LOGISTICS PILOT

EDITION
#2 2026

GERMAN PORTS

A WATERSHED MOMENT

THE WAKE-UP CALLS ARE WORKING

Focus on:
A watershed moment

CONTENT

Edition:
#2 2026

12
Perspective
Anyone wishing to succeed in defence logistics has to fulfil additional requirements and needs plenty of stamina.

22
Logistics Story
Global trade routes are under pressure. Yet trade finds solutions, albeit along new paths.

24
Portrait
TKMS Atlas Elektronik supplies navies and the private sector with high-tech solutions using sonar and command systems.

06
Main Topic
The world order and international trade are undergoing a transformation – with manifold consequences for ports.

LOGISTICS PILOT digital!
Visit us online at www.logistics-pilot.com

COVER: FREEPIK/HANNAZASIMOVA
PHOTOS: DVZ/DIRK KRUSE, J. MÜLLER, TKMS, ISTOCKPHOTO/MAGNIFIER
PHOTO PAGE 3: GERMAN BUNDESTAG LORENZ HUTER PHOTOTHEK

Thomas Röwekamp, Member of the German Parliament

MORE THAN JUST HUBS

Dear readers,

Times are changing, and this is fundamentally altering the way we view Germany’s seaports. What was long regarded as primarily economic infrastructure is now being scrutinised under security and defence policy. Ports are no longer merely hubs for global trade, rather they are becoming critical pivots for guaranteeing supply, military mobility and strategic resilience.

This raises key questions. Are our port facilities adequately protected against hybrid threats – from cyberattacks to sabotage? Do we have the necessary capacity to handle military goods rapidly in the event of a crisis or defence scenario? How close is the coordination between civilian operators, security authorities and the Bundeswehr in reality – and is it sufficient?

There is also the regulatory question of responsibility. Security doesn’t come cheap – but who pays for it? The German government, the states, the operators? What is clear is that the current separation between economic efficiency and state security measures falls short.

The priority, therefore, is firstly the consistent expansion of physical and digital security architectures. Secondly, robust emergency and cooperation structures are needed between all stakeholders – regularly executed and subject to binding regulations. Thirdly, speeding up planning and approval procedures is essential to adapt infrastructure swiftly. And finally, a clear national port strategy that brings together economic strength and security policy requirements is required.

German seaports exemplify the challenges of this new era. They must remain efficient – while simultaneously becoming resilient.

Best wishes,
Thomas Röwekamp

A COUNTRY WITHOUT TROOPS

Nestled among glaciers, lava fields and waterfalls, Iceland feels like the edge of the world – tranquil, not a crisis in sight. Yet its location in the North Atlantic makes this 103,000-km² island a strategic hub and, quite literally, an "unsinkable aircraft carrier". Iceland is a founding member of NATO but has neither a Ministry of Defence nor its own army. Security is provided by the Alliance and a defence agreement with the US, which is permitted to maintain military facilities and station forces there. However, since Russia's invasion of Ukraine, the debate over whether the "country without troops" should rearm has intensified. The Icelandic government plans to increase its defence-related investment tenfold, from 0.15 per cent to 1.5 per cent of GNP in the future. The coastguard, currently numbering around 250 people, is to be expanded to patrol Icelandic territorial waters. At the same time, a survey reveals that three-quarters of Icelanders oppose having their own military. So Iceland remains a special case – and a country navigating between picture-postcard idyll and a new security reality. (bre/men) ◘

PHOTO: ISTOCKPHOTO/SERTS

NOT JUST IMPORTANT, CRUCIAL TO THE SYSTEM

PHOTOS: ISTOCKPHOTO/MAGNIFIER, FREEPIK/STARLINE, ZDS, FEDERAL MINISTRY FOR ECONOMIC AFFAIRS AND ENERGY

For over four years, both the global order and international trade have been undergoing a transformation – with far-reaching consequences for supply chains and ports worldwide. Their status is no longer regarded merely as "important" but increasingly as "crucial to the system". With far-reaching consequences.

"At the top of the agenda is reliable port funding from the German government."

Sebastian Jürgens, President of the Association of German Seaport Operators (ZDS)

The Russian invasion of Ukraine in February 2022 and the Covid-19 pandemic have hammered home to us just how vulnerable our security, energy and supply chain structures are," Sebastian Jürgens, President of the Association of German Seaport Operators (ZDS), states. "Since then, the role of ports has shifted from 'important for trade' to 'crucial for energy and security'." Against this backdrop, Jürgens sees a long list of challenges that need to be addressed promptly. "At the top of the agenda is reliable and long-term port funding from the German government," he adds. "We have a modernisation requirement of 15 billion euros in the seaports. There's an urgent need for action here."

Furthermore, Jürgens believes that protecting ports as critical infrastructure is just as crucial as investments in high-performance hinterland connections, digitalisation and automation. "We have to keep all this in mind if we're to ensure our competitiveness within the European framework and, in doing so, talk about sustainably resilient structures, both for seaports and the business location," he states. For him, the security of supply we take for granted is clearly impossible without high-performance ports. "Energy, raw materials, intermediate goods and consumer goods arrive predominantly by sea," he continues. Stable, resilient port structures therefore constitute a direct public service – particularly in times of crisis. "To ensure the long-term efficiency of seaports," he comments, "we need annual basic funding of 500 million euros from the German government, and that's on top of the modernisation measures we've already discussed."

He acknowledges, however, that the states and the operators have invested to the best of their ability so far. "We clearly need a coherent approach to seaports, closely coordinated between the German government and the states," says Jürgens. "The former has to step up and take responsibility for seaports as strategic hubs of national importance far more decisively than it has done to date." In his view, while the strategic importance of seaports has recently been recognised more widely in many places, this "isn't yet sufficiently understood everywhere".

Growing demands – including in military terms

For Dr Christoph Ploss (CDU), the German government's coordinator for the maritime economy and tourism, recent developments have also changed the role of Germany's ports fundamentally. He regards the ports as hubs, both of the economic structure and of the energy supply, as well as part of the security architecture. "Germany's ports are key to ensuring the supply of raw materials and are increasingly becoming transshipment points for climate-friendly energy sources like ammonia, methanol, e-fuels or hydrogen," he explains. "In the event of a crisis or war, some of them are set to become NATO hubs. They will then have to process not just troops, but also equipment, ranging from food supplies to tanks." To make sure this runs smoothly, it is necessary to expand the infrastructure in such a way that the requirements of NATO, alliance partners and the Bundeswehr can be met. "However, we also need to gather more information as well as link and use data better, so that we can identify and thwart potential attacks on critical infrastructure before they can happen, for example," Ploss warns. ↦

"Germany needs these ports and their different strengths."

Dr Christoph Ploss (CDU), the German government's coordinator for the maritime economy and tourism

In the event of a crisis or war, some German ports could become NATO hubs. They would then transport troops and equipment, ranging from food supplies to tanks.

He believes that important groundwork for advancing the transformation of the ports has already been done. "In less than a year in office, the current government has already achieved more for the maritime economy than the previous one did in its entire term," he states. Last year, 100 billion euros were soon made available for investment in state and local-level infrastructure. Ploss adds: "I expect a considerable portion of this to be channelled into port infrastructure. Furthermore, the German government has allocated 400 million euros within the Climate and Transformation Fund (KTF) for the maritime economy. And we've initiated record investments in rail – over 100 billion euros will flow into the rail network by 2029. This is vital for the ports' hinterland connections."

Ploss considers the annual 38.3 million euros that Germany's northern states receive from the government for port cost compensation to be insufficient. "The amount hasn't been adjusted in two decades," he says. "However, an increase is only possible via a constitutional amendment to German Basic Law, and the two-thirds majority required for this isn't foreseeable, given the current balance of power in the Bundestag." He also sees other ways to support port expansion, for instance through the special defence fund, which is providing 1.3 billion euros for the port of Bremerhaven, for example.

"The port in Bremerhaven plays a central role for NATO," he adds. "This is why the government is also providing massive support for its expansion as a NATO hub. In addition, Wilhelmshaven and Emden are important ports for Germany's security." Regarding Germany's ports and referring to his 2025 statement that the rivalry between Hamburg and Bremen belongs on the football pitch rather than in politics, Ploss clarifies things from a national perspective. "Hamburg's rivals in port policy aren't Bremerhaven or Rostock. They're Rotterdam, Antwerp and Gdańsk. And vice versa. The goal must be to strengthen the German port industry as a whole. In doing so, the requirements and future outlooks differ. One port becomes an energy hub, another specialises in offshore wind, the next is building up its expertise in the handling of food or industrial goods, and others become NATO hubs. In all of this, though, the one thing that's certain is that Germany needs all these ports and their different strengths."

PHOTOS: DIEBILDWERFT, HANSA EXPRESS LOGISTICS

Breaking the silence on military logistics

Andree Niehaus, Managing Director of Hansa-Express Logistics – an Oyten-based company that has developed into a leading logistics provider in the explosives and military sectors over the past 30 years – is clear about the current situation. "We've been chasing the idea of universal world peace since the 1990s, and many have turned up their noses at the prospect of investing in the military," he says, with the NATO member states' target of contributing two per cent of their respective gross domestic product (GDP) to collective defence particularly in mind. "To this day, we in Germany haven't met this commitment to the required extent. In 2024, for instance, the defence budget was around 50 billion euros, plus some 20 billion euros from the special fund for modernising the Bundeswehr. However, with a GDP of 4.3 trillion euros, at least 80 billion of it should be allocated to defence. Even the special fund I just mentioned is merely a drop in the ocean," he adds, criticising what he sees as Germany's lack of awareness regarding the need to invest in military measures.

Nevertheless, Niehaus has recently observed a significant societal shift in attitudes and the logistics sector regarding military equipment transportation. "Before, people were always 'We're not going there!'," he explains. "But now that the threat level has noticeably increased, everyone's suddenly jumped on the bandwagon as they've realised that our passivity in the past was a mistake." In his view, many are only slowly coming to realise that the transportation of goods for military purposes is "not politically incorrect". With this in mind, he points out that, unlike in the Netherlands, for example, Germany does not maintain fleets of vehicles on standby for defence purposes. "In Germany, people aren't prepared to pay for such contingencies yet. But I'm sure we'll get there," he muses. ↦

"Now that the threat level has noticeably increased, everyone's suddenly jumped on the bandwagon."

Andree Niehaus, Managing Director of Hansa-Express Logistics

"Wilhelmshaven has developed into a genuine energy hub."

Coen Janssen, Managing Director of HES Wilhelmshaven Tank Terminal (HWTT)

Nevertheless, Germany's government is generally on the right track when it comes to preparing for potential conflict. Over the past four years, for instance, it has been able to issue special permits for Sunday transport at short notice, enabling vital supplies to be delivered to Ukraine swiftly. Niehaus does not wish to specify exactly what kind of materials these are, however. For Hansa-Express Logistics, as he explains, not disclosing too much information to the public about the work, and where it takes place, is a matter of trust. At the same time, however, he can confirm that current developments have resulted in a huge boost for logistics in the military sector. In light of recent thefts during ammunition transports, however, he condemns Germany's prevalent penny-pinching mentality. "If civilian providers with no experience are increasingly being commissioned based on who's cheaper," he says, "and security staff are also being laid off to cut costs, this sends the wrong signals when working with such sensitive cargo." He feels it would make more sense to involve experienced logistics providers, who are familiar with the subject and its challenges, at an early stage.

The HES Wilhelmshaven Tank Terminal is Germany's largest independent tank terminal. Across an area of more than 200 hectares, 60 tanks and two tanker discharge berths are available.

Changes in the movement of oil and other cargo

For Coen Janssen, Managing Director of HES Wilhelmshaven Tank Terminal (HWTT), the changes triggered by the changing times are "manageable". At Germany's largest independent tank terminal, which has a storage capacity of around 1.3 million cubic metres for products such as crude oil, jet fuel, petrol and other liquid bulk goods, a shift in cargo flows has been observed in particular. "Before the Russian attack on Ukraine," says Janssen, "most energy products and chemical-related liquid goods came in by ship and went out by ship. Now, the majority of our onward transport is by rail." The suppliers have also changed. Whereas there had been a heavy reliance on Russian energy sources prior to 2022, these are now primarily sourced from the US and Qatar – and increasingly as decarbonised rather than fossil fuels. "In my view, however, this development is due more to the shift in political focus towards renewable energy and climate-neutral technologies than to the changing times," he adds.

As part of this transformation, Europe's liquefied natural gas infrastructure has also grown significantly. "In this context, Wilhelmshaven has developed into a genuine energy hub," continues Janssen. "Indeed, our city on the north-western coast of the Jade Bay became home to Germany's first LNG terminal in December 2022 and, in May 2025, commissioned the 'Excelsior' as the second Floating Storage and Regasification Unit (FSRU) alongside the 'Höegh Esperanza." The HWTT is also noticing the growing trend towards LNG. "In particular, liquefied gas shipments to southern Germany, Poland and the Czech Republic have increased significantly in recent years," he concludes.

"We're committed to further diversifying our business as part of the energy transition," says Janssen, looking ahead to the company's future development. "In doing so, we're making a meaningful contribution to the Federal Republic of Germany's decarbonisation targets in line with the European Green Deal." However, the steadily growing number of cyberattacks on companies and the classification of ports as critical infrastructure are enough to cause a few grey hairs. "With a combination of preventive technical measures and a strengthened safety culture, however, we're well prepared," states Janssen. However, no structural changes have been made to the tanks and pipelines yet. (bre)

THE PORT IS COMING TOGETHER

In February 2025, politicians, business leaders and port industry representatives marked the official launch of construction on the new berths 5 to 7 in Cuxhaven with a symbolic first pile-driving ceremony. This section is steadily taking shape. The entire main wall, consisting of support pipes, intermediate sheet piling and inclined piles, has been installed. Dredging work is ongoing with two suction dredgers, which are dredging up to 70,000 cubic metres of sand daily. With this expansion, the port is taking a significant step towards meeting the growing demand for transshipment and storage space for the offshore wind energy sector and strengthening its competitive position. The new berths will span a total length of 1,250 metres and will be complemented by additional terminal areas covering an area equivalent to around 54 football pitches. Once the new port infrastructure comes into operation in late 2028, ships up to 300 metres in length will be able to berth there, including specialised offshore vessels. The total investment amounts to around 300 million euros; the federal and state governments are contributing up to 200 million euros to the project. The port industry will provide the remaining amount of up to 100 million euros through licensing agreements. The construction project is being carried out by the "Consortium for the New Construction of Berths 5 to 7", comprising the companies Tagu Tiefbau Unterweser, Heinrich Hirdes, Nordsee Nassbagger- und Tiefbau and Depenbrock Ingenieurwasserbau. Upon completion, two licensees will assume operation. Cuxport will receive a terminal licence for berths and terminal areas 5 and 6.1, and Blue Water Breb will have one for terminal areas 6.2 and 7. (bre)

PHOTOS: HES INTERNATIONAL, NPORTS-ULRICH WIRRWA, NPORTS L. RÖTZ

Although the Bundeswehr has its own logistics structures, civilian companies could certainly provide assistance with tasks such as transport, storage and maintenance.

"No war can be won without logistics," said Dr Jörg Mosolf, CEO of the automotive logistics firm of the same name, reporting on his experiences in defence logistics.

OPPORTUNITIES IN UNCERTAIN TIMES

Multiple crises, such as the war in Ukraine and the escalation in the Middle East, often create a sense of uncertainty. Yet, on closer inspection, it has become clear that even these difficult times hold potential – for the logistics sector, for example.

Although the Bundeswehr has its own logistics structures, experts believe that, in a crisis or defence scenario, these would likely prove insufficient for delivering all the necessary materials to the required locations quickly. This means that the private sector could be drawn in to assist the military, particularly with transport, storage, spare parts supply and maintenance. Accordingly, Alexander Nowroth, CEO of Lebenswerk Consulting Group, stated at the 1st DVZ Defence Logistics Conference in Berlin in March that the ability to defend a country begins in the supply chain. In saying this, he reflected the growing recognition that national defence can indeed be regarded as a duty for society as a whole. He then presented figures to demonstrate just how attractive the defence logistics market could be for logistics companies, reporting that the European market was estimated to have been worth about 28.7 billion euros in 2025. This figure is expected to rise to just under 37 billion euros, and to over 190 billion euros worldwide, by 2030.

Dr Jörg Mosolf, CEO of the automotive logistics firm of the same name, and his company are already involved in this joint initiative and are responsible, among other things, for German defence contractor and automotive supplier Rheinmetall's global logistics operations. "Ultimately, no war can be won without logistics," Mosolf said in Berlin. Addressing the logistics specialists among the roughly 180 business leaders in the hall of the Marriott Hotel in particular, he added that entering the defence market is complex and requires stamina. "There are no fast deals in defence," he continued, describing his experiences with military contacts. "Defence is, in fact, a structural business that's very long-term – it requires long-term commitment, long-term capital and expertise that needs to be cultivated."

Consequently, it took Mosolf just under two and a half years to secure a contract with the Bundeswehr. "Once you're in, you stay in," he reflected. "The margin isn't the most important factor here. What's far more important is building a relationship of trust, through which you can demonstrate your competence in project delivery." He also highlighted the ISO 27001 certification held by his company to guarantee IT security. This is compulsory where fulfilling contracts with the Bundeswehr or NATO are concerned.

"In the security and defence sector, additional requirements are often imposed during the tendering process and in the awarding of contracts," noted Jan Byok, public procurement law specialist at Juliett Bravo, in his presentation entitled "How can logistics companies participate in tenders issued by the armed forces, security authorities and defence contractors in compliance with the law?" Alongside IT security, he also highlighted classified information confidentiality, export controls, third-country involvement, resilient supply chains and subcontractor monitoring as key points.

While Byok noted, based on his experience, that the first contract paves the way for market entry, he simultaneously emphasised the need not only to execute the current contract well but also to develop prospects for further cooperation. "The added value does not arise from individual transport operations, rather from the stability of the overall system," Moslof observed pointedly.

The conference ended with a clear conclusion – defence logistics will become an important strategic business area for the logistics sector in the coming years. Companies that invest early and meet security and quality requirements can benefit from this growing market in the long term. However, the defence sector demands a high degree of professionalism, planning reliability and perseverance. (bre)

Decision-makers from business, the Bundeswehr, industry and politics gathered in Berlin to discuss the role of small and medium-sized enterprises in the military logistics and supply chain.

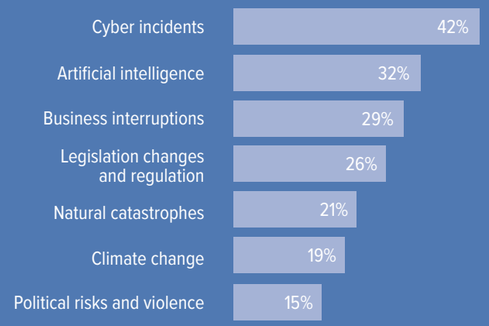
Jan Byok, specialist in public procurement law at law firm Juliett Bravo, explained how companies can participate in Bundeswehr tenders.

PHOTOS: BUNDESWEHR/V.FISCHER/ALPERS, DVZ/DIRK KRUSE

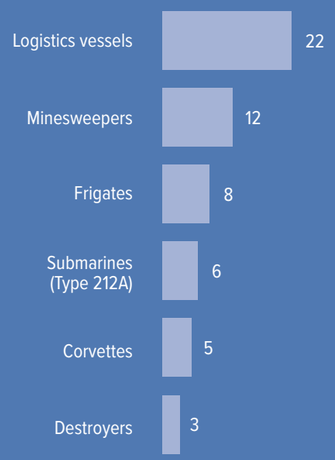
A NEW ERA, NEW QUESTIONS?

According to the Allianz Commercial "risk barometer", businesspeople are currently concerned about cyberattacks and artificial intelligence (AI). By contrast, private consumers are worried by the rise in petrol prices and the Iran war. This is also partially caused by the fact that hardly any ships are able to pass the Strait of Hormuz at present. Indeed, almost 30 per cent of oil transported around the world passes through this maritime corridor on the Persian Gulf. As a result of the above as well as other trouble spots, two questions are being increasingly asked: Given the current security situation, is Germany's defence a national responsibility that goes beyond military measures? And could rearmament boost the economy? **(bre)** ◘

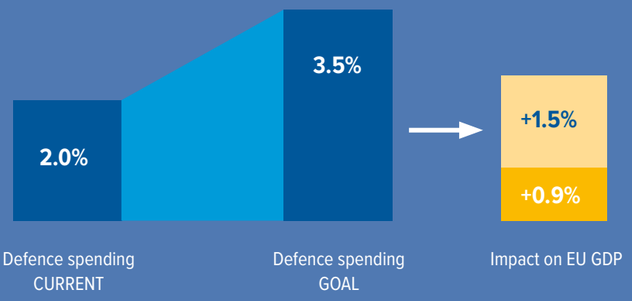
Major business risks worldwide in 2026



Number of German naval warships and submarines in 2025



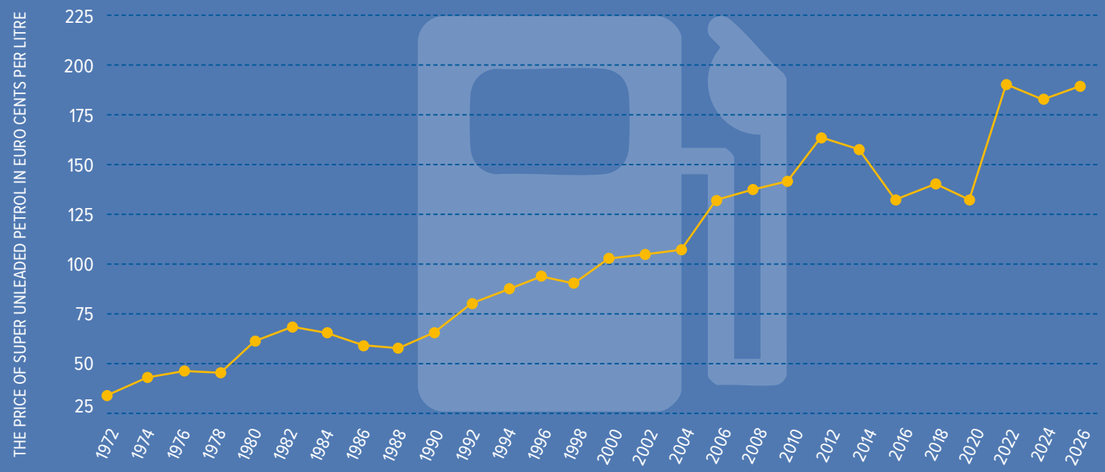
Estimated effect of increased spending on defence as a percentage of GDP in the EU



According to estimates, European Gross Domestic Product (GDP) will rise by **0.9 to 1.5 per cent** if defence spending is increased from **2.0 to 3.5 per cent of GDP**.

ICONS: FLATICON; SOURCES: ALLIANZ COMMERCIAL: NEWS & INSIGHTS; IFW KIEL/STATISTA 2025; STATISTA; STATISTA 2026; HANDELSBLATT; SENATE OF THE FREE HANSEATIC CITY OF BREMEN, SEAPORTS OF NIEDERSACHSEN, GERMAN ARMED FORCES/AS AT FEBRUARY 2026

Average price of super unleaded petrol in Germany from 1972 bis 2026



Number of armoured tanks in each NATO member state

1. USA	4,640
2. Turkey	2,238
3. Greece	1,344
...	
6. Germany	296

Over **267,000 people**, of which more than **186,000 in uniform** and over **81,000** in **civilian roles**, currently ensure that the Federal Army is ready to act.

30%

of oil transported worldwide via The Strait of Hormuz.

Successful figures in difficult times

65.3 m

tonnes of goods

were handled by The Ports of Bremen in 2025. This is equivalent to a 5.4 per cent rise year-on-year.

60.5 m

tonnes of goods

were handled by The Seaports of Niedersachsen in 2025, corresponding to a rise of 9 per cent compared to 2024.

“IT’S NOW FIVE PAST TWELVE!”

Colonel Thomas Geßner, Commander of the Bundeswehr’s Regional Territorial Command Bremen, and Uwe Oppitz, Group Managing Director of Rhenus Ports, consider the current situation in the “Key Region North-West” through the lens of the Operational Plan for Germany (OPLAN DEU), a classified strategic Bundeswehr document that governs Germany’s defence in the event of an alliance contingency and crisis situation. In other words, analysis of the status quo from a military and civilian point of view.

> “We’re threatened and essentially attacked on a daily basis.”

LOGISTICS PILOT: How dangerous do you consider the current situation to be?
COLONEL GEßNER: The current situation is serious! We’re threatened and essentially attacked on a daily basis! Russia has brought an armed conflict to Europe with its unlawful war of aggression against Ukraine. You can no longer talk about peace in Central Europe. Whilst we may not yet find ourselves in open conflict, Germany is already facing hybrid attacks from adversarial actors – disinformation campaigns, cyberattacks, espionage and sabotage – the perpetrators of which are usually difficult to define.
OPPITZ: I’m alarmed by the current situation in the world. Over and over again, we’re confronted with the fact that we live in a world in which nations like Russia, North Korea and the US have broken with established norms and are making a mockery of important values. This is something I encounter not only daily in the media, but also with colleagues based in Iran, Oman and Dubai, who can no longer communicate freely – in part because channels like WhatsApp and the Internet are blocked. I have the feeling that German society and politics are not yet in a position to effectively adapt their mindset to the current situation. And that’s despite the fact that it’s already “five past twelve”.

LOGISTICS PILOT: What does the Operational Plan for Germany mean for German seaports against this backdrop?
COLONEL GEßNER: The OPLAN DEU is the core element of the military side of Germany’s comprehensive defence. This plan brings together the central military elements of territorial and alliance defence in Germany and the required civilian support services, with the aim of ensuring targeted action in the event of a crisis and conflict scenario. Given its central location in Europe, Germany plays a critical role as a logistics hub for troop deployment in ensuring credible deterrence and effective defence. We need to guarantee the “continuity of advance” as well as protect and supply our allies abroad. German seaports in the North Sea are essential, particularly when it comes to transporting materials to NATO’s eastern flank, as they ensure our access to the Atlantic Ocean.
OPPITZ: The ports in Lower Saxony are already well positioned. Nevertheless, I’m certain that requirements will increase dramatically. Especially if the alliance contingency or state of defence were to be triggered, in which case the ports would increasingly serve as logistical hubs for the handling of troops and heavy military equipment. But for that to happen, additional spaces, facilities and measures for drone defence and sabotage prevention would need to be established – and then there are the challenges that would arise in heavy load approval for RoRo ramps and cranes. But because the ports have recently been classified as critical infrastructure, the government is investing heavily in their infrastructure and expansion as military logistics hubs, with 1.35 billion euros going to Bremerhaven alone.

COLONEL THOMAS GEßNER
Commander of the Bundeswehr’s Regional Territorial Command Bremen

UWE OPPITZ
Group Managing Director Rhenus Ports

LOGISTICS PILOT: How will the Bundeswehr and industry have to collaborate to ensure the OPLAN DEU will work?
COLONEL GEßNER: The OPLAN DEU manages quick deployment and the supply of allied and domestic forces in crisis and war. In accordance with NATO planning, several hundred thousand soldiers will need to receive logistical and medical support and protection under enormous time pressure. The resilience of both our military and society as a whole is an essential component of NATO deterrence planning and requires close collaboration between industry and the Bundeswehr. The seaports in the North Sea, in particular, will face enormous logistical challenges that can only be overcome with intact, well-functioning port infrastructure and other types of infrastructure.
OPPITZ: The security policy dialogue between the Bundeswehr and the port companies is already progressing at a good pace. In fact, recent years have seen intensive exchange across multiple levels for that purpose alone. For example, Regional Territorial Command Lower Saxony regularly visits ports in Lower Saxony to discuss equipment with the operators and get a picture of current developments on site. Exchanges of viewpoints between the Bundeswehr, businesses and science were also high on the agenda at the LOG.NET trade fair in Koblenz this past March – with a primary focus on military logistics solutions, digitalisation and resilience. These and other channels also provide Berlin with a clear picture of port capacity and potential road, waterway and rail connections.

LOGISTICS PILOT: What makes north-western Germany so important for operational planning?
COLONEL GEßNER: I like to refer to the “Key Region North-West” as a central deployment region. It plays a very important role for the OPLAN DEU. Experienced operators in this region support the handling of military vehicles and personnel. Good and, wherever possible, redundant connections to the road and rail network as well as access to medical facilities are essential.
OPPITZ: Because we have lots of well-functioning ports between Emden and Cuxhaven, where the transshipment of military equipment has been standard practice for years. This also applies to the use of Class 1 dangerous goods – in other words, explosive materials. I can’t and won’t say any more than that, as there are simply some things you don’t talk about in public. (Editor’s note: And he adds with a wink) After all, we don’t want to deny Putin and his secret services their work. (bre) ◻

> “Additional spaces, facilities and measures for drone defence need to be established.”

PHOTOS: THE BUNDESWEHR’S REGIONAL TERRITORIAL COMMAND BREMEN, RHENUS LOGISTICS

A LASER AS A WATCHMAN

Ports, offshore wind farms and data cables form the backbone of supply security and are increasingly under threat. The Institute for the Protection of Maritime Infrastructures of the German Aerospace Center (DLR) in Bremerhaven is conducting research on how best to monitor and protect them.

On a lake near Bremerhaven, scientists are testing distributed acoustic sensing (DAS) as a means of detecting surface and underwater drones.

PHOTOS: DLR

Targeted collisions in wind farms, destroyed pipelines and severed data cables are scenarios that no one wants to think about, but it is important to prepare for them. "Security threats like these are usually the result of human action – for example, with ships and other vehicles operating in the vicinity of these facilities," says Frank Sill Torres, Director of the DLR Institute for the Protection of Maritime Infrastructures in Bremerhaven. Cargo ships measuring 100 metres or more in length, in particular, are potentially dangerous, whilst smaller boats can damage data cables – for example, with trawl nets.

"Wind farms, in particular, need to be protected – especially the central converter platforms," says Sill Torres. Another threat is ships of the so-called shadow fleet that often deactivate or manipulate the position signal of their automatic identification system (AIS) to conduct their illegal activities without detection. "The challenge is identifying these ships specifically – the ones that want to remain invisible or the rust bucket tankers that masquerade as harmless fishing boats."

According to Sill Torres, an electrical engineer with a PhD, that is why it is so important to know what is going in the direct vicinity of maritime facilities "Situational awareness, the ongoing tracking of developments, is of the utmost importance." The DLR can draw on many years of experience in the aerospace industry and use satellites and airborne sensor systems for monitoring.

The greatest challenge in the maritime industry is the large expanses of water. He adds: "You can't install cameras everywhere, and existing satellites can't monitor everywhere at the same time." As they circle the earth, there are inevitably temporal and spatial gaps in surveillance.

Too expensive, too short, too many gaps

Theoretically, monitoring would be possible with a large number of satellites, but that would be very costly and just about impossible to finance. "There need to be more affordable security solutions," says Sill Torres. And drones are still hampered by their limited flight times. "Even high-performance models with up to twelve hours of flight time would have to return twice a day for recharging – it would take multiple drones in the air at the same time to ensure full coverage."
The institute's ongoing project "Analysis systems for the early detection of potential threats to critical undersea infrastructure" (AFKUI), which has received funding of 3.3 million euros from the Ministry for Economic Affairs and Energy, has therefore opted for a different approach. It adds an underwater component to the operational picture for authorities, demonstrating the additional benefit of a technology that does not provide images, but listens. "A promising technology that we're currently researching is distributed acoustic sensing," explains Enno Peters, Head of the Sensors Working Group at the institute. DAS, as it is abbreviated, simply reports that there is something here. A pulsed laser emits light pulses approximately every millisecond – ultimately 1,000 hertz – in a glass fibre that is up to 100 kilometres long – for example, along a power or export cable to an offshore wind farm in the North or Baltic Sea. The key trick here lies in analysing the phase of the light: "If a vibration or an acoustic signal hits the fibre, there's a minimal shift in its structure. And that can be measured through the phase of the light."

The light is continuously backscattered, and the transit time can be measured to pinpoint the exact section of the fibre that the signal is coming from. This, in turn, makes it possible to determine if something is happening and where – without a camera or visual contact, but simply by listening in the cable. Further information – like the speed and size of an object – can be obtained in this way.

"Security threats are usually the result of human action."

Frank Sill Torres, Director of the DLR Institute for the Protection of Maritime Infrastructures in Bremerhaven.

Every ship has its own sound

"Due in large part to their propellers and engines, ships generate distinctive vibrations, which travel through the water and along the sea floor to the cable," explains Peters. For larger ships, the frequencies typically lie between 10 and 60 hertz. "Because every ship ↦

"Ships generate distinctive vibrations, which travel through the water and along the sea floor to the cable."

Enno Peters, Head of the Sensors Working Group at the institute

generates a slightly different vibration profile, we're optimistic that we'll be able to classify them in the future – whether it's a large or small ship, container ship or smuggling vessel. It's an exciting field of research that's still evolving." The quality of the signal is also dependent on the depth of the cable in the sediment and water. The hardware was not developed by the institute, but is a proven technology already used along railway lines for train location and monitoring, for example.

The system has two areas of application in the project. For perimeter protection, a cable is installed around an infrastructure like an LNG terminal, a wind farm or a port entrance. It responds when something like a diver, an autonomous underwater vehicle or a motorboat approaches at night. No cameras would be able to capture that.

The second area of application is maritime surveillance, which uses the existing submarine cable between the coast and offshore wind farm, with the DAS device connected on land. The cable acts as a hydrophone array, registering everything that passes above. As the system can identify both approved and suspicious ships, other sources of data must be connected. If the cable reports a ship without AIS signal, radar satellite can be used to determine if something is actually there. Authorities can then respond accordingly – for example, with a drone or a visual satellite image.

A live demo at the end of the project in 2029 will prove that it works in practice: a ship with deactivated AIS will pass over the cable and an autonomous underwater vehicle will pass underneath it – the system should be able to identify both and automatically sound the alarm. (cb)

Though it looks like a typical server rack, the interrogator unit transforms a 100-kilometre submarine cable into a sensor. The enormous volume of raw data is analysed directly on site, with only a warning sent afterwards.

PHOTOS: DLR

FACTS

DLR INSTITUTE FOR THE PROTECTION OF MARITIME INFRASTRUCTURES

ESTABLISHED
2017, as one of seven new DLR institutes

LOCATION
Bremerhaven

AIM
Better protect maritime infrastructures through applied research in collaboration with all those involved, which translates to identifying dangers early on, neutralising them in a targeted fashion and responding flexibly to new threats.

EMPLOYEES
75

More information:

www.dlr.de

PLEASE LOCK AUTOMATICALLY!

In September 2025, Marie-Elisabeth Makohl and Dr Daniel Leidner founded the start-up Seal Robotics in Munich. With this and an internally developed robotic system, they are now well on their way to taking automation of manual processes in container transshipment to a whole new level.

Marie-Elisabeth Makohl, CEO of Seal Robotics, came up with the idea during her time on a container ship in 2023. "At different ports around the North Atlantic, I experienced for myself how physically demanding and time-sensitive the process for securing containers is," says Makohl. As a robotics engineer at the Technical University of Munich, she contacted her colleague Dr Daniel Leidner, now CTO of Seal Robotics, to incorporate his extensive experience in the field of space robotics at the German Aerospace Center (DLR) into the project. Together they developed a robotic system that, much like an automated guided vehicle (AGV), operates without a driver and features robot arms that can secure a container with twist lock or pin handling. What makes this approach to securing cargo so unique is that it is not limited to ships but can also be applied to other forms of transport – for use at both seaports and terminals for combined rail and inland water transport.

Working with a European customer, Makohl and Leidner are currently in the hot phase of their pilot project. They plan to build on these findings in Southeast Asia and the Middle East over the coming months, before launching the system at several ports in the coming year. "We've already shown demonstration videos of our system at several trade fairs around the world, and those who were interested wanted to know immediately when and where they could order one," says Makohl. Even if that is not yet possible, the project is already on solid financial footing. Besides the Creator Fund financing pool, participants in pre-seed funding, which closed with more than 1.8 million euros in January of this year, also included Auxxo, January Ventures, Marvelous and Stefan Tietze.

"Our aim is to increase workplace health and safety, support staff and improve the plannability and stability of logistics processes," says Makohl, describing her motivation. The Seal Robotics team has grown from two to nine employees to ensure successful project implementation. "This calls for expertise across a wide range of fields, which is why our team comprises mechanical engineers, experts in cognitive systems, machine learning and human-to-robot communication, image processing engineers and others," adds Leidner. He points out "that robotics and AI have achieved a level of maturity that makes it possible to automate these safety-critical terminal processes with consistent quality". (bre)

Dr Daniel Leidner, CTO, and Marie-Elisabeth Makohl, CEO of Seal Robotics

PHOTOS: SEAL ROBOTICS

COMMODITY FLOWS IN FLUX

Global trade routes often face pressure. And yet trade continues – even if along different paths. Current figures and voices in the industry reveal what that means for the Bremen and Lower Saxony seaports.

Given the current geopolitical crises and their impacts on commodity flows and routes, a little positivity could do some good. And Vincent Clerc, Head of the Danish shipping company Maersk, was only too happy to oblige in his speech to mark the 482nd Schaffermahlzeit (seafarer's banquet) in Bremen this February. "As we look back on the past year, it's worth acknowledging the resilience of global trade," he says, adding that, despite all the headlines, commodity flows did not grind to a halt. "Consumer demand is not shaped by trade conflicts or tariff rhetoric." After all, people still want to buy things.

The lion's share of commodity flows through the major trade corridors of the Far East and the North Atlantic. According to figures of the German Federal Statistical Office (Destatis), freight handling increased by 3.8 per cent to 284.4 million tonnes in 2025, driven primarily by the receipt of goods from abroad, which increased from 5.3 per cent to 171.1 million tonnes. In contrast, freight transport grew by just 0.5 per cent. In other words, Germany's ocean imports expanded much more than its exports. The shift in energy imports was particularly strong, with the receipt of US natural gas increasing by 51.8 per cent and the import of crude oil from the US dropping by 23.6 per cent.

Among recipient countries, Norway again led the way at the Bremen ports in 2025 with 4.36 million tonnes, followed by China with 3.49 million tonnes. The People's Republic thus grew significantly compared to 2023 (2.61 million tonnes) and 2024 (3.05 million tonnes), underlining its growing significance as an export country. Poland secured third place with 2.99 million tonnes, whilst the US remained stable with 1.71 million tonnes, achieving seventh place as in the year prior, compared with sixth place in 2024.

PHOTOS: BREMENPORTS, J. MÜLLER

At 4.90 million TEU, container transshipment at the Bremen ports made significant recovery in 2025, compared to 4.18 million TEU in 2023 and 4.45 million TEU in 2024. Most remarkable is the increase in traffic to the Far East, from 630,000 the year prior to 732,000 TEU, and to the Middle East, up from 313,000 to 327,000 TEU in the same period. At 344,000 TEU, Africa maintained a high level, whilst the North Atlantic stabilised at 730,000 TEU.

More car imports, fewer car exports

The structural change continued in vehicle transshipment, for which Bremerhaven is Europe's second largest port. A total of 805,162 vehicles were dispatched in 2025, compared with 864,843 in 2024. Import of Asian vehicles, in particular, trended in the opposite direction, increasing from 387,915 the previous year to 446,561.

There were also significant changes in commodity flows at Lower Saxony's seaports, which at 60.5 million tonnes handled nine per cent more in 2025 than in 2024. Most remarkable is the change in energy sources. Whilst LNG increased by 36 per cent and fuels by 18 per cent in Wilhelmshaven, the handling of crude oil dropped by 17 per cent.

At 1.47 million TEU, JadeWeserPort handled 74 per cent more containers than in the previous year, reinforcing its role in container transport. This development is primarily down to the Gemini Cooperation between Maersk and Hapag-Lloyd, which has transformed Wilhelmshaven into its German hub.

Andreas Bullwinkel, President of Wilhelmshavener Hafenwirtschafts-Vereinigung, has observed concrete shifts in fast-moving consumer goods. "The FMCG segment from Asia to Wilhelmshaven has increased significantly due to tariff issues," he says, adding that the same applies to the automotive segment. "Here, too, the volume of passenger cars shipping from Chinese production to Wilhelmshaven has expanded dramatically." European car manufacturers also used Wilhelmshaven more frequently as a destination port. Like potential military applications, he also views the planned multi-purpose terminal for RoRo and wind turbine handling as well as the planned permanent facility for liquefied gases as opportunities.

Ukraine war shifts agricultural flows

Geopolitical disruptions are also apparent in the flow of goods in Brake, a central bulk and general cargo port on the German North Sea coast. "The Ukraine War has significantly shifted commodity flows in agricultural and bulk cargo, in particular," reports Uwe Schiemann, Managing Director of J. MÜLLER Weser, adding that traditional ocean shipments of grains and agricultural products from Ukraine have largely ground to a halt, as alternative flows from other Eastern European countries are unable to offset the loss in volume. But Schiemann expects volumes to bounce back after the war, restoring Ukraine's significance as a breadbasket.

Marc-Simon Vick, Managing Director of Area Germany & Central Europe at Hapag-Lloyd, sees the impacts of geopolitical disruption particularly in individual goods segments. Energy-intensive industries like the chemicals segment are under pressure due to high energy costs, and European export industries have seen a drop in demand from Asia. Both factors are reflected in declining volumes. Industrial supply chains, on the other hand, have remained stable.

Flexibility is increasing in trade routes: "Transatlantic transport has stabilised following a temporary period of fluctuation and is continuing to expand due to close economic ties." Things are different along this route: "European export to Asia has been on the decline for some time now, which is also reflected in the volume transported." Vick expects new trade agreements with growth markets in South Asia and South America to provide fresh impetus over the medium term.

"Their development is shaped not only by global trends, but also by deliberate management within the networks," says Vick, explaining what that means for German ports – particularly Bremerhaven and Wilhelmshaven. "By adding new connections and actively directing traffic flows, individual ports can expand their activities and tap into new growth potential." (cb)

In Brake, a vessel carrying animal feed is unloaded using bulldozers.

HIGH-TECH SOLUTIONS FROM AN UNDERWATER PERSPECTIVE

The term multi-domain operations (MDO) refers to a modern military concept in which armed forces integrate and synchronise their operations across land, air and sea.

With more than 120 years' experience in the fields of underwater acoustics, sensors and information technology, TKMS ATLAS ELEKTRONIK, a segment of the TKMS Group, is a popular supplier to many navies as well as civilian customers. The portfolio of services ranges from sonar systems, command and control systems, and communication equipment for surface ships and submarines to heavyweight torpedoes, mine countermeasure weapons and hydrographic survey systems.

The origins of TKMS ATLAS ELEKTRONIK date back to the founding of Norddeutsche Maschinen- und Armaturenfabrik in 1902, from which the engineering offices for underwater and acoustic technology emerged just three years later, with a focus on research and development in the field of underwater acoustics. The first innovations that catapulted the Bremen-based company in the market were the Atlas-Echolot, which was indispensable for the South Atlantic survey carried out by the German research vessel Meteor from 1925 to 1927, as well as an underwater bell developed in collaboration with a partner in the United States.

"Because the Allied powers demanded the complete demilitarisation of the German war economy following the Second World War, staff at the time were called upon to diversify their activities and usher in a new era," explains Michael Ozegowski, Executive Vice President of ATLAS ELEKTRONIK. As a result, the company began focusing on the manufacture of echo sounders for the fishing industry and the development of medical ultrasound and industrial ultrasonic products in 1945. From the 1960s, the company gradually returned to the defence sector and secured contracts for the fire control computer for the Leopard tank as well as training simulators for the Type 206 submarine. The success of the company, which has been a fully owned subsidiary of TKMS since 2025, is primarily down to its sonar expertise in the underwater and surface domains and its know-how in integrated command and weapon deployment systems.

Defence expertise as a basis for civilian projects

"We at TKMS view ourselves as a system supplier and maritime powerhouse. We not only build submarines and ships but can also fit them with sensors and effectors for maritime defence – thanks in large part to the expertise of ATLAS ELEKTRONIK – and provide our customers with the corresponding full-service support," says Ozegowski. This would not be possible without TKMS's 9,100+ employees, including around 2,800 in the ATLAS ELEKTRONIK segment, of whom around 80 per cent are engineers, technicians and specialists. As naval officers, many of these experts also have a strong technical background. "Their defence expertise is, of course, a key benefit including for civilian projects – for example, when it comes to supporting the construction of offshore wind farms or simplifying installation of underwater cables," says the manager. He mentions the company's own SeaCat product, an autonomous underwater vehicle that can dive to depths of up to 600 metres in order to determine the composition of the sea floor, for example. "Nonetheless, we have a clear focus on defence," emphasises Ozegowski.

That is also reflected in some of the most recent successful projects. For example, TKMS and ATLAS ELEKTRONIK celebrated their largest torpedo contract in company history in December 2025 – for supplying the Bundeswehr with many DM2A5 heavyweight torpedoes, including the corresponding equipment for Type 212CD submarines. And in February of this year, the company provided the German navy with the autonomous underwater vehicle (AUV) demonstrator in collaboration with Israel Aerospace Industries (IAI). The project, which goes by the name BlueWhale, combines reconnaissance, sensor technology and data fusion in a single system that can identify targets above and below the surface of the water, gather acoustic information and locate sea mines.

TKMS and TKMS ATLAS ELEKTRONIK not only build submarines and ships but also fit them with sensors and effectors for maritime defence.

PHOTOS: TKMS

"We view ourselves as a system supplier and maritime powerhouse."

Michael Ozegowski, Executive Vice President of TKMS ATLAS ELEKTRONIK

A healthy order book

"We have a healthy order book," adds Ozegowski. "At the moment, TKMS is focused on completing orders valued at more than 18 billion euros." Despite his economic optimism, he cannot help but worry about the current state of the world. "Our orders are largely insulated from short-term developments or potential conflicts," he emphasises. "That's because our customers generally plan over the long term and don't order a submarine with all its equipment for the day after tomorrow." Accordingly, the Bremen-based company's planning extends well into the future. The to-do list for the coming years includes, in particular, the accelerated integration of AI, an increase in autonomous vehicles to complement the manned units, and a focus on so-called multi-domain operations. "The latter addresses the requirement to better connect command systems above and below the surface of water with land and air units," says Ozegowski. He cannot reveal any more than that, as discretion about sensitive information and technical details is the done thing in this sector.

(bre) ◘

FACTS

TKMS ATLAS ELEKTRONIK

ESTABLISHED
1902, as Norddeutsche Maschinen- und Armaturenfabrik

AFFILIATION
A fully owned subsidiary and segment of TKMS since 2025

EMPLOYEES
2,800, including more than 2,000 in Germany

RANGE OF SERVICES
Sensors, systems for signal processing, sonar and command systems, effectors, navigation systems, torpedoes, sea mines, autonomous surface ships and submarines, hydrographic survey systems, services

More information:

www.tkmsgroup.com/atlas-elektronik

BOOST FOR MULTIMODAL HUBS

Ports have long been essential for Germany's supply of goods and raw materials. But they have also increasingly evolved into energy hubs for the import, storage and transshipment of climate-friendly energy sources. In the event of a potential crisis or conflict, they could also assume important functions for the transport of troops and vehicles.

For this reason, the maritime infrastructure faces a whole host of complex challenges, including most notably the expansion of the hinterland connections by rail, road and waterway as well as the renovation necessary for handling fuels like green hydrogen, ammonia and methanol. Extreme weather conditions like heavy rain, heat and rising sea levels are increasingly a threat to the port infrastructure, whilst stringent environmental regulations for reducing emissions must be observed.

And last but not least, digitalisation and the topic of "smart ports" are at the very top of the maritime agenda, as the more connected port logistics become, the higher the risk of cyberattacks on terminal infrastructure and ships. Due to the changing geopolitical situation, there is also a stronger focus than ever before on protecting offshore wind farms, underwater cables and pipelines. Anything and everything to do with increasing resilience. (bre)

LOGISTICS PILOT
ISSN 2195-8548

Publisher:
bremenports GmbH & Co. KG
Hafenstraße 49, 28217 Bremen
www.bremenports.de
Ronald Schwarze
Phone: +49 421 30901-610
Email: marketing@bremenports.de

Project and Advertising Manager:
Irina Feller
Phone: +49 421 30901-616
Email: marketing@bremenports.de

Publishing house:
DVV Media Group GmbH
Heidenkampsweg 73–79 20097 Hamburg
www.dvvmedia.com

Project management:
Thorsten Breuer (editor-in-chief);
Julia Schwericke

Editorial team: Thorsten Breuer (bre), responsible; Claudia Behrend (cb), Sven Mentel (men)
Email: redaktion.logisticspilot@dvvmedia.com

Layout:
Monique Dobrzelak

Translation:
transleetion

Printer:
müllerditzen, Bremerhaven www.muellerditzen.de printed on 100% recycled FSC-certified paper

LOGISTICS PILOT is published four times a year in a print run of 5,000 copies (German). Contents can also be viewed at www.logistics-pilot.com. To view them, please scan the QR code.

THIS MAGAZINE IS A JOINT PROJECT OF
bremenports GmbH & Co. KG
Bremische Hafen- und Logistikvertretung e. V.
JadeWeserPort-Marketing GmbH & Co. KG
Seaports of Niedersachsen GmbH

www.logistics-pilot.com

GOOD NEWS

CITIES TAKE A BREATHER

The report that appeared in March entitled "Breathe Better: How Leading Cities Have Rapidly Cut Air Pollution" reveals that 19 cities in nine countries have managed to reduce two major pollutants – fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2) – within 15 years.

Dr Volker Matthias stated: "The 'Breathe Cities' initiative recently published this brilliant news, based on international air quality data. With improvements achieved of 40 per cent and higher, European and German cities featured among the top ratings, as the data from the Federal Environmental Agency show. Even in northern German cities, where maritime traffic plays a major role in the concentration of nitrogen dioxide, the air has changed significantly for the better. And due to the stricter regulations for new ships introduced in 2021, it may well be possible to meet the EU's emission limits – which will have been halved by then – by 2030."

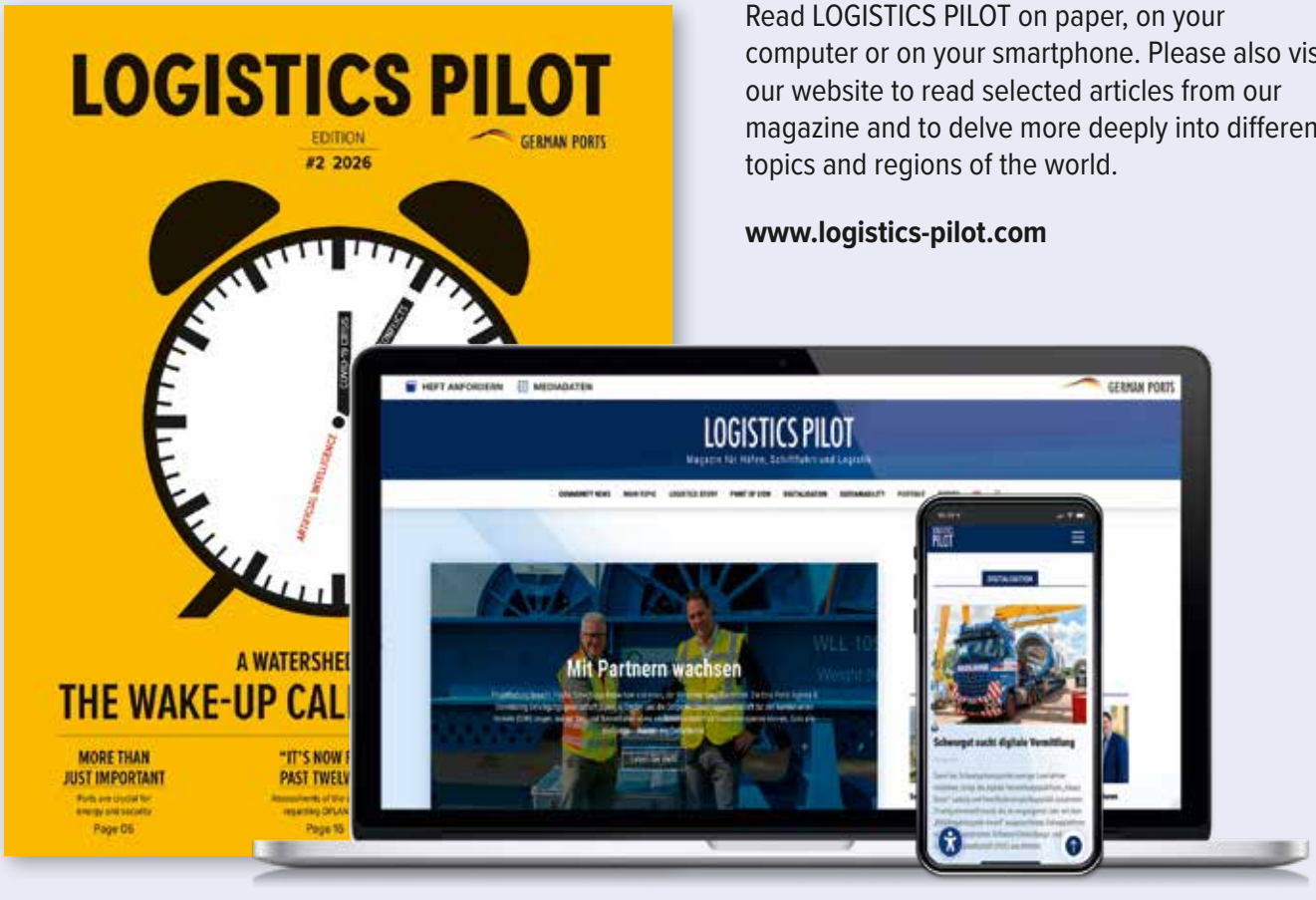
In terms of fine particulate matter, Peking (–48 per cent) and Warsaw (–46 per cent) ranked among the best. Rotterdam, Berlin, Brussels and Heidelberg followed with recorded reductions of over 40 per cent. As regards nitrogen dioxide, Amsterdam (–44 per cent) was the top performer, followed by Rotterdam (–43 per cent) and London, the latter recording a reduction of 38 per cent. San Francisco is the only North American city that was able to reduce the amount of both pollutants by more than 20 per cent. In Europe, Paris and Rome also managed to be included in the report. The list of the 19 pioneering cities featured Paris, Rome, HongKong, Chengdu, Wuhan, Nanjing, Hangzhou, Qingdao, Zhenjiang, Shenzhen.

Dr Volker Matthias:

Head of Department, Chemistry Transport Modelling at the Helmholtz-Zentrum Geesthacht. In 2024, he completed his habilitation in 2024 with a colloquium lecture on "The impact of ship emissions on air quality in coastal areas."

PHOTO PREVIEW: FREEPIK
PHOTOS: FREEPIK/ULTRAMANSK, HELMHOLTZ-ZENTRUM HEREON

LEAF. CLICK. SWIPE.



Read LOGISTICS PILOT on paper, on your computer or on your smartphone. Please also visit our website to read selected articles from our magazine and to delve more deeply into different topics and regions of the world.

www.logistics-pilot.com