical landscape. It showed continued resilience of the Anglosphere partnerships and underlined their common vision for the region. Crucially, the AUKUS agreement has had a significant impact on two structures: the Quadrilateral Security Dialogue (Quad) – comprising the US, Australia, India, and Japan – and the EU. [This paper notes](#) that, as the EU seeks to build its role in the Indo-Pacific, a crucial question remains of how the EU can navigate between the Quad and AUKUS to forward its own objectives in the region? He argues that the sudden emergence of the AUKUS alliance will encourage, and to an extent compel, the EU to reassess its own Indo-Pacific strategy.

2.1.5. Paper: European Engagement in the Maritime Security in Indo-Pacific: a Japanese Perspective (February)

Author: Yuki Tatsumi (The Stimson Center)

Since a 2010 incident of Chinese fishing vessels colliding into the Japan Coast Guard's ships, China's activities around the Senkaku Islands and the broader East China Sea only grew more aggressive and more frequent. Facing increasing pressure from China in the East China Sea, Japan welcomes greater European engagement in the Indo-Pacific. [In her paper](#), Yuki Tatsumi argues that Japan primarily considers Europe a diplomatic and strategic partner to help maintain a value-based liberal international order in the Indo-Pacific region. Japan hopes that greater activity in the region by European countries would raise the stakes for China if it continues its aggressive behaviour in the region, thereby deterring Beijing in non-confrontational ways.

2.1.6. Paper: Getting Real about the Indo-Pacific: Redefining European Approach to Maritime Security (March)

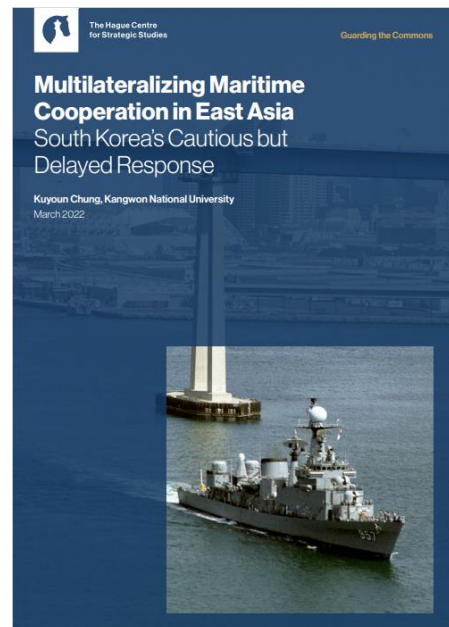
Author: Frédéric Grare (European Council on Foreign Affairs) and Mélissa Levallant (Institute of Higher National Defence Studies)

For the last twenty years, the European Union's maritime security policy in the Indian Ocean has been dedicated almost exclusively to the fight against maritime crime, despite the changing geopolitical situation and China's growing presence in the area. This paper argues that it would be delusional to expect EU member states to increase significantly their fleet in the foreseeable future, despite having the capability to play a greater role by redefining their approach to Maritime Security. By redefining the approach to Maritime Security, the EU Indo-Pacific strategy constitutes a useful strategic framework which, although not decisive, could provide the basis for an effective European policy and presence in the Indo-Pacific.

2.1.7. Paper: Multilateralizing Maritime Cooperation in East Asia: South Korea's Cautious but Delayed Response (March)

Author: Kuyoun Chung (Kangwon National University)

Considering that both the EU and South Korea hope the Indo-Pacific region will remain free, open, and prosperous without being defined by US-China competition, both can cooperate to mitigate maritime challenges and protect the global commons. However, South Korea's hedge is less likely to transform into overt balancing against China over the short-term via multilateralizing cooperation with European partners. Both also share a vision that the Indo-Pacific region should be under liberal rules-based order, which has been undermined by China's revisionist behaviors. Seoul needs to broaden its strategic outlook in the Indo-Pacific region and understand that its strategic relevance and economic development are mostly nested within the liberal rules-based order, of which decline cannot be defensible without multilateral effort [this paper argues](#).



2.1.8. Paper: It started with a ship... What role for Germany in the Indo Pacific's security architecture? (February)

Author: Johannes Peters (Head of Center for Maritime Strategy & Security at the Institute for Security Policy at Kiel University)

In August 2021, Germany jumped its shadow again by sending the frigate FGS BAYERN to a 7-month Indo-Pacific deployment underpinning the document with real-world politics. This paper highlights why the BAYERN deployment is a remarkable step for Germany's foreign and security policy as a whole and what role Germany could and should play in the future security architecture of the Indo-Pacific region. [This paper concludes](#) that Europe must establish and maintain a naval presence in the Indo-Pacific to underpin its value-based foreign policy and to support international law and a rules-based system.

2.1.9. Paper: Multilateralizing Maritime Security in the Indo-Pacific: How Europe can contribute to regional deterrence (March)

Author: Stephan Frühling (Strategic and Defence Studies Centre, Australian National University)

European countries' increasing interest in maritime security in the Indo-Pacific is evident, and welcomed by the US and European partners in the region. [This paper surveys](#) the evolution of regional security concerns since the initial EU foray into Indo-Pacific maritime security through Operation ATLANTA in 2008, and highlights the centrality of deterrence of China to the current concerns of like-minded countries in the region. European countries have the capability to make a meaningful contribution to deterrence in the Indo-Pacific, through deliberate use of military presence East of Singapore. The paper concludes that as long as Europe engages in maritime security in the Indo-Pacific at all, the real question facing Europe is not whether to engage with regional deterrence, but how coherent it wants its posture to be.

Other Indo-Pacific products and events

2.1.10. Paper: Seoul's Changing Indo-Pacific Manifesto and India: Policy Prescriptions for India-ROK Ties (June)

Author: Jagannath Panda, Senior Fellow Indo-Pacific, Europe, India & East Asia (Japan, Korea & China).

China's stupendous rise and the subsequent rivalry with the US for global hegemony have forced countries to choose sides; caught between a rock and a hard place, middle powers like India and South Korea have sought to maintain partnerships with both countries in the geo-economic space while precariously balancing the two in the geo-political domain. [In this policy paper](#) Senior Fellow Jagannath Panda contends that South Korea's flagship New Southern Policy (NSP), under Moon Jae-in, is unwilling to embrace the Indo-Pacific construct. This has brought to the forefront challenges that Seoul must overcome to raise its global profile.

2.1.11. Opinion | Europe in the Indo-Pacific: hard to avoid and hard to implement (May)

Author: Paul van Hoof

European states have increasingly made their presence in the Indo-Pacific in recent years. The most striking example was the journey of the British Carrier Strike Group, of which the Dutch frigate Evertsen was a part. The growing European role is developing amid rapidly rising tensions in the region. According to Paul van Hoof in this [opinion piece for Atlantisch Perspectief](#), this forces Europe, partly due to the Russian invasion of Ukraine, to make difficult choices.

2.1.12. Event: Preventing conflict in the Indo-Pacific: Opportunities for cooperation between Japan and Europe (January)

Speakers: Akihiko Tanaka, President of the National Graduate Institute for Policy Studies in Japan (GRIPS), Jagannath Panda, Coordinator of the East Asia Centre at the Institute for Defense Studies and Analyses, Paul van Hoof, Tim Sweijjs, AMB. Horinouchi Hidehisa, Ambassador of Japan to the Netherlands.

In collaboration with the Embassy of Japan in the Netherlands, [HCSS organised a webinar on the Indo-Pacific region](#) as the economic, demographic and perhaps also the military centre of gravity in the world. Great power competition, including the risk of an armed conflict, between a rising China and an established America will first and foremost play out here. The webinar addresses questions such as How can likeminded countries such as European states and Japan best contribute to security and prosperity in the region? What other countries should be involved in maritime security initiatives? What are the risks of a European presence in the Indo-Pacific? And what contributions can Japan and European states make in non-security fields such as investment in green technologies, infrastructure and connectivity in the region? You can watch the webinar on the [HCSS YouTube channel](#).

2.1.13. Guest Speaker: Transatlantic Policy Forum | HCSS analyst Benedetta Girardi joins panel on 'Aligning on Geopolitical Strategies: From Trans-Atlantic to Indo-Pacific' (November)

On Tuesday, November 22, HCSS strategic analyst Benedetta Girardi was the kick-off speaker at the Transatlantic Policy Forum hosted by the Czech Ministry of Foreign Affairs in Prague, where she will join a panel on "Aligning on Geopolitical Strategies: From Trans-Atlantic to Indo-Pacific." The Transatlantic Policy Forum (TAPF) is a closed-door summit for decision-makers and opinion-formers co-organised by

EUROPEUM Institute for European Policy with partners. TAPF has been held in Prague every Autumn since 2018 under the auspices of the Ministry of Foreign Affairs of the Czech Republic.

2.1.14. Tweede Kamer Factsheet: Western Presence in the Asia-Pacific (October)

Author: Paul van Hooft and Linde Desmaele

In this [note for the Dutch Parliament](#), Paul van Hooft (HCSS) and Linde Desmaele (Brussels University) discuss how European military and economic interests relate to the interests and policies of the US, China and regional states. The authors emphasize the risks and choices facing the Netherlands and other European countries.

Technology

2.1.15. Roundtable on China | Dutch Parliament's Foreign Affairs Committee

On November 24, the Foreign Affairs Committee of the Dutch House of Representatives held a [roundtable discussion on China](#) in relation to other superpowers, Europe and the Netherlands, for which experts from abroad and from the Netherlands were invited.

On behalf of HCSS, analyst Mattia Bertolini provided a briefing for the committee. Prior to the roundtable discussion, HCSS submitted a so-called position paper in preparation. This paper, "[Chips, critical raw materials and Dutch-European economic security](#)" written by HCSS China analyst Joris Teer and Research fellow Mattia.

2.1.16. Position Paper: Chips, critical raw materials and Dutch-European economic security (November)

Authors: Joris Teer and Mattia Bertolini

This position paper by Joris Teer and Mattia Bertolini was published [in preparation for the Roundtable on China](#) of the Foreign Affairs Committee of the Dutch House of Representatives.

The American-Chinese technology competition has far-reaching economic consequences worldwide. First, supply chains from China to the rest of the world are likely to become further disrupted. Second, there is a good chance that Beijing will not let US sanctions go unanswered. For example, Beijing can use the raw materials and products for which the US and its allies depend on China for chip production and the energy transition to exert political influence. This dependence on raw materials also makes us dependent on China for our energy transition.

Neither the Netherlands nor the European Union has the shaping power to reverse the transition from a world in which cost efficiency is central, to a world in which the security of supply of raw materials, semi-finished products and products is central. Taking this into account, it is important to make security of supply a top priority in both Dutch-European technology and raw materials policy.

2.1.17. Report: China's Military Rise and European Technology (China's Militaire Opkomst en Europese Technologie) (March)

Author: Joris Teer

[China's impressive military rise](#), for which Beijing wants to continue to use foreign knowledge and technology in line with its Made in China 2025 strategy, the 14th Five-Year Plan and the China AI 2030 strategy, has far-reaching consequences for European security, argues HCSS China analyst Joris Teer. The People's Liberation Army is trying to take the military lead in the world with the technological innovations of the 4th industrial revolution, but in 2022, China is still struggling with a significant military-technological backlog. It's imperative that this gap is not 'fixed' with the help of European knowledge and technology.

2.1.18. Report: Reaching breaking point: The semiconductor and critical raw material ecosystem at a time of great power rivalry (October)

Author: Joris Teer and Mattia Bertolini

[This report covers new ground](#) by specifically outlining pending disruptions in CRM value chains on which the EU relies for its access to semiconductors in the next five and ten years. The report also highlights key green technologies that rely on the same CRM value chains, as disruptions to these chains will also inhibit the energy transition. By doing so, an action plan is proposed for the Netherlands and the EU to deal with the risks and opportunities associated with the dependencies on the CRM needed for semiconductor production and green technologies. The action plan also outlines options to seize the opportunities related to the strengths of the Netherlands, the European Union and other technologically advanced democracies in the semiconductor value chain. To contribute to this report the authors conducted a foresight survey in which 49 experts participated, [the results of which can be found here](#).

2.1.19. Snapshot and Video: From Lightning to USB-C: Why the iPhone's Upcoming Port Change Signals a More Geopolitical EU (June)

Authors: Hugo van Manen and Alessandra Barrow

In this [technology snapshot](#), HCSS strategic analyst Hugo van Manen discusses Apple's Worldwide Developer Conference and that Apple will switch the iPhone's charging port from Lightning to USB-C as of 2023. A likely explanation for Apple's change in policy is the EU's revised Radio Equipment Directive. This can be viewed through the lens of the EU increasing pursuit of antitrust-related measures to erode the influence of large American technology companies. Van Manen argues that the EU's reliance on antitrust measures can be understood as a vector for combating techno-nationalism. Find out more about [techno-nationalism](#) and "European strategic autonomy" in [this HCSS video explainer](#).



RuBase

Russia is back. After two decades of attempts at rapprochement between the West and Russia, the Russian leadership has opted for a more confrontational and assertive foreign and security policy. All along Europe's periphery, Russia is once again a factor to be reckoned with, also for the Netherlands. The epistemic backbone of Russia-knowledge relied upon by Western decisionmakers during the Cold War needs to be rebuilt and possibly rethought and retooled. To shed new light on Russia's international thinking and acting, HCSS not only uses "tried and tested" methods but also examines new tools and techniques such as natural language processing and machine learning.

This multi-year research project explores new text- and number-based datasets, tools and methods, using a corpus systematically compiled through relevant search queries, combined with different additional data sets like elite opinion surveys, event data sets (GDELT, ICEWS, Phoenix, TERRIER), economic, demographic, military, and political datasets. The result, [a knowledge base on Russia called RuBase](#), will serve as a platform for Russian experts to explore new collaborative ways of cumulative knowledge-building. The project is spearheaded by Georgia-Tech and HCSS Principal Scientist [Stephan De Spiegeleire](#), and funded by CCNY.

2.1.20. Report: Putting it together by bringing 'influence' back in: Exploring European influencing options across different future Russias (February)

Authors: Stephan De Spiegeleire, Anna Harmash, Sofiia Horbachova, Glib Voloskyi, Iryna Zaporizka, and Yar Batoh

We have witnessed a dramatic deterioration in Russian-Western relations in which the 'harder' policy options like coercion and the use of brute force are gaining the upper hand on both sides. A broader, deeper and more systematic examination of all – also 'softer' – ways in which Europe could achieve its longer-term policy objectives towards Russia may enable policy makers to design a options portfolio that delivers superior value-for-money. In its attempts to influence Russia, Europe should first and foremost leverage the spheres where it has a competitive advantage, i.e. especially the economic sphere. A much more data-intensive

approach could yield considerable dividends here. [This paper suggests](#) that Europe should start doing its homework to realize that untapped potential, and that the Netherlands could benefit from playing a special role in this effort.

Panels, Workshops, Events

2.1.21. Strategy Days of the Dutch Ministry of Foreign Affairs (January)

In January, HCSS Director of Research Tim Sweijs spoke at the Kick-off of the [Strategy Days of the Dutch Ministry of Foreign Affairs](#). Over the course of two weeks, strategic foreign policy issues were discussed in depth with international experts in more than 20 virtual sessions. The theme of this year's edition was "A Heated World". Tim Sweijs spoke about "Transition, Erosion, Implosion? Conflict and Crisis in the System" and the implications for Dutch grand strategy.

2.1.22. SAFE Webinar: Joris Teer in Discussion with Dr. Chris Miller, Author of Chip War (November)

Today, nine in ten of the most advanced chips are produced in Taiwan, on the doorstep of America's greatest strategic competitor and potential adversary, the People's Republic of China, whose leader threatens to "reunify" with Taiwan by force if necessary. Meanwhile, Beijing is stealing technology and spending hundreds of billions of dollars chasing the leading edge that U.S. policy makers are increasingly determined to deny them. To discuss this dynamic competition, please join SAFE's American Semiconductor Center for an event with [Dr. Chris Miller](#), author of [Chip War: The Fight for the World's Most Critical Technology](#). Joris joined [Peter Flory](#), SAFE Senior Fellow and Director of SAFE's American Semiconductor Center, in discussion with Chris Miller.

2.1.23. Dutch Parliament's Foreign Affairs Committee | Expert meeting on the consequences of the US midterms (November)

On November 29, the Foreign Affairs Committee of the Dutch House of Representatives discussed the consequences of the results of [the midterm elections in the United States](#) for the Netherlands and the European Union. Members of Parliament were briefed by several experts, including Paul van Hooft, HCSS senior strategic analyst and Chair of the HCSS Initiative on the Future of Transatlantic Relations.

2.1.24. Visit: HCSS visit to Republic of Korea (November)

Tim Sweijs, Paul van Hooft, Chair of the HCSS Europe in the Indo-Pacific Hub (EIPH) and Joris Teer, Project Coordinator of EIPH, [visited the Republic of Korea](#) as part of the [HCSS Europe in the Indo-Pacific Hub](#) efforts to intensify relations between Dutch and Korean representatives of think tanks, industry and governments. The role of (extended) deterrence in maintaining peace and stability on the Korean peninsula, tensions in the Taiwan Strait, US-China great power rivalry, the geopolitics of semiconductors and critical raw materials, and the role of small and middle powers in upholding the multilateral order are topics that were discussed. As part of the trip, HCSS organized a Round Table on *Korea-Europe-The Netherlands cooperation to enhance peace and stability in East Asia, Southeast Asia and the broader Indo-Pacific region* with Korean security experts.

2.1.25. Event: Friso Stevens at roundtable on Dutch-South Korean economic and security cooperation with PM Rutte and President Yoon (November)

Friso Stevens, Subject Matter Expert at HCSS, took part in a roundtable discussion with Dutch and South Korean scholars and diplomats on NL-ROK economic and traditional security cooperation in light of Prime Minister Rutte's meeting with President Yoon. He later joined the Prime Minister for lunch in the beautifully located Samcheonggak restaurant.

2.1.26. Event: Transatlantic Dialogues: Emma Ashford (October)

The Hague Centre for Strategic Studies is hosted Emma Ashford, Senior Fellow with the Reimagining US Grand Strategy program at the Stimson Center, as the first speaker of the [Transatlantic Dialogue series](#), organized together with the Embassy of the United States in the Netherlands. The series aims to look at how the relationship between Europe and the United States can be adapted to the geopolitical realities on the 21st century. Emma spoke on the topic of European Energy Security, Economic Statecraft, and Relations with the United States in the Wake of Russia's Invasion of Ukraine. Senior Strategic Analyst Paul van Hooft conducted an interview with Emma which [can be viewed here](#).

Media Highlights

- [Paul van Hooft](#), EenVandaag: [Europa zit vast tussen China en de VS](#). December 1.
- [Jagannath Panda](#), The National Interest: [How Will the 20th National Congress Change China?](#) October 7.
- [Jagannath Panda](#), The Diplomat: [India and the Kindleberger Trap: Multipolarity Amid the Taiwan Crisis](#). September 24.
- [Paul van Hooft](#), Atlantisch Perspectief: [China and the Indo-Pacific in the 2022 NATO Strategic Concept](#). September 16.
- [Jagannath Panda](#), The Diplomat: [Will India and China Escape the Thucydides' Trap?](#) September 13.
- [Paul van Hooft](#), NRC: [Europa moet voor zijn eigen veiligheid gaan zorgen](#) July 19.
- [Joris Teer](#) and [Paul Verhagen](#), Follow The Money: [ook samenwerken met 'gewone' Chinese universiteiten levert risico's op - HCSS](#) May 25.
- [Joris Teer](#), DW News: [Will the EU-China summit lure Beijing toward the West?](#) April 11.
- [Paul van Hooft](#), NRC: [Met zijn oorlog heeft Poetin Europa en de VS versterkt](#). March 18.
- [Joris Teer](#), Militaire Courant: [China's partijdige neutraliteit](#). March 19.



Image 5. Paul van Hooft, Tim Sweijs and Joris Teer visit the Republic Korea.

3. Defence and International Security

It goes without saying that the Russian invasion in Ukraine is the defining development of 2022; from a security perspective, but also from an economic and political viewpoint. The 'hot' conflict is both a culmination of and a catalyst for underlying geopolitical trends and developments. The return of great power rivalry shapes contemporary diplomatic, military, economic and 'information' policies. The importance of the information domain has become evident in the context of the war in Ukraine. The Ukrainian 'narrative' clearly dominates the Western public and political discourse (as it rightfully should), while the Russian 'spin' retains a powerful hold on the domestic opinion-forming.



For HCSS, the invasion in Ukraine signalled an extremely busy time. In 2022, HCSS has appeared numerous times in national news outlets. Almost every single day, our experts appeared on television, on radio, in the written media and on social media, 'competing' for airtime. The [autumn 2021 report, The High Value of the North Sea](#), that had stressed the vulnerabilities of and clear threats to infrastructure at sea, got new traction with the sabotage of the Nord Stream pipelines in September.

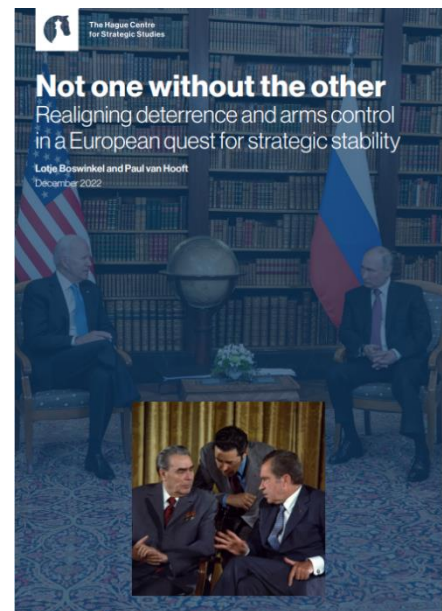
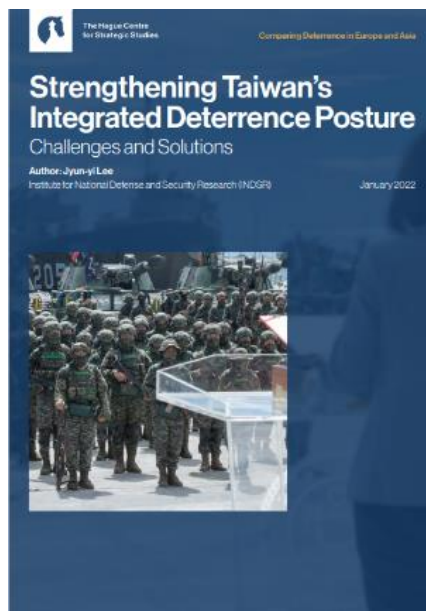
While the conflict in East Europe caught the most attention, relations with China – labelled by the EU as partner for cooperation and negotiation, an economic competitor, and a systemic rival – also remains at the forefront of the mind. Over the past years, HCSS has dedicated considerable attention to the role of Europe in the Indo-Pacific. This year's study, [Guarding the Maritime Commons | What role for Europe in the Indo-Pacific](#) adds to the already considerable knowledge base. The competition and (potential) rivalry with China over raw materials is addressed in [this study](#).

As the adage goes: geopolitics is back on the agenda – with a vengeance. This has induced many different organisations to turn to HCSS for advice. One notable example is that [HCSS has informed Parliament](#) on the consequences of the war in Ukraine for the Netherlands in domains ranging from energy security to migration. Within the large, multiyear 'Strategic Monitor Police' programme for the National Police Corps that commenced in April, we have done a similar thing with respect to the domestic public order and security.

We are also increasingly approached by businesses to make sense of what is happening at the crossroads of geopolitics, geo-economics and security – of supply chains, of investments, of people and assets. One example is the work we have done for the [European tank storage sector](#).

In short, our portfolio of customers that seek advice in international security-issues is broadening. The opportunities for cross-fertilization further strengthen our position as a 'strategic' think tank.

Frank Bekkers



Deterrence for Small and Middle Powers

What options do small and middle powers have to deter the military threat from Russia and China? In a new HCSS paper series, senior strategic analyst Paul van Hooft and HCSS director of research Tim Sweijs, together with guest authors, explore this very relevant question, in light of what's happening on Europe's eastern borders.

3.1.1. Report | Strengthening deterrence against nuclear, conventional, and hybrid threats: Strengths, Weaknesses, and Insights for US Allies in Europe and Asia (January)

Authors: Tim Sweijs, Paul van Hooft, Philip Geurts

European and Asian allies of the US are increasingly under pressure from Russia and China, while the US is arguably more and more overstretched. In both regions, small and middle powers face a revisionist and assertive nuclear-armed military power in possession of regional power projection capabilities. What could lead to a breakdown of deterrence between the US and small and middle powers in Europe and Asia?

By [breaking down the deterrence problems](#) in the regions into the 5Cs categories of (1) clarity, (2) capabilities, (3) criticality, (4) commitment, and (5) cohesion, the report identifies the challenges and points to possible solutions.

The authors concludes that in Europe, NATO's most evident weaknesses lie in its capabilities and cohesion. In Asia, the risks are primarily, although not exclusively, located in the conventional domain. The Asian theater requires an integrated approach that focuses on strengthening the ability of regional states to defend themselves against conventional attacks. Through comparison of the two regions, the authors are able to identify the challenges that the US and its allies encounter in the European and Asia-Pacific theater are similar. Russia and China can exploit local imbalances in capabilities against the Baltic states and Taiwan specifically. Nevertheless, some differences between the two theaters persist. The Russian nuclear threat is more grave than the Chinese one due to its assertive doctrine and flexible deployment strategy, and, while Russia is weaker than China, it arguably also has less to lose.

3.1.2. Paper | Pick Your Poison: Comparing the Deterrence Problem in Asia and Europe (December 2021)

Guest authors: Eric Heginbotham and Dick Samuels, edited by Paul van Hooft and Tim Sweijts

How do the challenges to [deterrence in Europe and Asia](#) compare? Eric Heginbotham and Dick Samuels identify the severity of the deterrence problems in each region and applies these to the following categories: Interests and objectives of the challenger, Overall balance of regional power, Location of contingencies within the region, Nuclear policy and escalation risk and Non-nuclear cross-domain threat. The authors conclude that the deterrence problems are somewhat greater in Europe, although the stakes in many European cases are lower than those in Asian cases. Some European cases may therefore offer greater room for maneuver in responding, should deterrence fail.

3.1.3. Paper | Raising the Costs of Access: active denial strategies by small and middle powers against revisionist aggression (December 2021)

Authors: Paul van Hooft, Nora Nijboer and Tim Sweijts

What conventional options exist for small and middle powers in Europe and Asia [to raise the costs of aggression](#) towards regional revisionist threats from Russia and China? It is increasingly unlikely that the US will be able to act simultaneously in both regions. This paper by Paul van Hooft, Nora Nijboer and Tim Sweijts focuses specifically on conventional options for small and middle power to deter through active denial strategies. The authors argue that investing in conventional deterrence, specifically the ability to deter by a strategy of denial, is the more feasible route for small and middle powers in Europe and Asia under current conditions.

3.1.4. Paper | Strengthening Taiwan's integrated deterrence posture: Challenges and Solutions (January)

Guest author: Jyun-yi Lee, edited by Paul van Hooft and Tim Sweijts

In contrast to a few of the other papers in the series, Jyun-yi Lee (INDSR) concludes that [China's threat to Taiwan is primarily political in nature](#). The deterrence posture cannot simply be viewed from a military lens, though an advantageous geographic position and US security commitment play a role. China seeks political reunification, not conquest.

3.1.5. Paper | Deterrence in the Baltic Sea Region – a View from Poland (January)

Guest author: Wojciech Lorenz, edited by Paul van Hooft and Tim Sweijts

How NATO can deter Russia from provoking a military confrontation with the Alliance? Wojciech Lorenz (Polish Institute of International Affairs) covers [deterrence in the Baltic Sea Region from a Polish view](#) in his paper. The author argues that the Alliance will have to base its deterrence on the ability to defend its territory, which requires the ability to maintain political cohesion, respond to conventional escalation and fight a large-scale, high-intensity conventional war. It will also have to be able to deter Russia from the use of nuclear weapons. The paper concludes that strengthened conventional and nuclear deterrence is unlikely to deter Russia from the attempts to exploit political vulnerabilities in member states and in the Alliance as a whole. Russia's strategic goals will not change as long as the regime defines them in the opposition to the West and NATO is perceived as an obstacle for their achievement.

3.1.6. Paper | Deterrence and War Initiation Decisions (January)

Guest author: Jeffrey H. Michaels, edited by Paul van Hooft and Tim Sweijts

This short brief by Jeffrey H. Michaels, part of the deterrence paper series, argues these propositions are not just overly simple but misleading. The principal reason for the weakness of the propositions is [a fundamental lack of understanding about contemporary interstate war](#), specifically why and how states decide to go to war. The author concludes that the problem with the vast majority of contemporary war scenarios is that they tend to focus on how a military conflict might play out with only a superficial discussion of the motives and cost-benefit calculus of the enemy leadership leading up to the decision to embark upon war. By approaching a deterrence strategy from the perspective of how an adversary could translate military success into a favorable political outcome, very different light can be shed on an aggressor's cost-benefit calculus and campaign design for waging a successful war, and hence the most appropriate means of deterring them.

3.1.7. Paper | Not one without the other: realigning deterrence and arms control in a European quest for strategic stability (December)

Authors: Lotje Boswinkel and Paul van Hooft, with contributions from Michal Gorecki.

Neither arms control nor deterrence can be considered without the other, Lotje Boswinkel and Paul van Hooft write in a [this policy brief](#). Despite limited manoeuvre space for small and middle powers, options must be explored for Europe to actively shape or at least participate in efforts to reinvigorate arms control and more generally stability. While Europeans often treat arms control and deterrence as opposites, they are ultimately two sides of the same coin: both strands of effort seek to prevent war by forging stability between potential adversaries. Seeking the right mix of deterrence, arms control and non-proliferation measures is therefore key.

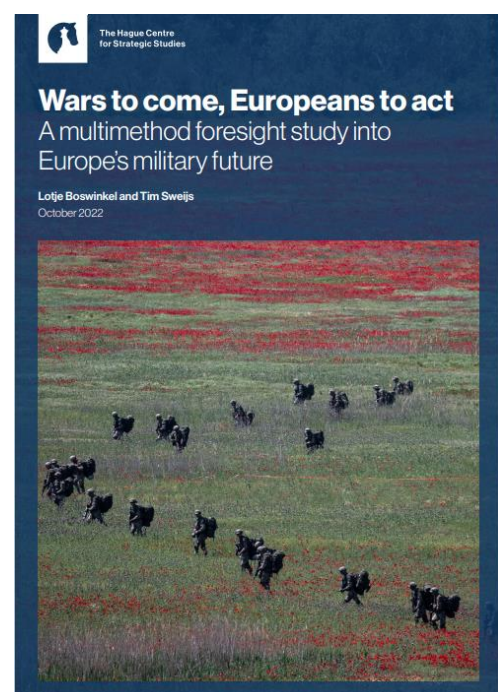
Wars to come, Europeans to act

3.1.8. Wars to come, Europeans to act | A multimethod foresight study into Europe's military future (October)

Authors: Lotje Boswinkel and Tim Sweijts, with contributions by Collin Meisel, Saskia Heyster, Daan Sanders and Stella Kim.

[“Watch out for War with a Capital W,” this new report concludes](#) – based on the first comprehensive expert survey to study the future of European defence since the Russian invasion of Ukraine. Authors Lotje Boswinkel and Tim Sweijts use a multi-method approach to explore where Europe is most likely to intervene militarily over the next ten years, and lay out a comprehensive policy agenda for European defence policy makers.

Russia's war in Ukraine has been a strategic wake-up call for European leaders, leading to a boost in defence budgets across Europe and prompting Finland and Sweden to shelter under the collective defence umbrella of NATO. If one thing is clear, Europe will need to assume a greater role in maintaining peace and stability in its own region and neighbourhood. Its security is directly affected by



conflict risks in Eastern Europe, Sub-Saharan Africa, the Middle East, South Asia, the Caribbean and, in the coming years, the Arctic and Outer Space.

Even with the current reinforcements of military postures across Europe, material and political constraints will not disappear. Therefore, there is urgent need to think about necessary investments and capability portfolios in the long term, including but also beyond the current war in Ukraine.

European Arms Control

Why do we suddenly seem to see a build-up of missiles and multiple tests of new weapons across the world? Increased geopolitical competition, nuclear multipolarity, and emerging technologies are steadily undermining strategic stability as well as the arms control and non-proliferation regime architecture that was built during the 1980s and 1990s.

3.1.9. Report | Shifting Sands of Strategic Stability: Towards A New Arms Control Agenda (February)

Authors: Paul van Hooft, Lotje Boswinkel and Tim Sweijts. Contributions: Benedetta Girardi, John Michaelis, Ana Lopez Gonzalez

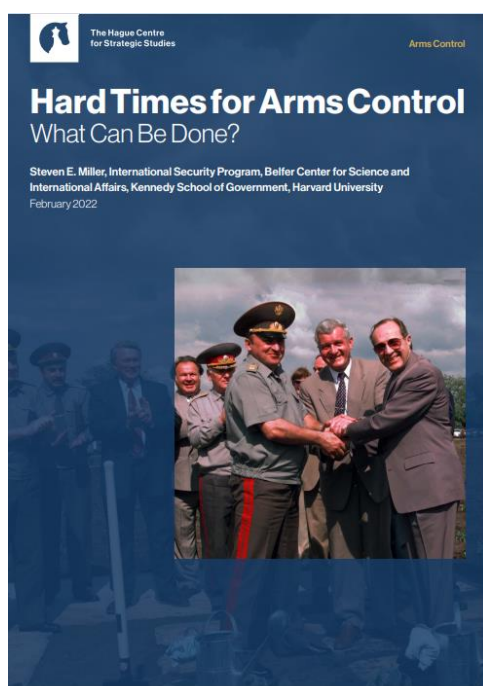
This report first offers an in-depth analysis of how both geopolitical and technological developments affect both deterrence and crisis stability. It then looks at the arms control, non-proliferation and deterrence policy measures that states have at their disposal to contain and prevent the production, proliferation, deployment and employment (PPDE) of weapon technologies that threaten strategic stability, to provide new solutions for a new generation of durable arrangements.

While arms control and non-proliferation efforts are aimed at countering the production, the proliferation and the deployment of such capabilities, deterrence seeks to prevent their actual employment. Rather than

singling out one weapon technology or one specific arms control regime, it introduces a new analytical framework that assesses the feasibility of policy measures to control weapon technologies along the PPDE-chain.

Applying this framework to ten emerging weapon technologies, [the report identifies specific policy measures](#) to curtail the risks associated with each of them.

The overview of measures offers European and Dutch policymakers a blueprint for a broader integrated arms control agenda, and facilitates careful consideration of the appropriate balance of policy mixes along the PPDE-chain included therein. On that basis the report offers a set of policy recommendations to policymakers to bolster strategic stability.



3.1.10. Paper | Hard Times For Arms Control: What Can Be Done? (February)

Author: Steven E. Miller, edited by Paul van Hooft and Tim Sweijjs

The world has grown more dangerous but also less open to arms control measures that could limit some of the dangers. What can be done? Steven E. Miller (Belfer Center for Science and International Affairs) offers a tour de force [overview of both dismal and hopeful trends within arms control](#) over the past decades.

Miller argues that there is a substantial agenda of arms control issues in which Europe has a full stake – including the regional arms control order in Europe and the regulation of global phenomena such as space and cyber. There are opportunities within NATO and in multilateral institutions to play a role in the discussion and negotiation of these issues – natural settings for a Europe that champions multilateralism. Obstacles exist, but there are ways around them. However long the path and however tough the mission, giving priority to this agenda offers the best chance for Europe to avoid the unappealing outcome of living in a much less constrained and much less regulated world full of dangers and instabilities.

3.1.11. Paper | Real and Imagined Challenges to Strategic Stability (February)

Author: Bruno Tertrais, edited by Paul van Hooft and Tim Sweijjs

What are the [challenges to strategic stability](#)? Bruno Tertrais argues that, as long as political leaders remain cautious about the very idea of using nuclear weapons, current developments will not significantly increase the risk of nuclear war. The key to strategic stability is shaping the incentives and disincentives to upset the status quo.

However, for Europe, Tertrais argues, strategic stability should be understood in a broader sense than just nuclear arms control. In particular, it must include risk reduction. In his essay, Tertrais applies this understanding of strategic stability to reshaping the incentives of Russia. Though this might seem counterintuitive in the context of arms control, a more muscular European approach could in fact set the stage for more effective discussions with Russia.

3.1.12. Paper | Europe's Role in Promoting US-China Arms Control Cooperation (February)

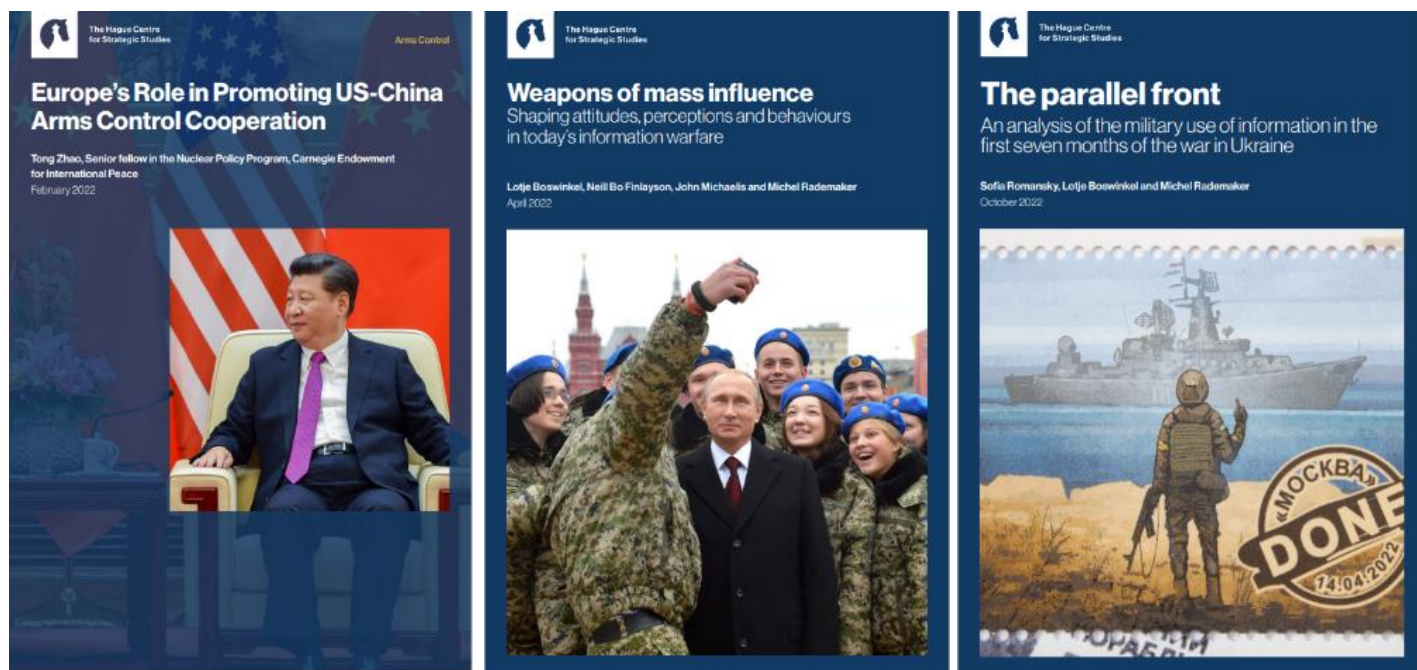
Author: Tong Zhao, edited by Paul van Hooft and Tim Sweijjs

Though few European states have nuclear weapons, and none are superpowers, European countries are still key strategic players. Moreover, [Europeans could play the role of "honest broker"](#) and promote potential cooperation on arms control between the US and China. In his paper, Tong Zhao (Carnegie Endowment for International Peace) discusses how European states can engage with China on leadership and operational levels, and where they can facilitate U.S.-China communications on arms control issues. Additionally, Zhao offers suggestions for risk reduction measures and long-term steps to build stability.

3.1.13. Op-Ed | 'The Ukraine crisis shows that new agreements on arms and troop control in Europe are desperately needed' (February)

Putin says he wants to make agreements with the West on arms control. Let NATO seize this opportunity with both hands, also in its own interest, argues strategic analyst Lotje Boswinkel [in an op-ed for Het Parool](#). The Ukraine crisis shows that new agreements on arms and troop control in Europe are desperately needed. Such discussions are not easy: mutual distrust is high and both sides accuse each other of not complying

with previously concluded treaties and agreements. Nevertheless, both sides must also continue to look for shared interests – with the chance that NATO will be able to secure a number of new arms control agreements, however fragile they may initially be.



Platform Influencing Human Behaviour

The project *Platform Influencing Human Behaviour*, commissioned by the Royal Netherlands Army, explores ethical, legal and military-strategic issues and boundaries involved in information-based behavioural influencing in the military context.

For as long as wars have occurred, information has been used to shape outcomes on the battlefield. In recent years, the role of information in conflict is only gaining in importance, as information and communication technologies advance and cognitive psychology evolves. With the ever-larger and more evasive employment of information-based capabilities to target human cognition, boundaries between the battlefield and beyond and between war and peace fade. Such developments bear far-reaching consequences, also for military organisations. Indeed, in this rapidly evolving information environment, armed forces are faced with a myriad of questions and dilemmas.

Even if the use of information in conflict is nothing new, today's technologies have vastly increased the potential scale, scope and pace of influencing operations. The information environment can be exploited to deceive enemy forces, maintain troop confidence, and sway public opinion.

The aim of the HCSS *Platform Influencing Human Behaviour* is to build and share knowledge on information-based behavioural influencing in the military context, by looking at issues such as:

- How is the military adapting to current and future changes in the information environment? What are national operational and doctrinal developments when it comes to behavioural influencing?
- Which concerns shape the debate on behavioural influencing and how are for instance legal or ethical issues being dealt with? Which issues are still unresolved and what is needed to move forward? What are key obstacles to current practice and policy?
- How does the role of the armed forces relate to the role of other governmental agencies/departments in behavioural influencing in the information environment?
- To what extent do current threats spur the need for continuous, pro-active military postures in the information environment (as opposed to mission-specific)?

- What are current practices in behavioural influencing by Western military organisations? How well are the techniques and tactics understood, implemented and evaluated in the military context? What are key promises and pitfalls?
- What is or should be the role of the EU or NATO in the information environment?

3.1.14. Paper | Weapons of mass influence: Shaping attitudes, perceptions and behaviours in today's information warfare (April)

Authors: Lotje Boswinkel, Neill Bo Finlayson, John Michaelis and Michel Rademaker

In the [first paper of the series, "Weapons of Mass Influence"](#), we look at the behavioural influencing tactics at the root of information warfare.

Russia's invasion of Ukraine has highlighted once again that fighting does not just take place on the physical front lines. Since the early onset of the war, footage of burning enemy vehicles, disillusioned Russian soldiers, and a lone heroic fighter pilot defending Kyiv were shared countless on social media, bolstering troop morale and mobilising public support.

In information warfare, non-kinetic, information-driven capabilities are employed to target human cognition, seeking changes in attitudes, perceptions and behaviour. At its core are behavioural influencing tactics that exploit flaws in human cognition. The paper sets out a number of such tactics that have proven especially effective at influencing larger groups of people. This can be done effectively via the virtual dimension, but the influencing principles often apply to the offline world too. Furthermore, many of the tactics can likewise be implemented at the tactical level.

For this paper, we also produced [a video explainer](#).

3.1.15. Paper | Information-based behavioural influencing in the military context: mapping current expert thinking (June)

Authors: Lotje Boswinkel, Michel Rademaker and Sofia Romansky, with contributions by Stella Kim and Ricardo Pereira Teixeira.

As influencing efforts have grown, Western militaries are shifting their attention to focus on information-based capabilities, but what are the views of experts on their use? The current shift to high-intensity warfare inevitably carries with it a shift in the information warfare paradigm. The second paper of the Platform Influencing Human Behaviour series [maps international expert and practitioner views on the employment of information-related capabilities](#).

The paper discusses the results of expert sessions, during which HCSS brought together international experts and practitioners, with both military and non-military backgrounds, to discuss the broad variety of information-related capabilities that could potentially be employed by armed forces. Using three scenarios of relevance to European armed forces, 22 participants from the Netherlands, Belgium, France, Germany and the UK reflected on the available, relevant and desirable military actions to influence behaviours in the information environment.

A video explainer about [the expert sessions](#) was also produced.



3.1.16. Paper | The parallel front | An analysis of the military use of information in the first seven months of the war in Ukraine (October)

Authors: Sofia Romansky, Lotje Boswinkel and Michel Rademaker

Global Russia's invasion of Ukraine on the 24th of February 2022 stood out to global audiences, not least by marking the return of large-scale conventional warfare in Europe. Yet, the war between Ukraine and Russia certainly does not take place solely in the physical realm. Rather, in modern high intensity warfare, an ongoing informational battle interacts with and affects the behaviour of people on the ground.

This third paper of the Platform Influencing Human Behaviour series looks at [seven case studies to map the ways in which Ukrainian and Russian narratives developed and interacted](#). In doing so, we attempt to disentangle the various information influencing tactics employed in the war thus far, as well as draw out key conclusions that must be learnt.

Author Sofia Romansky introduces the paper in [an explainer video](#).

3.1.17. Event | Webinar: Countering China's Influence Campaigns in Europe (February)

Compared to the efforts of Vladimir Putin's Russia, Beijing's political influence operations in Europe have received little attention. However, the Chinese Communist Party's influence campaigns pose a challenge to liberal democracy as well as Europe's values and interests. An [extensive report](#), recently published by Jean-Baptiste Jeangène Vilmer and Paul Charon (Institute for Strategic Research of the Ecole Militaire, Paris), has mapped out the global influence efforts of the CCP.

On the occasion of the publication of the English edition, HCSS and the Institut français des Pays-Bas organised an online discussion with the authors and additional experts from Europe. During this online event, [an expert panel analysed the toolset deployed by China](#) across different arenas (political and economic elites; media and public opinion, and civil society and academia).

The panel consisted of:

- Jean-Baptiste Jeangène Vilmer, director IRSEM at the French Ministry for the Armed Forces
- Paul Charon, Director for Intelligence, Strategic Foresight, and Hybrid Threats at IRSEM
- Louk Faesen, Strategic Analyst at the Cyber Policy and Resilience Program, HCSS
- Joris Teer, Strategic Analyst on China's foreign policy, HCSS

Luis Vassy, French Ambassador to the Netherlands, opened the event. The panel, moderated by HCSS deputy director Michel Rademaker, then reflected on the effects of Chinese political influencing efforts on American and European elite and public opinion, and finally, explore response options both at the national and European level.

3.1.18. Media commentary: Louk Faesen on Russian disinformation campaigns (April)

At the start of the Ukraine war several foreign 'independent journalists' traveling with the Russian army suddenly appeared on Russian television. HCSS analyst Louk Faesen, who researched [Russian disinformation](#), was not surprised by the reports, he stated in Dutch newspapers. "Some people's distrust of Western institutions sometimes runs so deep that they are no longer critical of the alternative narrative."

Faesen stressed that these selected 'foreign independent journalists' are being used by Russia mainly for domestic reasons, to spread disinformation and strengthen propaganda from the Kremlin, for example about the so-called Ukrainian neo-Nazi regime and the presence of biological weapons. "They confirm Putin's criticism of Western media and governments and dismiss it as unreliable." Inviting like-minded Western journalists also fits in the web of disinformation that Russia has been spinning in Europe for years. "Some Western media organizations are actually directly sponsored by the Russian intelligence service," Faesen told Algemeen Dagblad and Het Parool.

3.1.19. Podcast | De Strateeg: How can Defence arm itself against an information war? (May)

The first victim of war is the truth, so the saying goes. Opposing parties always fight for their own truth in war, and this is also evident on both warring sides of the conflict in Ukraine. But how do you make sure the population stands by your side of the story? And how do you arm yourself against the story of your opponent?

It is clear that information plays an increasingly important role in wars due to the greater technological possibilities. In [this episode of our BNR podcast De Strateeg](#), Derk Boswijk, Member of Parliament on behalf of the CDA, and Hans Franssen, strategic communications officer at the German-Dutch headquarters, discuss how the Defence should deal with this issue.

As wars are fought in more domains than before, information becomes an increasingly powerful weapon. So how do you know who is telling the truth? Does the truth always lie somewhere in the middle? Boswijk and Franssen discuss these issues in [a follow-up episode of De Strateeg](#).

3.1.20. Media commentary | Information as a weapon (November)

A Ministry of Defence that makes fun of the Russians on Twitter. An intelligence agency that distributes taped conversations of Russian soldiers with their loved ones on YouTube. Ukraine uses unusual means in its information war. But where is the line between information and propaganda? “The past few years have shown that Russian stories often pertain very little truth,” HCSS deputy director [Michel Rademaker commented in De Telegraaf](#). “The Ukrainian side certainly also has an interest in influencing the narrative, but at the same time it also benefits from being transparent.”

Rademaker said it's unusual that an intelligence agency is so transparent. “When you publish something, you give away two things,” he added. “Your source and your method.” Rademaker reckons it's done to send a signal. “The fact that they communicate about it means that they want to give a message: We know what is going on.”

NATO's Strategic Concept

The Russian invasion of Ukraine – an independent, peaceful and democratic country and close NATO partner – has returned NATO to the centre stage. The Alliance headlines the foreign policy agenda, with member countries reaffirming the need to take the necessary steps in protecting NATO's territory and reinforcing its eastern flanks.

3.1.21. Paper | Between War and Peace: ‘Hybrid Threats’ and NATO's Strategic Concept (June)

Authors: Tim Sweijs, with special thanks to Mattia Bertolini

In his latest contribution, Tim Sweijs argues that NATO must shift from deterrence by reinforcement to deterrence by denial posture at the same time as it further develops its counter hybrid posture. The Russia-Ukraine war has [major implications for the prospect of hybrid threats in the 2020s](#). The onset of one of the largest interstate wars in Europe since the Second World War might suggest we should gear up and prepare for large scale war only, rather than to ponder smaller, hybrid, challenges.

Indeed, NATO is well advised to ramp up its conventional forces, beef up its strength, replenish its stocks, increase readiness, and enhance mobility. Because if we do not, the opponent might come through the so-

called front door. But once we secure this front door, it is likely that opponents will try to come in through the back door. And we have seen how cyber strategic actors can target vital infrastructures from afar; manipulate public discourses and undermine democratic decision-making processes at scale and with speed. Hybrid strategies can be expected to stick around in this era of Persistent Confrontation.

Dr. Sweij's contribution to the seminar '[The Madrid Summit and the Future of NATO at The Institut Barcelona d'Estudis Internacionals \(IBEI\)](#)' can be [read here](#).

3.1.22. Paper | China and the Indo-Pacific in the 2022 NATO Strategic Concept (September)

Author: Paul van Hooft

NATO's long-awaited new Strategic Concept was published at the June 2022 NATO Summit, mere months after Russia's invasion of Ukraine. It articulates how the member states are coming to terms with Russia's invasion of Ukraine in February, its subversive activities across Europe, and its unprecedented threats to use nuclear weapons; Russia has unequivocally re-emerged as a revisionist threat in Eastern Europe. The emphasis on collective defence in the European theatre thus marks a return to familiar terrain for the Alliance.

Yet, the 2022 NATO Strategic Concept includes China, underlining that its "stated ambitions and coercive policies challenge [the Alliance's] interests, security and values". The Concept makes references to maritime security, specifically the People's Republic of China's challenge to freedom of navigation in the maritime commons in the Indo-Pacific, Senior strategic analysts Paul van Hooft writes in [the latest edition of Atlantisch Perspectief](#). Paul van Hooft addresses the role of NATO's European allies in the Indo-Pacific and how a secure maritime order and open sea lines can ensure European security too.

3.1.23. Paper | Reinvigorating NATO's Edge: Military Innovation and the Strategic Concept (May)

Author: Tim Sweij's

What steps can European NATO allies take to manage the expected coming revolution in military affairs and maintain – or attain – a military-technological edge? In a new [paper for GLOBSEC](#), Tim Sweij's sketches the challenges that the Alliance confronts in this endeavour and offers concrete recommendations to address these challenges.

Immediately after Russia's invasion of Ukraine, NATO allies recognised the need to rearm to deter and defend against Russia. With the lack of funds no longer the principal constraint, European NATO allies will now be able to rebuild their military strength after an extended period of neglect.

But while they are rebuilding, their militaries must deal with the urgent challenges of today and prepare for the conflicts of tomorrow. Maintaining – or attaining – a military-technological edge will be instrumental to NATO's future warfighting ability and will require first and foremost an ability to innovate.



Unfortunately, for various reasons and after decades of budget cuts, military innovation is no longer a strong suit for Western military organisations. NATO's forthcoming Strategic Concept needs to offer guidance and set the boundaries for an Alliance wide effort to spur military innovation.

3.1.24. Essay: Russian Nuclear Bluff: Insane or Communication? | 10 recommendations for NATO allies (October)

Guest author: Frederik A.J.J. Wintermans

What do the [Russian nuclear signals](#) mean? Does further isolation of Moscow increase the likelihood of nuclear retaliation? Nuclear threats since February are not only morally reprehensible, but at the same time a means of communication that sends out signals, argues guest author Major Frederik A.J.J. Wintermans in his essay. Moscow is using nuclear threats to manage tensions with NATO without letting escalation spiral out of control. That does not mean that the risk of escalation has disappeared, because the question is whether the West receives these signals sufficiently and, more importantly, understands them.

3.1.25. Publication | Future NATO: Maintaining NATO's Technological Edge (January)

HCSS Director of Research Tim Sweijs contributed to a publication in RUSI's Whitehall Paper series: [Future NATO: Adapting to New Realities](#). Edited by John Andreas Olsen, Colonel in the Royal Norwegian Air Force, "*Future NATO*" looks at the challenges facing NATO in the 21st Century and examines how the Alliance can adapt to ensure its continued success.

The chapter "[Maintaining NATO's Technological Edge](#)" was written by Tim Sweijs and Professor Dr. Frans Osinga, Special Chair in War Studies, Leiden University and professor at the Netherlands Defense Academy (NLDA). The authors note that maintaining NATO's technological edge requires much higher investments in areas such as cyber defense, artificial intelligence, unmanned systems and space capabilities.

This chapter first outlines current and near future (five- to 10-year) developments in cyber, artificial intelligence (AI), unmanned systems and space, and assesses their consequences for international security and stability. It then examines the implications for NATO, arguing that the Alliance risks losing its military-technological edge vis-à-vis near-peer competitors if it does not increase its investments and efforts in these areas. It also lays out the strategic, moral and practical challenges that these new technologies pose, in particular for European member states, and offers four recommendations for NATO action going forward.

3.1.26. NATO Parliamentary Assembly visit (May)

A joint committee [delegation of the NATO Parliamentary Assembly](#) consisting of Parliamentarians of 15 NATO member states visited the Tweede Kamer, the House of Representatives of the Dutch Parliament, on May 11. During the visit, parliamentarians received a series of briefings on the Dutch perspective regarding the future of NATO and [the implications of Russia's renewed invasion of Ukraine on Euro-Atlantic security](#). "With Russia's invasion, the Alliance has entered an era of persistent confrontation", said Tim Sweijs, the Director of Research at the Hague Centre for Strategic Studies.

Sweijs panelled on "The Future of NATO and the new Strategic Concept", together with Dick Berlijn, former Chief of the Netherlands Defence Staff, and Angelien Eijssink, former member of Dutch Parliament and former member of the Dutch Delegation to the NATO PA. HCSS senior strategic analyst Paul van Hooff subsequently gave a briefing on "The Geopolitical Situation in the Indo-Pacific and the Strategy for the Euro-Atlantic Community." The delegation consisted of some 30 members of the Committee on Democracy and Security (CDS) and the Sub-Committee on Transatlantic Relations (PCTR).

3.1.27. NATO General Philippe Lavigne visits HCSS (July)

On July 22, [NATO's Supreme Allied Commander Transformation \(SACT\)](#), [General Philippe Lavigne](#), was welcomed at the Hague Centre for Strategic Studies, where he engaged in an extensive three hours closed door discussion on the future of the Alliance.

General Lavigne met with director of research Tim Sweijs, strategic analysts Paul van Hooft and Lotje Boswinkel, Pieter Bindt, former director of the Military Intelligence and Security Service (MIVD) and Frans Osinga, professor at the Faculty of Military Sciences of the Netherlands Defence Academy (NLDA). The SACT, one of NATO's two strategic commanders, mainly focuses on the future, overseeing innovations and transformations within the alliance. Lavigne, a four-star general, plans to visit all NATO member countries. He does this not only to get better acquainted with all Chiefs of Defense, but above all to exchange ideas with various leading experts.



Image 6. NATO General Philippe Lavigne visits HCSS.

3.1.28. NATO C2COE seminar: Tim Sweijs on the future of conflict (November)

Tim Sweijs gave a keynote at the [NATO's Command & Control Centre of Excellence \(NATO C2COE\)](#)'s annual Command & Control (C2) seminar in November, where he talked about the future of conflict and C2.

In his keynote "*International Security, Technological Change, and the Future of Conflict*", Dr. Sweijs covered the future of Command and Control in conflict situations from a civilian perspective. Using new media to effectively achieve results in modern day warfare demands a change of mindset. His presentation focussed on conceptual developments within the field of Command and Control.



Conflict Early Warning Systems

3.1.29. Report: Practices, Principles and Promises of Conflict Early Warning Systems (February)

Authors: Tim Sweijts and Joris Teer, with contributions by Simon van Hoeve, Giorgio Berti, Joris van Schie, Jelle van der Weerd and John Michaelis

This how-to-guide explores various options for the development of a [Conflict Early Warning System \(CEWS\)](#) that can immediately flag countries or regions that face imminent emerging conflict, support strategic and programmatic planning and enhance conflict analysis as well as existing capabilities by providing a common platform that is fully integrated into the network model and decision-making cycle of the relevant ministries' departments and posts.

The report analyses the practices, principles and promises of EW based on a review of academic literature; an analysis of a set of Conflict Early Warning Systems currently deployed by governments, international organisations, non-governmental organisations, research institutes and expert analysis. It reflects on opportunities and limitations and outlines risks. The explicit purpose of this report is to distil the most important insights to be considered in the design of a Conflict Early Warning System for public organisations. The review presented in this report finds a thriving EWEA community both inside and outside governments that offers many practices and principles in existing EW that can be used in the development of an EW that is instrumental in achieving these goals.

Other Defence Publications

3.1.30. Paper | Robotic and Autonomous Systems: From design to development and use in military operations (November)

Authors: Michel Rademaker and guest author RNLA LtCol Sjoerd Mevissen.

Robots and Autonomous Systems (RAS) are an evolving industry for militaries around the world. Though long seen as the future of warfare, the application of RAS is relatively new and experimental in most militaries, including in the Dutch Armed Forces. In 2018, the Royal Netherlands Army established an experimental unit to explore the use of RAS and research key topics on the application of such systems by militaries. This article is [a summary of the army's Concept Development & Experimentation \(CD&E\) plan](#) and its research on RAS for Military use, conducted over a two-year period at the RAS unit of CLAS situated at the 13 light brigade. This [paper builds on previous research on military applications of RAS](#) and briefly discusses questions of autonomy, as well as ethical and legal considerations. This paper highlights the importance of attempting a different approach within the army to keep up with technical innovations but reflects on the challenges that can arise within a large bureaucratic organization.

Panels, Workshops, Events

3.1.31. Event | Conference on the Future of War (September)

From 5-7 October, Tim Sweijs, in his role as research fellow at the War Studies Research Centre, co-chaired the "[Future of War Conference](#)", together with Martijn Kitzen (Netherlands Defence Academy) and Rob Johnson (University of Oxford).

One fundamental question has captured the attention of professionals and scholars since the dawn of war: what does the future of war look like? In today's military-strategic context, this question has gained renewed urgency because of surging tensions between major military powers and rapid advancements in the military tools at their disposal. War is and has always been a reflection of the technological, economic, social, and political context in which it is waged.

"The Future of War Conference" examined how the character of future war is likely to evolve over the course of the next decade and beyond, with roundtables, keynotes, reflections, and over 150 papers, bringing together academics and professionals from different disciplines and geographical backgrounds.

4. Climate and Security

Following the release of the Sixth Assessment Report by the International Panel on Climate Change (IPCC) in February 2022, UN Secretary General Guterres dubbed the findings a 'code red for humanity'. The report underscored that the climate breakdown is occurring faster than anticipated and that, without urgent action, many places around the world will become uninhabitable in a matter of decades. That same month, Russia invaded Ukraine and set in motion a series of actions that precipitated an unprecedented call in the EU to reduce its dependencies on Russian oil and gas and accelerate the energy transition. At the same time, Russia intensified its military presence in the Arctic and closed long term gas contracts with China, at cheaper prices.



In July, Pakistan was hit by the hardest floods in its history; inundating one third of the country, killing over 1500 people, and displacing millions more. With the geopolitical order under increasing strain, the hope for a unified front to tackle global climate change has come under serious strain, making an ambitious climate agreement at the COP27 in November all the more challenging. Hosted by Egypt, the COP27 will be remembered as the UN climate change conference where the Loss and Damage fund was agreed. This was an important victory for climate-vulnerable countries, yet little was done to discuss, let alone address, the root causes of climate change. Moreover, much uncertainty remains about how the fund will work and who will contribute to it financially.

A positive was the UN Secretary General's pledge to support the development of a worldwide extreme weather early warning systems within the next 5 years. However, much more needs to be done by nations to address climate mitigation and adaptation goals. Perhaps the best result of 2022 is the broader recognition that conflict and climate share the same drivers and must be tackled together for better outcomes. In the summer, NATO made important strides with the launch of its Center of Excellence on Climate and Security, while the EU, US, and other key players have initiated further efforts to support the green energy transition. This includes measures that better support water, food and energy security, as well as initiatives that look at nature-based solutions.

Laura Birkman

HCSS Climate and Security Programme (CASP)

In 2022, HCSS worked on consolidating its position in the climate and security domain. Under the auspices of the CASP, HCSS continued to build on its extensive portfolio of research and advisory services, raised further awareness and understanding about the climate-security nexus, and further developed its data-driven methods and tools to support efforts to build smarter early warning systems and address climate change adaptation and mitigation. Figure 1 provides an overview of the topics, products and services the HCSS CASP focused on in 2022. The sections below offer a summary of the key activities.

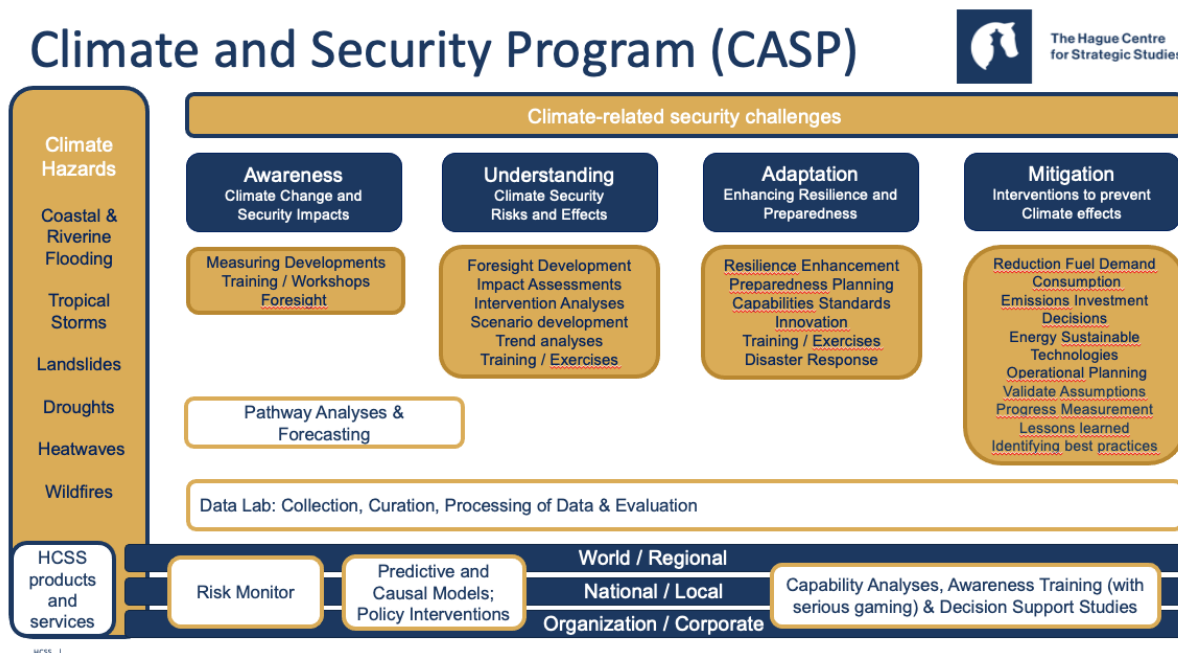


Figure 1: Overview of CASP topics, products, and services in 2022.

The Climate-Security Nexus

HCSS further developed its nexus expertise and intensified its advisory services to national governments, international organizations, private firms, and regional actors. With the generous support of the UK Foreign Commonwealth and Development Office (FCDO) Global Rapid Action Fund, HCSS developed a causal assessment framework that integrates qualitative, case-based approaches with quantitative, machine learning-based causal models to support policy and decision making.

4.1.1. Report: Unpacking the Climate Security Nexus | Seven Pathologies Linking Climate Change to Violent Conflict (March)

Authors: Tim Sweijjs, Marleen de Haan, Hugo van Manen

Although acceptance of climate change's role as a 'threat multiplier' is, by now, widespread, the specific causal mechanisms linking climate change to (violent) conflict onset remain under researched. [This study presents](#) seven climate-related conflict pathologies. The authors understand a climate-related conflict pathology as the specific pathway through which interaction between climate change and social, economic, and political factors leads to violent conflict. The study highlights regions that are particularly prone to each pathology and evaluates the available evidence and the degree of scientific consensus surrounding each of them. The mediating factors associated with each of the climate-related conflict pathologies outlined in this paper can be actively targeted to proactively reduce the risk of climate change resulting in the onset of conflict in vulnerable states.

4.1.2. Report: Not When But Why | Embedding Causal Methods in Policy and Programming (June)

Authors: Laura Birkman, Tim Sweijjs and Ninoslav Malekovic

As a result of artificial intelligence, machine learning, and the big data revolution, policymakers have more information at their fingertips to monitor developments, design and assess policy options than ever before. However, much of that information is not offered in a structured or intuitive way, and problems persist pertaining to the accuracy, the meaning, and the utility of the data at their disposal. This stands in the way of developing effective, reliable, and timely policy interventions. Using the UK Foreign Commonwealth and Development Office (FCDO) funded HCSS study '[The Climate Security Nexus: Understanding the Pathways that Lead to Violent Conflict](#)' as a reference, [this document provides](#) a non-technical 'how to' manual of a causal assessment framework that explains how causal models can be developed, applied, and embedded into development policy and practice. Finally, it offers concluding thoughts and practical recommendations on the way forward

4.1.3. IISS 2022 Armed Conflict Survey & The World Bank report (November)

Laura Birkman, Senior Strategic Analyst and Head of the Climate and Security Program at HCSS, contributed an essay entitled "Transition in Turbulence: Geostrategic Implications of Climate Change and the Energy Transition" to the [Armed Conflict Survey 2022](#) published by the International Institute for Strategic Studies (IISS). She also co-authored a chapter of the Global Center on Adaptation's '[State and Trends in Adaptation Report 2022](#)', together with colleagues from the International Military Council on Climate and Security, Chairman Tom Middendorp and Research Fellow Elsa Barron from the Center for Climate and Security.

HCSS was very proud and pleased that in its [latest report](#), [The World Bank](#) uses our typology of climate security pathologies that captures pathways through which climate change contributes to conflict and fragility, based on 'Unpacking the Climate Security Nexus: Seven Pathologies Linking Climate Change to Violent Conflict.'



Water, Peace and Security



In 2022, the Water, Peace and Security partnership deepened its work at both the global and regional level. At the regional engagement level, HCSS continues to lead the WPS work in Iraq. A number of high-level events were organized at HCSS, including a visit from the Iraqi Minister of Water Resources to HCSS in April and a roundtable event in December. A number of working papers were published to support decision makers tackling water governance and distribution challenges. In addition, an extensive training and workshop program was delivered to Iraqi national and provincial authorities together with partner organizations IHE Delft and Deltares. HCSS also developed an e-learning module on the link between water and conflict. An updated early warning tool was launched in December 2022 that featured a more sophisticated predictive model for identifying hotspots of risk and a new model developed by the HCSS Datalab that analyses and assesses the causal factors shaping water-conflict pathways.

4.1.4. Policy Brief: Action Needed: Three Priorities for Iraq's Water Sector (June)

Authors: Irina Patrahau, Laura Birkman, Tobias von Lossow, Kendra Kock, Maha Yassin, Susanne Schmeier, Alyssa Offutt.

The water situation in Iraq is alarming. In 2021, the country experienced its second driest season in 40 years due to record low rainfall. Located downstream, much of the pressure on Iraq's water resources comes from dam construction in neighbouring countries, the impact of violent conflicts, and the consequences of climate change. In 2021, the Iraqi parliamentary elections brought political shifts. This presents opportunities for addressing some of Iraq's most pressing water issues under the new government. To supplement these efforts, [this policy brief](#) identifies three priorities to improve Iraq's water situation and prevent or mitigate related crises, with the ultimate aim of supporting the new government in its planning. Specifically, this policy brief looks into transboundary water negotiations, water pollution, and inefficient water use – the three key priorities for Iraq's water sector.

4.1.5. Snapshot: Iraqi Marshland Women: The True Guardians of the Marshes (July)

Authors: Assistant Analyst Kendra Kock and Irina Patrahau

The Marshlands of Southern Iraq, often described as the 'Garden of Eden,' are under serious threat from the effects of climate change. This unique ecosystem serves as a crucial source of essential services (e.g., food, clean water, and climate control) for the local community and the broader Iraqi population. [This snapshot](#) by Assistant Analyst Kendra Kock and Strategic Analyst Irina Patrahau argues that Iraqi Marshland women ought to be one of the key stakeholders involved in the decision-making processes that directly affect their livelihoods. However, to ensure their meaningful inclusion, inclusive dialogue processes must be formalised to guarantee the preservation and uninterrupted use of traditional knowledge. This article was also translated into Arabic the Al-Baidar Center in Iraq you can find the [article here](#).

4.1.6. Paper: Water Governance in Iraq: Enabling a Gamechanger (September)

Authors: Irina Patrahau, Laura Birkman, Dorith Kool, Tobias von Lossow, Kendra Kock, Susanne Schmeier with contributions from Alyssa Offutt and Eva Struycken.

Iraq's water situation is increasingly dire, putting pressure on the central government, governorate authorities, and citizens. The current state of the water sector needs to be understood against the background of Iraq's tumultuous history. [This Water, Peace and Security \(WPS\) paper looks](#) at how water resources are currently governed and managed across Iraq's 19 governorates. Zooming in on current practices and challenges

uncovers fragmented, outdated, and ill-suited structures, but also allows for an initial assessment of intervention options to achieve more effective and efficient water governance.

IMCCS, Climate and the military



HCSS is a founding partner of the International Military Council on Climate Change and Security. As part of the 2022 World Report on Climate and Security, HCSS developed a climate and security risk monitor. On the basis of the Monitor, three Climate Security Snapshots were developed to highlight the main climate-related security risks at a country and regional level. Highlighted regions include the Balkans, Eastern Mediterranean and Sahel.

Apart from broader IMCCS commitments, HCSS was invited together with the Council for Strategic Risks to contribute the Security chapter of the 2022 State and Trends in Adaptation Report, the annual flagship report of the Global Center on Adaptation.

4.1.7. Report: IMCCS | Decarbonized Defence: The Need for Clean Military Power in the Age of Climate Change (June)

The expert Group of the [International Military Council on Climate and Security \(IMCCS\)](#) produced [this report that warns](#) that militaries must accelerate efforts toward net zero to achieve a win-win-win: minimize fossil fuel-related operational vulnerabilities, undermine petro-dictators like Vladimir Putin, and combat climate change. The report reveals that there are high operational costs of continued fossil fuel use by militaries and recommends that security leaders across NATO and the EU seize opportunities to ensure that low carbon considerations and energy efficiency standards are key factors in new procurement processes, research and innovation.

4.1.8. Report: Global Center on Adaptation | State and Trends in Adaptation Report 2022 (November)

Contributors: Laura Birkman, as co-author of the Security chapter with Tom Middendorp and Research Fellow Elsa Barron from The Center for Climate and Security.

The Global Center on Adaptation “State and Trends in Adaptation Report 2022” [offers comprehensive recommendations for action](#), based on new evidence that Africa faces a serious shortfall in funding for climate adaptation, even as costs of delayed action rise. The State and Trends in Adaptation in Africa Report 2022 (STA22) completes the most comprehensive overview of the present and projected climate risks in Africa and blueprint for adaptation action. The third in the Global Center on Adaptation’s series of annual flagship reports maintains the dedicated focus on Africa and expands the analysis offered in the 2021 report published last year ahead of COP26.

4.1.9. Report: IMCCS | Climate Security Snapshot: The Balkans (July)

Authors: Hugo van Manen and Elsa Barron from The Center for Climate and Security

Countries in the Balkans face unique and concerning interactions between climate-influenced disasters and hostile geopolitical influences, write Elsa Barron and Hugo van Manen in this [Climate Security Snapshot](#) for the Expert Group of the International Military Council on Climate and Security ([IMCCS Expert Group](#)). The

snapshot builds on findings from the [Climate Security Risk Index](#) (CSRI), a tool developed by HCSS. It is the second in a series of papers comprising the third annual World Climate and Security Report (WCSR).

Warsaw Security Forum

HCSS was invited to support the organisation of a dedicated Energy & Climate Security Track at the 2022 [Warsaw Security Forum](#) in the first week of October. Highlights include the participation of Tom Middendorp in a high-level panel 'Europe's Green Future: A Climate and Security Perspective' together with Francois Bausch, Deputy Prime Minister and Minister of Defence of Luxembourg and Christian Zinglersen, Director of the EU Agency for the Cooperation of Energy Regulators. Meanwhile, Laura Birkman [moderated a roundtable](#) 'Military Green Energy Transition: Making the Case for The Future Operational Effectiveness of the Armed Forces'. Finally, two sessions of the Serious Game 'Climate Security Industry for Defence' were played to raise more awareness and understanding about the opportunities for the military to reduce its carbon footprint while increasing its operational effectiveness. An online version of the Serious Game was also developed.



Image 7. From left to right, Laura Birkman, Irina Patrahau, Ella MacLaughlin, Michel Rademaker and Sofia Romansky.

4.1.10. Online Game: Climate & Security, Industry for Defence

Is it possible for the military to enhance operational effectiveness while reducing their environmental footprint. In this educational and analytical game, players map out the different technological opportunities available for "greening" the military, resulting in a valuable overview of technological and policy solutions. This game is part of a broader research project organized in the context of the Warsaw Security Forum with the Government of Luxembourg.

Serious Gaming as a tool for Climate Action

Serious gaming can be an important tool for climate action and initiatives. HCSS develops strategic capability games as a gamified analysis tool with the aim to increase your awareness and decision support on relevant capabilities in a scenario setting, such as climate change induced scenarios. As of 2021, HCSS has also introduced a methodology for wargaming purposes.



4.1.11. Factsheet and video: A youth perspective on tackling Water-Food-Energy nexus challenges (January)

Contributors: Irina Patrahau and Sarah Ojukwu

In the coming decades, the world will need increasing amounts of resources. Population growth, resource-intensive lifestyles and the damaging effects of climate change will lead to water, energy and food insecurity across the globe. On the 18th and 19th of January 2022, the United Arab Emirates, Jordan and the Netherlands jointly organised a High-Level Summit on Water, Energy and Food security during [the Dubai Expo](#). Young people from Europe and the Middle East played [a series of four serious games](#) in September 2021 as part of the Expo. In [this factsheet](#) and [this video](#), you can find the conclusions and recommendations from the young people who participated in the serious games for future water, energy and food challenges.

4.1.12. Serious Gaming: Grounding and Directing Climate Action (August)

Authors: Assistant Analyst Ricardo Pereira Teixeira and Michel Rademaker

[This snapshot](#) by HCSS Assistant Analyst [Ricardo Pereira Teixeira](#) and Michel Rademaker addresses serious gaming as a critical tool for undertaking climate initiatives and reports on the output from the NATO Crisis Management and Disaster Response (CMDR) Centre of Excellence course on Climate Security in Sofia, Bulgaria. By employing HCSS' tabletop strategic game, twenty participants discussed, compared, and selected the best practices to prevent and respond to a severe and long-term drought scenario affecting the ecosystem and populations living off the Tigris-Euphrates River Basin. Building from the conclusions reached at the event, this snapshot holds that serious gaming constitutes a crucial first step in gearing efforts toward climate action and harmonizing internal organizational processes.

Panels, Workshops, Events

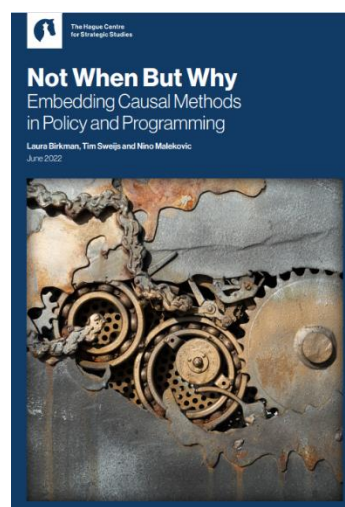
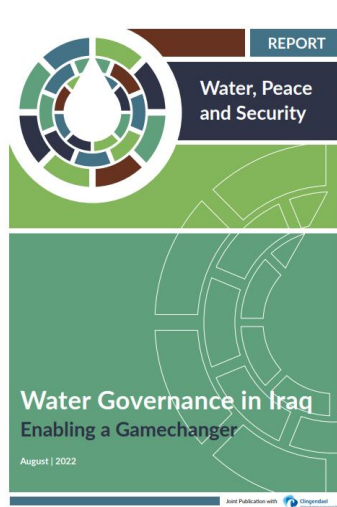
HCSS experts participated in panels in the following conferences and events dedicated to the security implications of climate change in 2022:

- [Laura Birkman](#), 2nd Baghdad International Water Conference: presentation 'WPS engagement in Iraq', 5 March.
- [Laura Birkman](#), WPS High-level Meeting with Iraq Minister of Water Resources, HCSS, 13 April.

- [Laura Birkman](#), NATO Centre of Excellence on Climate Change and Security, Expert Engagement Workshops Informing the Design of NATO Climate and Security Centre, 26 April and 18 July.
- [Laura Birkman](#), Waterschap Amstel, Gooi, Vecht: 5 mei Lezing, 'Water, Vrijheid en Veiligheid', 5 May.
- [Laura Birkman](#), UN Humanitarian Networks and Partnership Weeks 2022: panel speaker 'Anticipatory Action: Reducing Impacts of Climate Change and Conflict through Innovative Collaboration', 11 May.
- [Laura Birkman](#), Duurzaamheidsnetwerk Food Policy: keynote speaker 'Voedselzekerheid', 10 May.
- [Laura Birkman](#), UK Ministry of Defence, Climate and Security Forum: presentation 'Climate-conflict pathways', 30 May.
- [Laura Birkman](#), EU Copernicus Climate Change Service General Assembly: opening speaker, 'CS3 and strategic decision making', 13 September.
- [Laura Birkman](#), Bonn Future Lab on Strategic Foresight: panel speaker 'The Nexus of Climate Change and Security in a New Epoch of Geopolitics', 30 September.
- [Laura Birkman](#), Warsaw Security Forum: moderator Roundtable 'Greening the Military to Enhance Operational Effectiveness', 4 October.
- [Laura Birkman](#), Berlin Climate and Security Conference: panel speaker 'Climate Security in the Current and Future Global Conflict Landscape', 17 October.
- [Laura Birkman](#), The 2022 Climate and (In)Security Project Annual Conference: panel speaker 'Assessing Climate Insecurity within a Defence Context', 3 November.
- [Laura Birkman](#), Schouwder Waterschap Amstel, Gooi, Vecht: keynote speaker 'Water: Bron van Conflict, Instrument voor Vrede', Muiderslot, 23 November.
- [Laura Birkman](#), Route-66 seminar: keynote speaker 'Klimaatverandering en Conflict', 3 December.
- [Lucia van Geuns](#), Klimaat-akkoord Webinar: Kan klimaatbeleid de energiecrisis oplossen?, 2 September.
- [Michel Rademaker](#) and [Rob de Wijk](#), HCSS Online seminar: De Geopolitiek van Voedsel, 17 March.

Media Highlights

- [Tom Middendorp](#), De Strateeg: [Klimaatverandering als catalysator van conflicten](#), 7 maart 2022.
- [Laura Birkman](#), De Strateeg: [Kan verduurzaming binnen defensie beslissend zijn voor conflicten?](#), 25 september 2022.
- [Laura Birkman](#), Big Ideas into Action #58: [Iraq and the Water Peace and Security Quarterly Update](#) 25 August 2022.
- [Laura Birkman](#), Bureau Buitenland: [Ook in het poolgebied nemen de spanningen tussen Rusland en het Westen toe](#). April 28, 2022.



5. Energy and Raw Materials

Energy relations are at the heart of geopolitics. The trilemma of energy security, affordability and sustainability has been brought into question more fiercely than ever since the invasion of Ukraine in February 2022. The EU's dependency on Russian oil and natural gas was a determining factor in its response to the war. For the first time European countries took unprecedented, coordinated action in their energy policy and agreed to the so-called oil boycott and to the diversification of natural gas imports to the largest possible extent. The war in Ukraine is rearranging the global oil and (liquefied) natural gas markets based on alignment with Russia. This is taking place in the context of a market that had not yet recovered from the imbalances caused by the Covid-19 pandemic.

Energy prices across the world skyrocketed, shifting the initial question of energy security toward affordability. Price volatility and market tightness will likely continue in the foreseeable future.



In the short-term European consumers are dependent on sufficient affordable supplies of oil and natural gas. Yet the energy transition carries on. The old and new energy systems must co-exist until renewables take over. The market for hydrogen and its carriers is under development as new supply chains are being established. Securing supplies of critical minerals and technologies is becoming a priority. European governments and industry must learn from the tough lessons brought on by the war in Ukraine and ensure that the same mistakes are not repeated.

To respond to the increasing need for geopolitical analyses of energy markets, HCSS launched its '[Energy and Raw Materials](#)' initiative in 2022. The [geopolitics of the oil](#) and [natural gas markets](#) were central parts of our research. The oil and gas markets are going through significant transformations and the geopolitical and geo-economic roles of the United States, OPEC+, China and India are under revision. Questions of the impact of the oil boycott on European supply security and affordability remain essential. So do questions related to the impact of sanctions on the Netherlands' position as a hub of the international energy trade and key maritime bunkering port.

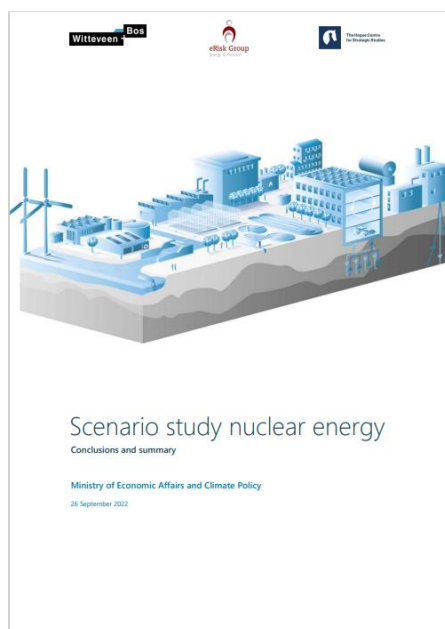
The energy transition also brings into attention the industrial transformation of the Netherlands and the EU. Sectors like [tank storage](#) are designing their transition pathway based on market developments for hydrogen, green ammonia or synthetic fuels, but they remain dependent on legislation and centralized industrial policies. In a series of extensive reports HCSS has identified the role of tank storage in today's global value chains and investigated their possible roles up to [2030](#) and [2050](#), in light of the global energy transition trends.

The focus on the geopolitics of [critical minerals](#) has also expanded over the last year. Looking specifically at [battery minerals](#) – [cobalt](#) and [graphite](#) – HCSS has investigated [supply chain vulnerabilities and geopolitical risks](#). The critical minerals supply risks were furthermore analysed and compared across energy technologies, including wind, solar, electrolyzers for green hydrogen and nuclear power. A recurrent theme

has been the importance of establishing alternative supply chains in collaboration with trustworthy partners. The prospect of mining in Europe from both supply security and energy justice perspectives furthermore remains a key consideration.

Irina Patrahau

The Energy Transition and European Industry



5.1.1. Report: Scenario Study Nuclear Energy | Conclusions and Summary (October)

Authors: Lucia van Geuns, Michel Rademaker, and Irina Patrahau

How can nuclear energy be part of the energy supply in the future energy mix of the Netherlands and Northwest Europe? And what are the costs and benefits? In addition to the question of whether there is an economic role for nuclear power in the electricity system, this study also looks at raw materials and the use of space. [The results of this scenario study](#) can be incorporated into a comprehensive social assessment of nuclear energy, whereby aspects such as public support, safety, non-proliferation and the processing and storage of nuclear waste are also relevant. This study was commissioned by the Dutch [Ministry of Economic Affairs and Climate](#) and carried out by a consortium consisting of Witteveen+Bos, eRisk Group and The Hague Centre for Strategic Studies (HCSS). You can find the [full report in Dutch here](#).

Energy Storage in Transition

Tank storage companies are part of Europe's energy infrastructure. By storing liquid products – liquefied natural gas, diesel, sustainable aviation fuels, sunflower oil and liquid hydrogen – they contribute to the energy, manufacturing, agriculture and food sectors. Robust well-developed infrastructure is a precondition to achieving climate goals. The private sector, investors and governments need to work together to ensure a smooth and accelerated energy transition. [This is a four-part series](#), begun in 2021, addresses the role of European tank storage in the global energy system. This report series was [also delivered to the Dutch Minister for Climate and Energy, Rob Jetten](#) in November.

5.1.2. Report: European tank storage in today's global value chains: What role does it play in our economy? (March)

Authors: Lucia van Geuns, Michel Rademaker, Jilles van den Beukel and Irina Patrahau

Tank storage companies are essential players in our energy, transport, manufacturing, agricultural and food industries. The tank storage sector supports a complex international network of actors, from domestic industry players to residential users and international traders. [This paper](#) is the second of the series, outlining the current role of the tank storage sector in maintaining Europe's prosperity, competitiveness, and geopolitical position.

5.1.3. Report: European tank storage in global supply chains: Outlook to 2030 (April)

Authors: Lucia van Geuns, Michel Rademaker, Irina Patrahau, Sarah Ojukwu and Philip Geurts

On the path to carbon neutrality, the years up to 2030 are characterized by the simultaneous decrease in demand for fossil fuels and increase in the use of low-carbon energy carriers. Players in energy infrastructures are caught in between, balancing the conventional and new energy systems. For instance, many companies have facilities to store methanol or ammonia, which are two of the main contenders to become dominant hydrogen carriers in the next years. [This paper](#) argues that up to 2030-2035, tank storage companies should further expand and diversify their infrastructure and services, to accelerate change.



Image 8. HCSS, VOTOB and VNO-NCW Hydrogen Accelerator Workshop.

5.1.4. Report: The European tank storage sector: 2050 and beyond (May)

Authors: Irina Patrahau, Michel Rademaker, Lucia van Geuns, Philip Geurts and Sarah Ojukwu

Europe is heading for a climate neutral future. For a smooth phase out of fossil fuels and their replacement with affordable low-carbon energy, governments need to support domestic industries in their transition and in setting up new supply chains. Policy support, the behaviour of governments in international relations and the development of new technologies are key determinants of what the next decades will look like. Despite

significant uncertainty, reliable energy infrastructure, including storage, handling and transport, is essential in the fight against climate change. [This paper seeks](#) to distinguish long-term trends for energy infrastructures by analysing technological developments against the background of global climate ambitions.

5.1.5. Summary: Tankopslag in Transitie (Tank Storage in Transition) (August)

Authors: Irina Patrahau, Michel Rademaker, and Lucia van Geuns

The tank storage sector is a significant part of the European economy, one that is relatively unknown to the public. Tank storage companies are essential players in our energy, transportation, manufacturing, agriculture and food chain industries. The sector supports a complex network, from domestic industry players to private users and international traders. This [Dutch summary highlights](#) the most important conclusions and recommendations from the 4 papers in our [Energy Storage in Transition series](#).

5.1.6. Workshop: The Hydrogen Accelerator Workshop (October)

Organisers: Irina Patrahau, Michel Rademaker, and Lucia van Geuns

Green hydrogen is one of the key energy sources that will enable the Netherlands to reach net zero by 2050. Hydrogen will be needed for the industrial energy transition in various forms: liquid organic hydrogen carriers, compressed hydrogen, methanol or ammonia. In October 2022, the Dutch association of tank storage companies (VOTOB), the Hague Centre for Strategic Studies (HCSS), and The Confederation of Netherlands Industry and Employers (VNO-NCW), [brought together stakeholders of the emerging hydrogen supply chains](#). The Hydrogen Accelerator workshop aimed to facilitate dialogue and to speed up action.

5.1.7. Minister Jetten receives HCSS reports on Future of Tank Storage

"Tank storage is crucial for security of supply and a successful energy transition," said [Rob Jetten, Minister for Climate and Energy](#), during a meeting in November where he received the HCSS report "Tank Storage in Transition", a summary of a series of papers, commissioned by VOTOB, the Association of Dutch Tank Storage Companies, in which Irina Patrahau, Michel Rademaker and Lucia van Geuns highlight the most important aspects about the changing role of tank storage in the energy transition.

Tank storage companies have an important role to play not only in the current energy system, but also in future energy systems. Hydrogen-producing countries are watching the Netherlands with great interest, said Minister Jetten. "This is partly due to the quality of the tank storage sector in the Dutch economy and partly due to movements that we have initiated as a cabinet, such as the construction of the hydrogen backbone together with Gasunie." But according to Jetten, the certification of future energy carriers also plays a role in this an important role.

Critical Materials, Minerals and Metals

Wind turbines, solar panels and electric vehicles – they are all dependent on sufficient, affordable and secure supplies of critical raw materials. Yet the global energy transition is expected to lead to an exponential increase in the demand for these minerals. Achieving a net zero energy system depends on foreign supplies of rare earth metals, cobalt or lithium. This creates novel geopolitical dependencies and geo-economic challenges for countries all around the world. For example, the importance of Taiwan to the supply of semiconductors and, its neighbor China, to the supply of critical minerals used to manufacture such semiconductors was highlighted in [this recent report](#). Critical minerals are a key area of energy research at HCSS, providing advice to governments and companies on how to address challenges related to securing supplies of raw materials.



5.1.8. Report: Graphite: Supply chain challenges & recommendations for a critical mineral (March)

Author: Jeff Amrish Ritoe, Irina Patrahau, and Michel Rademaker

Graphite is a critical mineral for governments in Europe and the United States, given its importance to the energy transition and high supply risk. Technologies that enable the decarbonization of transport and steel production, i.e., electric vehicles and electric arc furnaces, rely heavily on a consistent supply of high-quality graphite, leading to an exponential growth in the demand for graphite over the coming decades. Currently, 80% of the global supply of natural and synthetic graphite comes from China. [This report analyses](#) the practical, geopolitical and environmental challenges of sourcing graphite, and provides recommendations of how the European Union and the US can mitigate supply risks in the next decades.

5.1.9. Report: Cobalt mining in the EU: Securing supplies and ensuring energy justice (October)

Author: Arnoud Roelfsema, Irina Patrahau, Michel Rademaker. Contributors: Giovanni Cisco.

Cobalt is essential in manufacturing lithium-ion batteries for electric cars and stationary applications, thus bearing significant weight in the energy transition. Ramping up domestic cobalt mining could contribute to European open strategic autonomy, as 70% of global cobalt supply is mined in the Democratic Republic of Congo and 70% of global cobalt refining capacity is in China. [This paper argues](#) that by ramping up recycling rates and taking action to decrease demand, the EU could become self-reliant for cobalt supply by 2050. Until then, however, domestic mine development could contribute to mitigating the potential supply chain disruptions given the extreme pressure on mineral supply chains in the next decades.

5.1.10. Op-Ed: The U.S. Defense Production Act | Why America needs to do more if it wants to secure a steady supply of critical minerals (April)

Author: Jeff Amrish Ritoë.

The United States Defense Production Act (DPA) is the main tool at the disposal of the President of the United States to steer economic activity toward U.S. national defence priorities. The law gives the President the power to order companies to produce goods and supply services necessary to support national security. On 31 March President Biden signed an executive order to invoke the DPA to alleviate shortages of critical minerals needed for defence and energy purposes. [This report interrogates](#) the key questions that arise from this; what does this mean for players in the critical minerals supply chain, and will it help the U.S. government to close the gap with industry leader China and gain more control of its own critical minerals supply chain? Does the DPA solve all of America's supply chain challenges?

5.1.11. Paper: The Inflation Reduction Act Explained | Part 1: What it means for electric vehicles (EVs) and battery materials (August)

Author: Jeff Amrish Ritoë.

On August 16, 2022, U.S. President Joe Biden signed the Inflation Reduction Act ("IRA"). The bulk of the funding authorized by the IRA is earmarked to encourage American leadership in clean energy tech, energy efficiency and energy independence. [In this paper](#), the first of two, Jeff Amrish Ritoë, HCSS Strategic Advisor Energy & Raw Materials, focuses on the possible impact of the proposed policy changes on the global energy landscape. This first paper will share observations on the impact that the IRA can have on an American EV and battery materials supply chain. Is the IRA the perfect tool to help the U.S. become the leader in clean energy tech? That remains to be seen, the author concludes.

5.1.12. Paper: Tying critical materials through the Untied Loan Guarantee | A proven and effective way to secure materials needed for Europe's Energy Transition (October)

Author: Jeff Amrish Ritoë.

Wind turbines, solar PV panels, lithium-ion batteries that power electric vehicles, all these end-applications require minerals and raw materials for their manufacturing. Although Europe still seems committed to the Paris Climate Agreement it needs to seriously ramp up its efforts to secure these materials. And in doing so, it needs to get two crucial players in the supply chain for raw materials on its side: (i) the raw material producers and (ii) financial risk takers. [This paper argues](#) that the good news is that there is an instrument that gets both players onboard at the same time the Untied Loan Guarantee. Leading industrialized nations such as Japan and Germany have been using some form of the Untied Loan Guarantee for more than 50 years to secure the supply of raw materials. In a time where the great economic powers have all committed to invest in clean energy end applications, a new great game to secure the raw materials needed to produce

these clean energy end applications has started. So perhaps it's time that more EU member states follow the good example of Germany.

5.1.13. Event: Development of a Dutch critical raw materials strategy (October)

On October 7, HCSS, together with the Ministry of Economic Affairs and Climate Policy, the Ministry of Foreign Affairs and the Ministry of Infrastructure and Water Management, organised a seminar on the development of a Dutch strategy on critical raw materials.

The Netherlands is facing a number of major transitions, including in the areas of climate and energy, digitization and key technologies, and the circular economy. The Dutch ambitions are in line with the long-term objectives of the European Union (EU) in the field of sustainability and climate neutrality (Green Deal) and open strategic autonomy. The achievement of these objectives partly depends on the security of supply of critical (processed) raw materials and strategic semi-finished products and products, which is sometimes problematic because other countries have large market shares in sectors that are of strategic importance to the Netherlands.



Image 9. Development of a Dutch critical raw materials strategy (October)

The Dutch government is developing a critical raw materials strategy, aimed at critical (processed) raw materials and strategic semi-finished products and products that are required for the industry of the future and the major transitions mentioned. Within the European context, the Ministries of Economic Affairs and Climate Policy, Foreign Affairs and Infrastructure and Water Management determine the strategic course of the Netherlands in this area.

The meeting brought together experts and stakeholders to consider building blocks for strategies and action perspectives for both the government and the business community, knowledge institutions and civil society.

Representatives of companies, industry organizations, knowledge institutions and civil society were invited to participate in moderated discussions on topics such as geopolitics, the Dutch position in raw material chains, security of supply, circularity and the impact of the Dutch demand for critical (processed) raw materials and strategic semi-finished products and products on climate and development in third countries.

Other Panels, Workshops, Events

HCSS experts participated in a number of other panels in the following conferences and events on Energy and natural resources in 2022:

- [Irina Patrahau](#), the Centre for Sustainability's Circular Industries Talks: [graphite as a critical mineral](#). April 25, 2022.
- [Michel Rademaker](#) and [Irina Patrahau](#), spoke at the [UK Tank Storage Association Conference 2022](#). September 22, 2022.
- Michel Rademaker and Lucia van Geuns, participated in HCSS and Institut Francais des Pays-Bas event: [Online Seminar: Energy Storage and Strategic Autonomy](#). April 26, 2022.
- [Michel Rademaker](#), Copper8: [Webinar "Grondstoffen, oorlog en de energietransitie"](#). April 25, 2022.
- [Joris Teer](#), SAFE's American Semiconductor Center webinar: [A Discussion with Dr. Chris Miller, Author of Chip War](#).
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Media Highlights

- [Michel Rademaker](#), De Strateeg: [Mijnbouw als sleutel voor meer strategische autonomie in Europa](#). November 6, 2022.
- [Joris Teer](#), De Strateeg: [Europa's gevecht om kritieke grondstoffen](#). October 23, 2022.
- [Jilles van den Beukel](#), Boekestijn & De Wijk: [Als Poetin De Gaskraan Dichtdraait](#). July 8, 2022.
- [Michel Rademaker](#), VNO-NCW Forum: ['Breng kritieke grondstoffen beter In kaart](#). May 31, 2022.
- [Joris Teer](#), Financieel Dagblad: [Hoelang kan Nederland zich afzijdig houden van de Amerikaanse chipoorlog tegen China?](#) October 11, 2022.
- [Jilles van den Beukel](#) and Lucia van Geuns, Nederlandse Aardolie Maatschappij (NAM): [Documentaire: NAM 75 jaar Bron van Energie](#). September 19, 2022.
- [Jilles van den Beukel](#), The Washington Post: [Earthquakes for Ukraine: Dutch gas drilling tests what countries will accept](#). September 1, 2022.
- [Jilles van den Beukel](#), Interview De Tijd: ['Misschien draait Europa beter zelf de Russische gaskraan dicht'](#). July 30, 2022.
- Lucia van Geuns, The Washington Post: [Explainer: The effects of EU Russia oil ban, Moscow's response](#). June 1, 2022.
- Lucia van Geuns, BNR De Wereld: [Lucia van Geuns over Saoedische olie](#). July 23, 2022.

6. Cyber Policy and Resilience

The [Cyber Policy and Resilience Program](#) bridges the rapidly evolving field of cybersecurity with traditional statecraft, drawing on a strong academic foundation combined with practical experience. This year we have witnessed brutal developments in the field of international security, and cybersecurity is no exception. The renewed Russian invasion of Ukraine in particular has stirred [much debate](#) about the utility of cyber weapons in a high-intensity conflict, and the integration of the cyber domain alongside conventional kinetic action, as well as strategic communication. All-the-while, cybercrime is becoming increasingly disruptive and dangerous, with malicious actors targeting critical infrastructures such as [hospitals](#). This has led some states to take [more proactive measures](#) against cyber criminals.



Our analysts tackled these important and timely topics, with an analysis of [the military use of information in the first seven months of the war in Ukraine](#), part of the project *Platform Influencing Human Behaviour*, commissioned by the Royal Netherlands Army. HCSS experts had already been working hard on cyber-related issues. In May, we released the [Cyber Arms Watch](#), a transparency index on the offensive cyber capabilities of 60 states, made possible with the support of the Municipality of The Hague. [Cyber deterrence](#) also remains a crucial issue. Our analysts focused on small and middle-powers, with contributions from international experts such as Martin Libicki, Michael Daniel, Herbert Lin and Erica Lonergan.

The following directors, analysts and subject matter experts contributed to the cyber program: Tim Sweijis, Sofia Romansky, Lotje Boswinkel, Michel Rademaker, Alexander Klimburg, Saskia Heyster, Louk Faesen, Giulia Tesauo , and Arthur Laudrain.

[Arthur Laudrain](#)

Bridging Cybersecurity and Statecraft

6.1.1. Report: The Promises and Perils of a Minimum Cyber Deterrence Posture: Considerations for Small and Middle Powers

Authors: Louk Faesen, Tim Sweijis, Alexander Klimburg and Giulia Tesauo . With contributions from Martin Libicki, Michael Daniel, Herbert Lin and Erica Lonergan.

The emergence of cyberspace provides small and medium powers with a strategic weapons capability that historically has been beyond their reach. [This report explores](#) how this capability can become an indispensable tenet of the deterrence posture of small and medium powers. To this end, the promises and

perils of minimum cyber deterrence are explored. The destructive cyber potential of these small and medium powers could still inflict an unacceptable level of retaliatory punishment to deter potential aggressors, no matter their overwhelming technical superiority. This report offers insight into the cyber retaliation means and paths, their organizational requirements and considerations, as well as the political dilemmas many nations will face.

6.1.2. The Indo-Dutch Cyber Security School (IDCSS)

HCSS is an active partner of consortiums organizing summer schools specifically dedicated to cybersecurity, in the past this has included the [International Cybersecurity Summerschool](#) and this year saw the return of [Indo-Dutch Cybersecurity School \(IDCSS\)](#). IDCSS22 is the fifth online course for Dutch and Indian students or young professionals in cyber security, held from 28th of October to 25th of November 2022. In 2022 students has lectures on topics such as ransomware, automated vulnerability research and information manipulation and subversion of democracy. Exemplary attendees were rewarded with certificates in the taught specialties and a video challenge was given to teams of students wishing to progress further, the students' contributions can be [found on the HCSS YouTube Channel](#). This year's winning team were selected to co-author a HCSS National Cyber Resilience Game snapshot, and an individual winner was chosen to receive a pre-paid trip to the Netherlands to attend a cybersecurity conference.

6.1.3. Report: Insight into Strategic Autonomy in Cybersecurity

Authors: Tom van Schie, Yori Kamphuis, Willem Verdaasdonk en Marcel van Berlo (TNO), Michel Rademaker en Louk Faesen (HCSS)

How can strategic autonomy on cybersecurity be monitored? And what policy measures can – and should – be taken in this context? The Netherlands is one of the most digitized countries in the world, but our society has also become increasingly dependent on a well-functioning digital infrastructure. Cybersecurity is crucial to achieve this. To answer these questions, the Dutch Ministry of Economic Affairs and Climate Policy asked TNO and HCSS to come up with an approach for determining the need for intervention and perspective for action with regard to [strategic autonomy in cybersecurity](#).

The set of instruments must be usable in an interdepartmental context for various stakeholders who have a role in determining strategic autonomy in cybersecurity, such as policymakers, dossier holders, researchers and representatives of companies. The objective is to arrive at instruments that provide concrete support in determining the need for strategic autonomy in cybersecurity and the action perspective and the instruments that contribute to this.

Cyber Transparency

6.1.4. Report: Cyber Arms Watch | An Analysis of Stated & Perceived Offensive Cyber Capabilities (May)

Authors: Louk Faesen, Alexander Klimburg, Michel Rademaker, Saskia Heyster, Simon van Hoeve, Raffaele Minicozzi, Salome Petit Siemens and Giulia Tesaro.

In cyber terms, arms control is roughly at the level of the 1950s for nuclear weapons. There is no common understanding of what “cyber weapons” are, or indeed even “cyber forces.” States are left guessing as to the overall capability of another state. This lack of transparency has implications not only for intelligence and national security assessments, but more so for the institutional dialogues and the wider public discussion on

international peace and security in cyberspace. [This report details the transparency index](#) on the offensive cyber capabilities of 60 states. It compares the degree to which states are transparent about their declared cyber capabilities to outside perceptions of those capabilities. The Cyber Arms Watch was visualised via an interactive monitor, [available here](#).

6.1.5. Event: Online Seminar | Cyber Offence Uncovered: Introducing the Cyber Arms Watch (June)

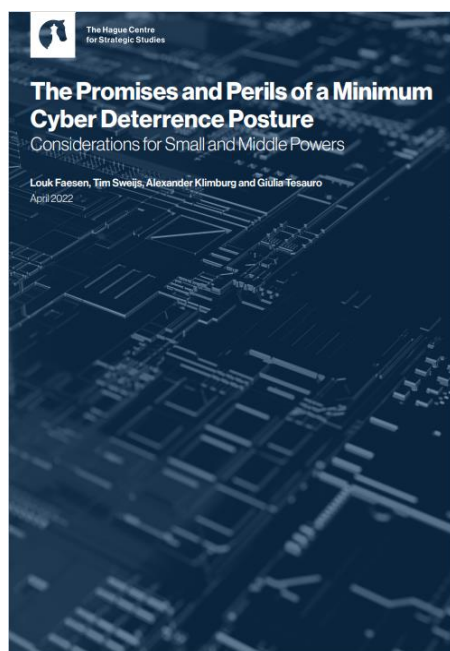
Featuring: Louk Faesen, Saskia Bruines, Deputy Mayor of The Hague, James Andrew Lewis, Senior Vice President, CSIS. Allison Pytlak, Disarmament Programme Manager, Women's International League for Peace and Freedom and Max Smeets, Senior Researcher, Center for Security Studies, ETH Zurich.

On the 30th of May 2022, a panel of experts launched the Cyber Arms Watch monitor, which introduces a "Cyber Transparency Index" of over 60 states. It measures the degree to which states are transparent about their own offensive cyber capabilities and compares it to the outside perceptions of those capabilities. The panel explore why there is a need for more transparency in offensive cyber, its underlying difficulties, and the ways in which this can be encouraged. You can [watch the launch of the Cyber Arms Watch here](#).

6.1.6. Podcast | De Strategie: Controlling and regulating Cyber Weapons (June)

Cyber is playing an increasingly important role in defence, and many countries now have their own cyber command within their defence apparatus. But no one really knows which weapons fall under this category, whereas we know exactly which countries have nuclear weapons, for example. The fact that we do not know this about offensive cyber weapons is a major problem, according to HCSS strategic analyst Louk Faesen.

In a conversation with Max Smeets, senior researcher at the Center for Security Studies (CSS) at the Technical University of Zurich, for our BNR podcast De Strategie, Faesen and Smeets discuss why and how [transparency is key to successful cyber arms control](#). In a follow-up episode, the two discuss [how dangerous cyberweapons really are](#) – and how they are regulated.



Cyber Policy: Media Highlights

6.1.7. EW Podium | Op-ed: Louk Faesen on Cyber Warfare in Ukraine (April)

The expectation was that a dominant wave of Russian cyberattacks would take out Ukraine's vital infrastructure and defence systems in a heartbeat at the start of the war. But what we got was mainly analog weapon clatter, strategic analyst Louk Faesen wrote in [an op-ed for EW Podium](#). Russia is a superpower in cyber warfare. Hacking is in the DNA of the Russian intelligence system and the "proxies" (digital vassals) controlled from the Kremlin. So why do we see so little of this now?

The absence of the expected Russian dominance can have all sorts of reasons, Faesen continued. It could be due to poor planning: the Russians are facing logistical problems and coordination is not going smoothly. Another option is that Russian troops do not want to use jammers out of fear that they will disrupt their own communications.

In the current war in Ukraine, we have not yet seen cyber attacks with large-scale effects that take out power grids, for instance. On the contrary, we see more of what was already happening in 'peacetime': DDoS attacks that overload networks and data wipers that delete crucial files and temporarily paralyze computer networks. One reason could be that there is no longer a need for plausible deniability that cyber operations normally provide. Why, for example, would the Russian intelligence services invest an enormous amount of time and energy in hacking power plants when they can "simply" bomb them?

Fear of global side effects of their malware may be another reason why Russia has decided against it for the time being, fearing a Western digital backlash. But a lack of far-reaching effects does not automatically mean that cyber-attacks do not happen. The Russians may already be in Ukrainian networks, but just haven't hit the kill switch yet. Or the Ukrainian authorities have not yet detected or reported them.

6.1.8. Media: RTL Cybersessions | To pay or not to pay in case of a hack? (October)

Most entrepreneurs think that a hack will never happen to them, or that their cybersecurity is taken care of, because they have outsourced their website. But this offers absolutely no guarantees, because whether your company is hacked also depends on the people who work there. Do they notice if an email is a case of phishing, or do they click a link without checking the sender?

On [RTL Z programme 'Cyber Sessions'](#), a panel of experts including Queeny Rajkowski (Member of Parliament for the VVD), Frank Groenewegen (Partner Cyber Risk at Deloitte) and Michel Rademaker (HCSS deputy director), discussed the dilemmas a company incurs as a result of a hack. Is the threat coming from South Korea, Russia, China or perhaps closer to home? And if your company is hacked and the perpetrators ask for money, should you deal with the Devil and pay up?

6.1.9. Podcast | De Strateeg: The Role of Cyber and Disinformation in the War in Ukraine (March)

The war in Ukraine seems to be a typical old-fashioned war, with tanks rolling down streets, artillery fire and a fierce battle for cities such as Mariupol. Many experts no longer thought this possible in 2022: surely the war of the 21st century would be one of the cyber domain, with cyber attacks on strategic infrastructure? Why don't we see that happening? Or does it happen, but are the Russian and/or Ukrainian defences so good that we don't realize it?

HCSS strategic analyst Louk Faesen discussed [the role of cyber in the Ukraine war](#) in an episode of our BNR podcast De Strateeg, together with Colonel Han Bouwmeester, associate professor of military strategy at the Netherlands Defence Academy. In a follow-up episode, the two also discussed [the role of disinformation](#) in the war in Ukraine, which is spread much more easily nowadays than before via social media and other technology.

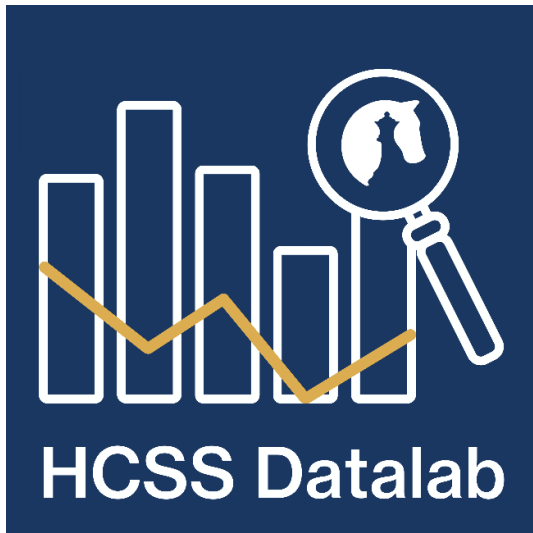
6.1.10. Video | dcypher meet up: The Importance of Cryptography (May)

The hackers who gained access to the phone of the Spanish Prime Minister with Pegasus spyware stole 3 gigabytes of information. It shows how vulnerable our software is. In an episode of the dcypher meet up, HCSS deputy director Michel Rademaker discusses how [indispensable cryptography](#) is in our digital society: the way to transfer data that should not be readable by other parties, and only the receiver and the sender have the key to decrypt data.



Image 10. Michel Rademaker on RTL Z Cyber Sessions.

7. HCSS Datalab



Whilst applied causal modelling is a developing domain, HCSS is at the forefront its application, delivering insights that support policy making for a range of public and private sector clients. In 2022, the HCSS Datalab has made significant advancements in the applications of casual models to better understand not only how the world works, but how developments are interrelated. Enabling us to better address threats and challenges ranging from climate insecurity to cyber warfare. The dual use of predictive and causal algorithms from the fields of machine learning leads to bespoke policy guidance for our clients. The HCSS Data Lab's commitment to modelling complex phenomenon to drive targeted strategic decision making remains strong not only in 2022 but looking towards the future.

Within HCSS, there is a commitment to drive data-oriented practices across all research fields, so the HCSS Datalab has strengthened its dedication to internal trainings and knowledge sharing to further integrate data driven methods and approaches across the whole of the organisation. Internal knowledge sharing has brought in cross domain experts and facilitated sharing of the technical processes which underpin the generation of causal modelling. The HCSS Datalab has developed insights relating to the utilisation of Big Data to drive new and unique insights, and furthered understandings towards the best tools and methods of communication of insights through user experience driven dashboard design.

Additionally, the HCSS Datalab has also expanded through integration of new research experts, ranging from statistically driven policy analysis to computer science and web development. Expanding the HCSS Datalab team ensures that the HCSS remains on the forefront of data driven analysis and is responsive to how once different academic disciplines are integrated, the creative generation of insights and solutions to global and national issues are ensured.

Saskia Heyster

7.1.1. The HCSS Datalab | Video explainer

Staring: Maarten Vonk, filmed and edited by Alessandra Barrow

What is the HCSS Datalab? [This video explainer](#) highlights the Datalab's work to aid strategic decision-making. The HCSS Datalab's analytical capabilities are relied on and inform the decision making of hundreds of organisations. The HCSS Datalab allows you to model complex phenomena, quantify and compare the impact of decisions, and understand risk. So, you can worry about executing on your organisation's goals and visions.



Image 11. Maarten Vonk discusses the Climate Security Risk Monitor during the HCSS Datalab Explainer Video.

Causal, Policy-Intervention & Predictive Models

With artificial intelligence becoming increasingly important, the lack of understanding of the technical specifications and the lack of interpretability underneath most algorithms could pose a real threat. In the context of international relations and geopolitics the explicability of artificial intelligence products is especially important given the sensitive nature of the results. In causal modelling, unlike predictive modelling, models are developed to uncover the causal relations between variables. This gives rise to not only interpretability results of how causal mechanisms lie within geopolitical domains, but it also opens the door to create policy-intervention models. These policy-intervention models aim to find the optimal policy available to achieve policy objectives in multidisciplinary fields.

Given the importance of explicability and interpretability of artificial intelligence for policymakers, the HCSS Datalab has continued to build on last year's framework for causal modelling. In addition to continuous efforts of predictive modelling and monitoring.

7.1.2. Paper: Not When But Why | Embedding Causal Methods in Policy and Programming (June)

Authors: Laura Birkman, Tim Sweijjs and Ninoslav Malekovic

As a result of artificial intelligence, machine learning, and the big data revolution, policymakers have more information at their fingertips to monitor developments, design and assess policy options than ever before. However, much of that information is not offered in a structured or intuitive way, and problems persist pertaining to the accuracy, the meaning, and the utility of the data at their disposal. Using the UK Foreign Commonwealth and Development Office (FCDO) funded HCSS study [‘The Climate Security Nexus: Understanding the Pathways that Lead to Violent Conflict’](#) as a reference, [this paper provides a non-technical](#)

'how to' manual of a causal assessment framework that explains how causal models can be developed, applied, and embedded into development policy and practice. Finally, it offers concluding thoughts and practical recommendations on the way forward.

7.1.3. The Dutch Foreign Relations Index

Developers: Saskia Heyster

The Dutch Foreign Relations Index captures the relationship between the Netherlands and other countries in terms of cohesiveness across political, social, judicial, and military dimensions, aggregated into dual quantitative metrics of relevance and compatibility. [Explore the data through our interactive monitor](#) to gain insight into multidimensional picture of the Dutch position vis-à-vis other countries over time.

7.1.4. The Cyber Arms Watch Monitor

Developers: Saskia Heyster and Louk Faesen, with contributions from Alessandra Barrow

The Cyber Arms Watch offers a transparency index on the offensive cyber capabilities of 60 states. It compares the degree to which states are transparent about their declared cyber capabilities to outside perceptions of those capabilities. [The Cyber Arms Watch Monitor](#) was created by the HCSS Datalab and is an interactive exploration of the Cyber Arms Watch dataset along three tabs: the declared capabilities, perceived capabilities and the final transparency index.

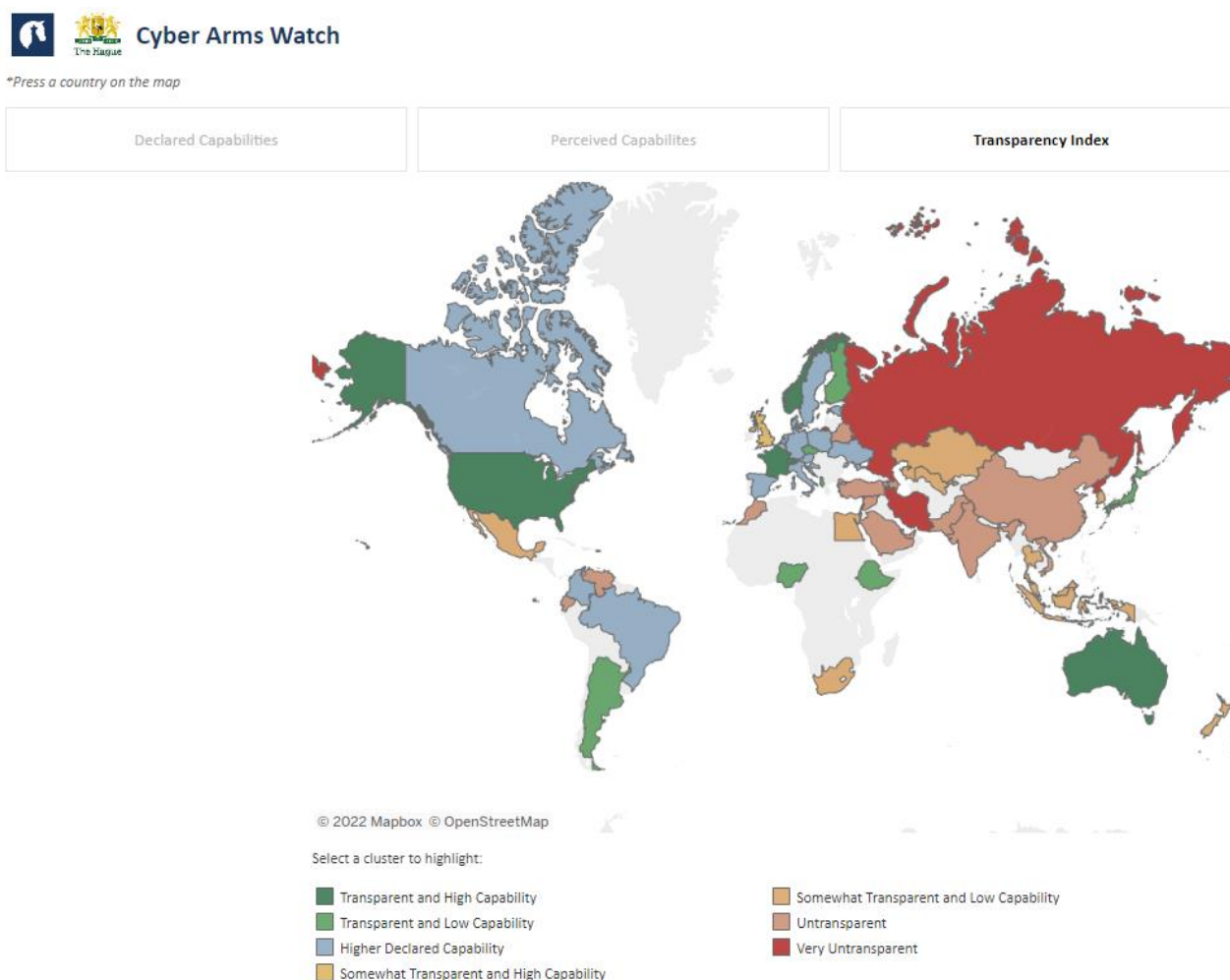


Image 12. Transparency Index of the Cyber Arms Watch Monitor.

8. Media and Outreach

“Stunned by the explosions that destroyed the Nord Stream pipelines, many a journalist brushed the dust off a report published a year ago by the Hague Centre for Strategic Studies,” Dutch national newspaper [De Volkskrant](#) reported. The incidents bore striking similarity to one of the scenarios described exactly one year prior in “The High Value of the North Sea,” in which HCSS warned of the dangers to the numerous pipes, installations and cables that lie relatively unprotected off the coast or are still being constructed.

It would certainly not be the last time that the consequences of the changing world order, the competition, confrontation and growing animosity between the great powers became tangible to journalists and the general public. 2022 was the year when ‘geopolitics’ would no longer be an obscure concept outside the circles of policymakers and diplomats.



The general public also awakened abruptly, feeling the direct effects of these emerging conflicts and major global trends on their daily lives, their safety, security and their livelihood. From ‘Can we still take a hot shower in the morning or heat our house this winter?’ to ‘Are we headed to nuclear confrontation?’ Obliviousness gave way to concern for the future, the reality of war on the European continent and the threat of nuclear escalation. During many international events we clearly noticed an increase in visitors on our website.

With daily updates on national radio, television and in newspaper, HCSS Strategic Analysts and our experienced roster of Subject Matter Experts have become trusted sources of analyses, our sometimes hard to pronounce name no longer a restraint from being recognised as a renowned knowledge centre, a ‘household brand’ for information.

“Who are these experts in the talkshows?”, newspaper [Algemeen Dagblad](#) pondered in April.

“In the past it was a given: when a conflict broke out anywhere in the world, the strategic analysis came from Clingendael. Nowadays, however, that institute no longer has a monopoly on interpreting global affairs. In fact, last month it was mainly experts from the Hague Centre for Strategic Studies, HCSS for short [...]. The most prominent representative of that organization is Rob de Wijk. He gained national fame for his television appearances during the war in Kosovo in the late 1990s and around 9/11. At that time he still worked for Clingendael, but as of 2007 he has been developing HCSS. Since then he has surrounded himself with many renowned faces, among them Han ten Broeke, foreign spokesperson for the VVD until 2018, who now is the director of political affairs at HCSS.”

Besides national media, HCSS garnered attention in the international press as well, with references, quotes and interviews for BBC News, the New York Times, the Washington Post, The Guardian, Estonia's Postimees, The Sun, Japan Forward, The Times, several German and Belgian daily newspapers, and Asahi Shinbun, among others.

Patrick Willemsen

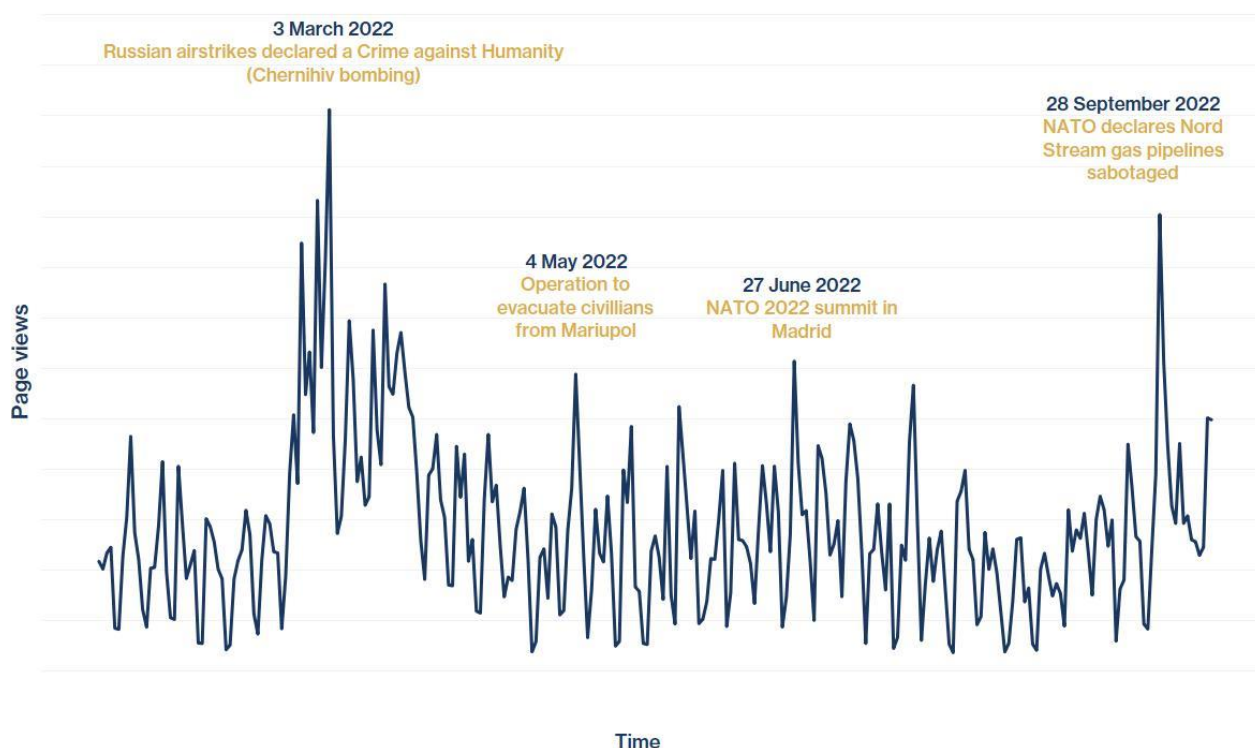
8.1.1. Media Commentary and Analysis

The press reached out to HCSS for clarification a record number of times this year, starting with Putin's renewed cold war rhetoric in January and his invasion of Ukraine in February, and the phone hasn't stopped ringing since. HCSS analysts were sought out for their expertise on numerous issues, from defence to the energy transition, from climate security to cyber warfare. Of course, the Russian invasion of Ukraine and its global consequences topped all other topics.

The developments on the gas, oil and diesel markets demanded the constant analysis of our energy specialists Lucia van Geuns and Jilles van den Beukel, who both had a record number of media appearances. Rob de Wijk regularly appeared on late night talkshow Op1, while our director of political affairs Han ten Broeke could often be seen on morning television show Goedemorgen Nederland. Meanwhile, defence specialists Patrick Bolder and Peter Wijninga have become familiar names on BNR Nieuwsradio, RTL Nieuws, NOS, Nu.nl and Tijd voor Max, as has Russia and Kremlin expert Helga Salemon. Dutch current affairs television program Nieuwsuur paid in depth attention to several HCSS reports, with analysis from analysts Frank Bekkers, Paul van Hooft, Tim Sweijs, Peter Wijninga, Lucia van Geuns, Jilles van den Beukel, Joris Teer, Han ten Broeke and Rob de Wijk.

In 2022, Rob de Wijk continued to write weekly columns in newspaper [Trouw](#) as well as regular op-eds in [Nieuwe Oogst](#) and [Energiepodium](#). HCSS experts provided analysis, op-eds and interviews in national newspapers and magazines such as NRC, De Volkskrant, Algemeen Dagblad, Trouw, Financieele Dagblad and the Telegraaf, and defence-related publications such as the Military Spectator, Carré and the Militaire Courant. HCSS even reached new avenues as the subject of satire and comedy, with mentions on the popular late night television program "De Avondshow met Arjan Lubach" and various mentions of Rob de Wijk on the humorous De Speld – is higher praise even possible?

Website page views in 2022

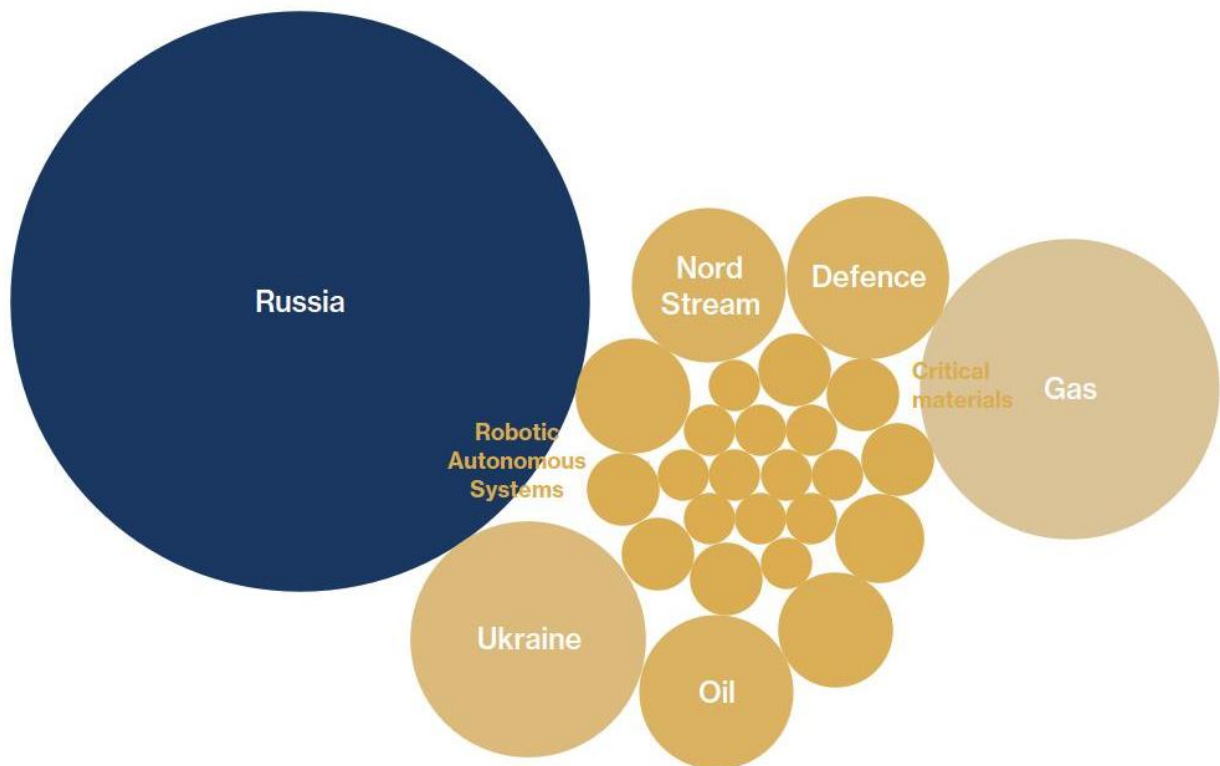


International Media Highlights

- Collin Meisel, The Hill: [A new US foreign policy mantra: 'Don't just do something, stand there.'](#) 14 January.
- Rob de Wijk, Politico: [Dutch university scandal taps into fears of Chinese influence peddling.](#) 24 January.
- Lucia van Geuns, Politico: [The Netherlands' earthshaking gas deal with Germany.](#) 27 January.
- HCSS, Huffington Post IT: [Il tecno-nazionalismo di Pechino spaventa l'Occidente](#) (The techno-nationalism of Beijing scares the West) 11 February.
- Richard Ghiasy, France 24: [China moves closer to Russia, but wary on Ukraine.](#) 22 February.
- Lucia van Geuns, The New York Times: [Climate Fears on Back Burner as Fuel Costs Soar and Russia Crisis Deepens.](#) 23 February.
- Richard Ghiasy, Yahoo News: [Ukraine War tests China.](#) 4 March.
- Lucia van Geuns, The Times: [Germany to pay for Russian gas via murky rouble swap.](#) 28 April.
- Joris Teer, BBC: [China lockdown: What do zero-Covid policies mean for UK prices?](#) 4 May.
- Tim Sweijds and Mattia Bertolini, Postimees: [Võim Ja Julgeolek } Lahingulised kaotused on Venemaa ladviku sõdimissoovi kasvatanud](#) (Power And Security } Combat defeats have increased Russia's desire to fight). 22 May.
- Lucia van Geuns, Europe Today: [Perché l'Olanda si rifiuta di pagare il gas russo in rubli, e l'Italia no](#) (Because Holland refuses to pay for Russian gas in rubbles, Italy will not). 31 May.
- Lucia van Geuns, ABC News: [EXPLAINER: Effects of EU Russia oil ban, Moscow's response.](#) 1 June.
- Lucia van Geuns, The Washington Post: [EXPLAINER: Effects of EU Russia oil ban, Moscow's response.](#) 1 June.
- Jilles van den Beukel, Bloomberg: [A \\$450 Billion Opportunity to Loosen Putin's Energy Grip.](#) 9 June.
- Joris Teer, South China Morning Post: [Nato poised to harden position on China as support for Russia deepens distrust.](#) 25 June.
- Jilles van den Beukel, The Guardian: [Fears of new quakes in Dutch gas field as energy crisis bites.](#) 22 August.
- Jilles van den Beukel, The Washington Post: [A \\$450 Billion Opportunity to Loosen Putin's Energy Grip.](#) 9 June.
- Tom Middendorp, The Washington Post: [As wildfires grow, militaries are torn between combat, climate change.](#) 26 September.
- Jilles van den Beukel, Wired IT: [I gasdotti Nord Stream si possono riparare?](#) (Can Nord Stream pipelines be repaired) 19 October.
- Jilles van den Beukel, The Sun: [Putin may have used 'pig' drones packed with explosives to blow up Nord Stream gas pipeline in Bond-style plot.](#) 19 October.
- Michel Rademaker, Postimees: [Prokurör Jürgen Hüva } Hakkame valgekraelisi kurjategijaid karmimalt karistama](#) (Prosecutor Jürgen Hüva } We are going to punish white-collar criminals more severely). 28 November.
- Paul van Hooft, Asia Times: [US building a missile wall in the Pacific.](#) 8 December.
- Rob de Wijk, Wiadomosci Poland: ["Na froncie ucichną armaty". Ekspert przewiduje problemy Ukrainy](#) (The guns will be silenced at the front. The expert predicts the problems of Ukraine). 12 December.

Topics addressed in expert-media interactions

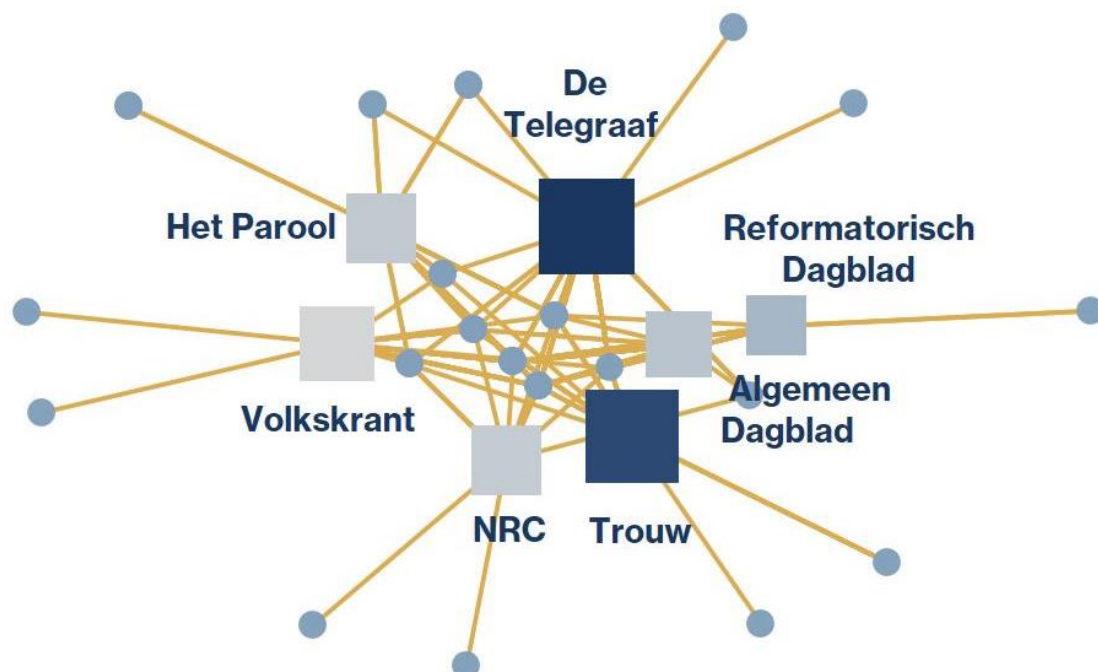
Size indicates more media mentions



Mapping top Dutch newspaper-expert interactions in 2022

● Analyst ■ Media

Size indicates more media mentions



8.1.2. Studio HCSS

As an innovative company, HCSS always explores new methods to present the findings of our research and analysis. Our reports and policy recommendations are now more often than not accompanied by digestible executive summaries, factsheets, video explainers, webinars, interviews and podcasts.

HCSS developed a professional media studio in 2021, with access to broadcasting equipment suitable for long-distance interviews, including high quality camera and microphones, as well as prime studio lighting. Throughout the year, we provided live commentary on television networks such as WNL and RTL Z, with the stately Lange Voorhout lane in the background.



On the morning of the Russian invasion of Ukraine, HCSS defence specialist Peter Wijninga provided analysis of the events on [WNL's Goedemorgen Nederland live from our studio](#) in The Hague, while Han ten Broeke was present in the television studio of WNL in Hilversum. Live television commentary was provided throughout the year from Studio HCSS by Han ten Broeke, Paul van Hooft, Tim Sweijds, Louk Faesen, Joris Teer and Rob de Wijk.

In addition to providing live commentary, Studio HCSS also saw frequent use for the recording of video pitches, interviews and explainers to coincide with the launch of our reports and landing pages.



8.1.3. BNR's Boekestijn en De Wijk

On the radio, Rob de Wijk continued his successful podcast 'Boekestijn en De Wijk' for BNR Nieuwsradio, which progressed from a weekly broadcast to an impromptu daily update following the start of the war in Ukraine on February 24.

The daily show with Rob and Arend Jan Boekestijn under the guidance of Hugo Reitsma proved to be so popular that several live shows were scheduled in international press and debate centre Nieuwspoort, where a live audience would be present at the recording of the show and participate in the discussion with special guests [Peter Wijninga](#) and [Beatrice de Graaf](#). The sold out live shows in turn led to a [tour of theatres](#) around the Netherlands in December – all of which sold out fast, leading to an extra livestream for which tickets sold like hot cakes as well.



Acknowledgement also came in the form of accolades: Rob, Arend Jan and Hugo finally won a [Dutch Podcast Award](#) in the category News & Politics – well-deserved recognition for their non-stop updates on the Ukraine war since Day 1.

According to the annual [Spotify podcast overview](#), the number of stream starts of the show has increased tenfold in the past year, and the number of followers has quadrupled. This makes B&dW one of the most followed and best appreciated titles in the Netherlands. On top of that, it is one of the most shared podcasts worldwide. With a thousand percent more streams and 217 percent more followers than a year ago, Boekestijn en de Wijk can look back on a very productive 2022. To date, the team has produced 4,500 minutes of listening pleasure and have been consistently listed in Spotify's hit charts of 2023.



8.1.4. BNR podcast "De Strateeg"

Podcast 'De Strateeg', produced by HCSS in cooperation with our partner BNR Nieuwsradio, continued to see a steady increase in listeners and downloads. Episodes related to the conflict in Ukraine scored highly with our audience as can be expected, but topics related to the energy crisis and subsequent rise in gas prices were also among the best scoring episodes.



In 'De Strateeg', produced since March 2020, host Paul van Liempt discusses the latest developments in geopolitics and international security with HCSS experts, but also with experts from other organisations, policymakers and representatives from businesses. In 2022 we produced 39 episodes of De Strateeg. Topics discussed range from Russia's air defence to the fight for critical raw materials and from the energy transition to China's military ambitions, and much, much more.

Top 10 most listened to episodes:

1. [Hoe luchtoverwicht de oorlog in Oekraïne moet gaan beslissen](#)
2. [Hoe goed is de Russische luchtafweer?](#)
3. [Energiecrisis: op weg naar een koude en dure winter?](#)
4. [Hoe het Westen Oekraïne kan blijven steunen in de oorlog](#)
5. [Europa's gevecht om kritieke grondstoffen](#)
6. [Hoe de oorlog in Oekraïne doorwerkt tot in de Rotterdamse haven](#)
7. [De Wijk en De Hoop Scheffer: 'Europees DNA kent geen machtspolitieke component'](#)
8. [Kan Rusland Oekraïne financieel uithongeren?](#)
9. [Hoe de oorlog in Oekraïne de energietransitie beïnvloedt](#)
10. [China's ontembare militaire ambities](#)

8.1.5. Podcasts, radio, webinars and events

Early in the year, together with Haagsch College and Nieuwspoort, the international press and debate centre, HCSS organised The Hague World Series, a string of live late-night debates about the growing tensions around Ukraine and Russia. The debates took place before an audience in Nieuwspoort, and were streamed live. The first evening, with Rob de Wijk and HCSS Russia specialist Helga Salemon, revolved around the [Battle for Ukraine](#), and took place before the Russian invasion. The second evening with Paul van Hooft and Mart de Kruif focussed on the subject of 'War in Europe', while the third and final evening with Hubert Smeets and Han ten Broeke centred on 'Putin's War'.

HCSS experts and analysts also frequently appeared on other podcasts and popular radio programmes, such as Studio Energie with Remco de Boer, BNR's Big Five Europa Draait Door, Podcast De Dag, BNR De Wereld and Bureau Buitenland, which enjoyed high ratings for episodes featuring Joris Teer and Lucia van Geuns.

Some highlights include:

- [Bureau Buitenland](#), with Amrish Ritoe: mining for critical minerals in the Pacific Ocean
- [Europa Draait Door](#), with Joris Teer: our independence of China when it comes to critical raw materials
- [Bureau Buitenland](#) with Laura Birkman: increasing geopolitical tensions in the Arctic
- [BNR De Wereld](#), with Lucia van Geuns: Europe should prepare for a future without Russian gas
- [Studio Energie](#), with Lucia van Geuns: what will be the effects of the EU boycott of Russian oil?
- [Bokestijn en De Wijk](#), with Jilles van den Beukel: what if Putin shuts us off gas completely?
- [Studio Energie](#), with Joris Teer: the vulnerabilities of our offshore infrastructure and dependence on China for critical raw materials
- [Europa Draait Door](#), with Helga Salemon: is Putin's losing grip?
- [BNR De Wereld](#) with Han ten Broeke: the end of Germany's 'Ostpolitik'
- [Bokestijn en De Wijk](#), with Joris Teer: how do we prevent that conflicts with Russia and China escalate into a world war?
- [Bokestijn en De Wijk](#), with Han ten Broeke: should Ukraine be allowed to join the European Union?
- [Europa Draait Door](#), with Han ten Broeke: why Turkey is essential for NATO
- [Bokestijn en De Wijk](#), with Lucia van Geuns: how do we deal with the energy crises

8.1.6. Accolades

Documentary: Robotics and Autonomous Systems in the Dutch Army

Boekestijn en De Wijk weren't the only ones to win a prize. Earlier in the year, the HCSS documentary on [Robotics and Autonomous Systems in the Dutch Army](#) was awarded Gouden Reiger the prize for best commissioned film in the category 'Effective and Convincing.' This documentary was developed in 2021 in collaboration with the Royal Netherlands Army and aspired to contribute to a nuanced and balanced picture of the developments and deployment of Robotic and Autonomous Systems (RAS) within the Army.

The jury spoke of "a sleek production with a clear message," especially at a time when changing international relationships and increasing global threats can once again count on more public interest. "The documentary is shot in a visually beautiful style that enhances the content of the film in a high-quality and effective way. Purposeful and with a catchy music score, the film is very convincing for the intended target group. As far as this jury is concerned: a bull's-eye."



United Nations Security Council briefing on Early Warning

HCSS Director of Research Tim Sweijts [addressed members of the United Nations Security Council](#) at an informal briefing on Early Warning on April 8. He released the following statement:

"It was a great honour to address the United Nations Security Council ambassadors at this important historical juncture.

I would like to extend my gratitude to Her Excellency Dame Barbara Woodward, Ambassador and Permanent Representative of the United Kingdom to the United Nations, and current President of the Security Council,

for her kind invitation to share my thoughts on Early Warning with the Security Council. It was a real pleasure to speak with the Council Members together with Dr Sara Pantuliano, Chief Executive of ODI.

We live in a divided world, facing unprecedented security challenges. At a time when fundamental societal and environmental transitions will be accompanied by social, political and economic friction, political instability and violence are likely to ensue in different localities around the globe.

This is where Early Warning can have critical value. Early Warning allows societies and governments to take Early Action and to prevent political instability, to mitigate its impact, or to prepare for its consequences. All with one goal in mind: to alleviate human suffering which is one of the key objectives of the United Nations.

For over 15 years now, I and my colleagues at the Hague Centre for Strategic Studies (HCSS) have been contributing to this objective. We have advised national governments and international institutions on how to develop, implement, and execute Early Warning to take Early Action. Our data-lab has developed a portfolio of predictive ML models, typologies and causal models to enable policymakers to address both short- and long-term security risks. Through our work, which has been recognised and has received funding from the Netherlands, Germany, United Kingdom and the United States, amongst others, international institutions and national governments are better equipped to address these risks.

The United Nations Security Council can play a critical role in mobilising Early Warning and catalysing Early Action efforts. We at HCSS stand at the United Nations' service to develop, implement, and execute Early Warning and Early Action systems to make this world a more peaceful place."

Young Professionals Recognition

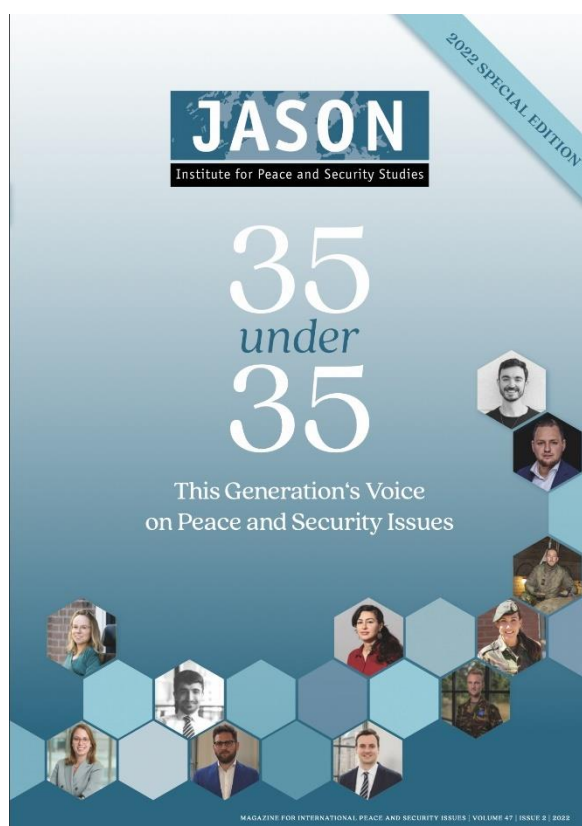
Strategic analyst Arthur Laudrain is among the 35 young leaders on [Santander-CIDOB 35 under 35 List](#), which acknowledges the work of 35 potential and consolidated minds of 35 or less years of age. Strategic analyst Lotje Boswinkel was chosen by EW Magazine as one of the [30 talents under 30](#) to keep an eye on in the next few year.

Later in the year, strategic analyst Joris Teer was selected as one of the JASON institute's '35 under 35' list. In a special edition of the JASON magazine, '[This Generation's Voice on Peace and Security Issues](#)', 35 brilliant young professionals who work in the field of peace and security and are under the age of 35 are featured. The magazine includes an interview with Teer where he talks about how he got into this line of work, and where his interest in strategic analysis and China come from. Besides Teer, former HCSS analysts Lotje Boswinkel, Louk Faesen and Karlijn Jans were also amongst the '35 under 35'.

Commendation

In October 2022, HCSS energy specialist Lucia van Geuns was awarded the [Waterschoot van der Gracht Penning](#), the highest honour for exceptionally meritorious earth scientists in the Netherlands, for her contributions to the public debate on energy, in which she puts the earth sciences in the spotlight in an outstanding way. The Royal Dutch Geological (and) Mining Society (KNGMG) stated:

"Lucia's contribution to the public debate is as impressive as it is unrivalled, representing earth science in the best way possible at a very difficult stage. Always well prepared, delivering her arguments fact



and evidence based. Presenting hard questions in a calm voice that invites us all to participate in the debate. We should not forget her more than considerable contributions to the education of earth science students. Lucia is immensely appreciated by her students, who will take detours to attend her classes. Last but not least, her recent and exceptional work on the availability of rare minerals for the energy transition is making an impact in European policies.”

8.1.7. Overview: HCSS in numbers

In 2022, the Hague Centre for Strategic Studies published over 70 reports, papers, snapshots, factsheets and essays. Our analysts and experts appeared in the media more than 1600 times. We produced 39 episodes of our BNR podcast De Strateeg, and appeared on many other events, webinars and online seminars. Our staff and interns currently make up 12 different nationalities.

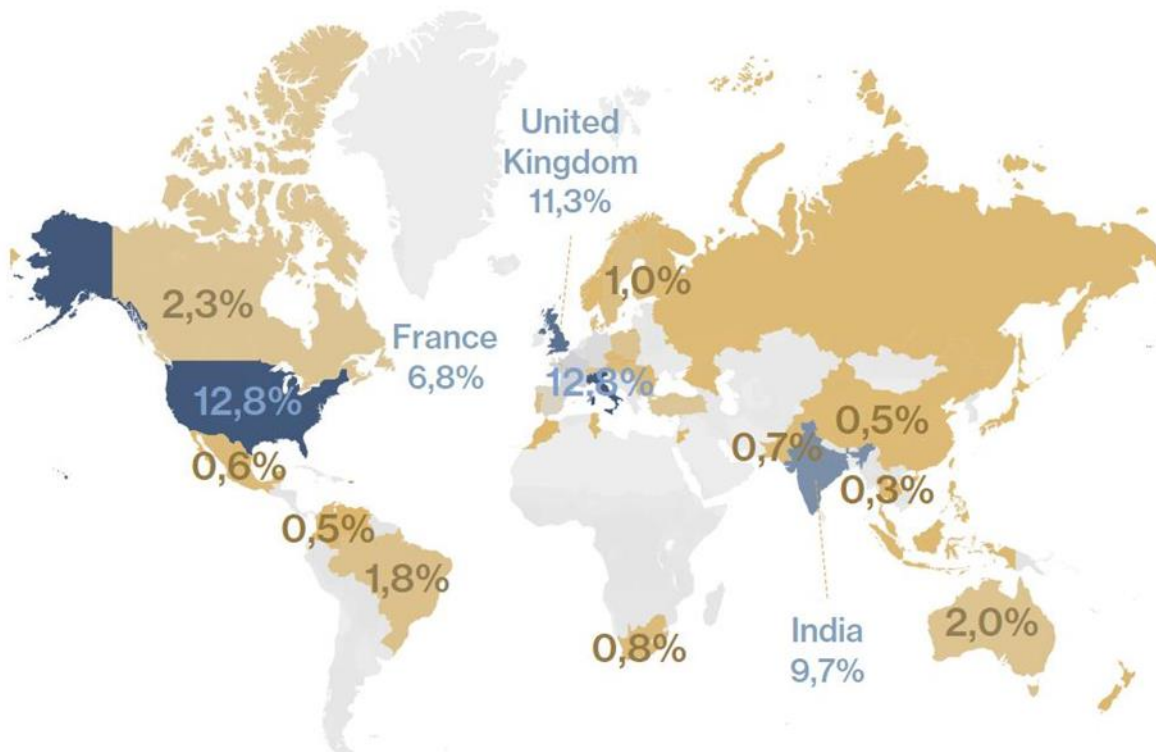
The publications with the most downloads in 2022 are (as of 10 December):

1. [Reaching breaking point: The semiconductor and critical raw material ecosystem at a time of great power rivalry](#)
2. [How Wars End | War terminations: insights for the Russia-Ukraine War](#)
3. [Preventing the \(Un\)thinkable: Escalation Scenarios and Risk Reduction Measures for Russia and NATO following the War in Ukraine](#)
4. [Wars to come, Europeans to act | A multimethod foresight study into Europe's military future](#)
5. [Graphite: Supply chain challenges & recommendations for a critical mineral](#)
6. [European tank storage in today's global value chains: What role does it play in our economy?](#)
7. [The parallel front | An analysis of the military use of information in the first seven months of the war in Ukraine](#)
8. [Weapons of mass influence: Shaping attitudes, perceptions and behaviours in today's information warfare](#)
9. [Strategic Monitor 2021-2022 | Hanging Together: Partners and Policies for the Netherlands and EU in Turbulent Times](#)
10. [Unpacking the Climate Security Nexus | Seven Pathologies Linking Climate Change to Violent Conflict](#)

HCSS uses a diverse set of communication channels to gain attention for our products and activities. In addition to a newsletter and press releases, we are present and active on various social media channels. Through our accounts on LinkedIn (more than 28,000 followers), Twitter (more than 11,500 followers) and Facebook (more than 3,300 followers), a proactive social media policy is pursued with the aim of reaching the widest possible audience, both nationally and internationally.

Our reach and engagement grew significantly in 2022, with a particularly notable growth of our professional followers on our LinkedIn network, as well as strong growth on our new Instagram account aimed toward a younger audience and a significant number of new followers for our YouTube channel, where we have been delivering regular fresh content.

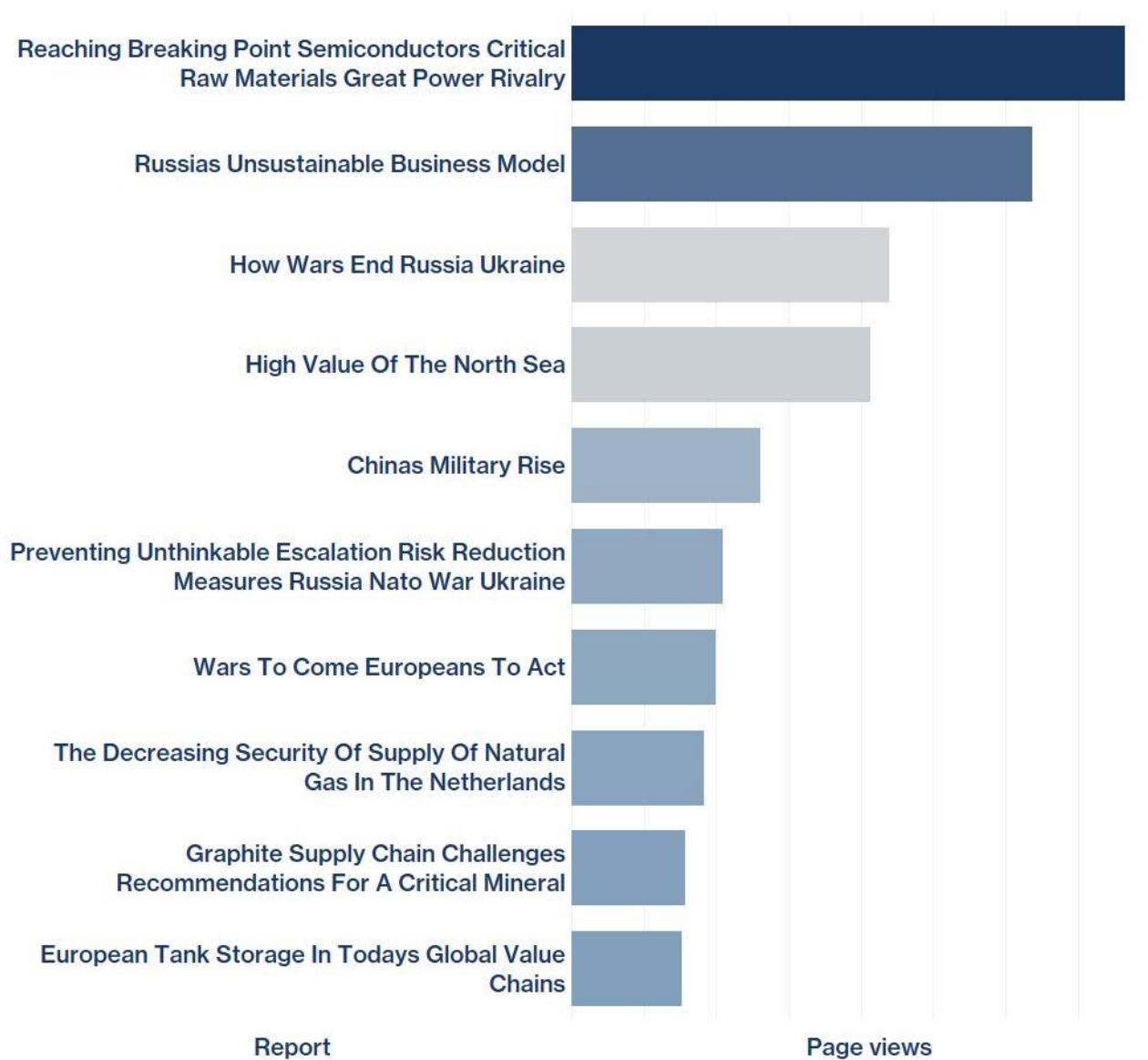
LinkedIn views outside the Netherlands in 2022



HCSS LinkedIn followers per sector



Top downloaded reports from the HCSS website



9. About HCSS

The Hague Centre for Strategic Studies (HCSS) was established in 2007 as an independent think tank with a small team of senior experts. It is now an established research institute in Europe with over 25 researchers that cover global governance and geopolitics; international security and defence; climate, energy and resources; and cyber security. Our mission is to transform global challenges of today into solutions for tomorrow.

HCSS works with clients from both the public and private sectors. We conduct research commissioned by both national and international organizations but also carry out research projects with the financial support of grant giving foundations. In addition to being trusted advisor to various governments, HCSS provides analysis to international organizations including the European Commission and NATO.

HCSS conducts its activities independently and in collaboration with its global network of affiliated experts. HCSS products are diverse: [full-fledged reports](#), issue briefs, quick topic reports, serious games. Our products often consist of strategic surveys, trend and scenario analyses, risk assessments, geopolitical and regional security analyses, operational evaluations, and policy briefs. We create [models and monitors](#) for public and private organizations to improve their situational awareness and provide them with a better understanding of their strategic environment. We also compile, collate and generate new datasets, design tailor-made analytical frameworks and build fully interactive web interfaces. Our in-house competencies include predictive modelling using both structural and dynamic data, web scraping, text mining, advanced internet search techniques and data visualization. HCSS experts are regularly asked to offer commentaries in global media outlets.

HCSS is also a platform for the exchange of ideas and development of new concepts and strategic insights. It regularly hosts symposia and roundtables where experts and stakeholders from government, research, society and industry convene to discuss pressing issues along different areas of interest.

For more information, please contact:

The Hague Centre for Strategic Studies

E: info@hcss.nl

W: hcss.nl

T: +31(70) 318 48 40

Lange Voorhout 1
2514EA The Hague
The Netherlands



The Hague Centre
for Strategic Studies



Follow us on social media:

