

Europe

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The scale, scope, and intensity of Russia's war on Ukraine have exposed the inadequacy of allied capabilities, munitions stocks, and force posture in Europe, especially in Eastern Europe, while underscoring the need for updated regional defense plans. The U.S. has reintroduced additional manpower and capabilities into Europe since February 2022 and has built a significant footprint in places like Poland and Romania. European North Atlantic Treaty Organization (NATO) allies have deployed in support of alliance deterrence efforts in eastern Europe, and many have renewed their commitment to NATO spending benchmarks and rebuilding military capabilities that have atrophied over the past 30 years. Some members—Lithuania, Poland, Estonia, and Greece, in particular—have made dramatic increases in defense spending while others—Germany, France, Spain, Norway, and Belgium, as examples—have not, in spite of pledges to do better. Still, NATO, as a whole, has demonstrated an upward trend in investing in defense, outpacing the United States in aggregate terms by nearly three-to-one over the past decade in constant 2014 dollars. To be clear, some of the largest improvements as a percentage of GDP or percentage change from one year to the next have been among smaller countries who, because of their size and the amount of money they are able to spend, cannot translate a specific increase into quantity-of-capability when it comes to armored forces, squadrons of tactical aircraft, or naval battle groups. Europe's security condition, and with it the security of U.S. interests, would be materially improved if the larger countries spent more on collective defense capabilities. Still, European NATO partners have been improving their investments, albeit at a slower pace than is needed given the depths to which defense capabilities

and readiness have fallen since the end of the Cold War.¹ Interestingly, it appears that the farther away a NATO country is from Russia, the less it tends to spend on defense, implying proximity to perceived danger strongly influences such spending. The Baltic countries, Poland, and NATO members in Eastern Europe spend more on defense than those in Western and Southern Europe.²

In June 2022, NATO adopted its first new Strategic Concept in 12 years. The new concept document takes into account the comprehensive changes in the transatlantic security environment that have taken place in the past 12 years and clearly recognizes the growing threat posed by the Russia–China axis:

The Russian Federation is the most significant and direct threat to Allies' security and to peace and stability in the Euro-Atlantic area. It seeks to establish spheres of influence and direct control through coercion, subversion, aggression and annexation. It uses conventional, cyber and hybrid means against us and our partners. Its coercive military posture, rhetoric and proven willingness to use force to pursue its political goals undermine the rules-based international order.³

The People's Republic of China's (PRC) stated ambitions and coercive policies challenge our interests, security and values.... The PRC's malicious hybrid and cyber operations and its confrontational rhetoric and disinformation target Allies and harm Alliance security. The PRC seeks to control key technological and industrial sectors, critical infrastructure, and strategic materials and supply chains. It uses

its economic leverage to create strategic dependencies and enhance its influence. It strives to subvert the rules-based international order, including in the space, cyber and maritime domains. The deepening strategic partnership between the People's Republic of China and the Russian Federation and their mutually reinforcing attempts to undercut the rules-based international order run counter to our values and interests.⁴

NATO welcomed Finland as its 31st member state in April 2023⁵ and is expected to welcome Sweden eventually as well.⁶ The alliance is updating regional defense plans, is transitioning to a new force structure, and has taken some steps to bolster deterrence through a stronger, more persistent presence in eastern member states. The ability of the alliance to implement recent decisions, flesh out plans for expanded multinational deployments, and fulfill larger requirements for ready forces remains to be seen.

The U.S. and its allies also have made significant investments in arming and training the Ukrainian military. What began as individual nations supplying arms, ammunition, and supplies (often surplus) has evolved into a sustained flow of intelligence, weapons, matériel, and platforms upon which Ukrainian forces have become entirely reliant. Many supporting countries are repairing damaged Ukrainian equipment; some are aiding Ukraine with niche capabilities. While the U.S. remains the largest donor to Ukraine, many European nations are donating significant capabilities, particularly ammunition, armored vehicles, communications equipment, and medical supplies. European nations also have accepted millions of Ukrainian refugees fleeing the war.⁷

All of this reflects a grim reality: War is still a feature of international relations that cannot be predicted or always deterred. War is costly, both in preparation and in undertaking, and also generates additional costs (such as support for refugees and disruption of economic activity) beyond the straightforward expense of equipment and training.

The 51 countries in the U.S. European Command (USEUCOM) area of responsibility (AOR) include approximately one-fifth of the world's population, 10.7 million square miles of land, and 13 million square miles of ocean. Some of America's oldest

(France) and closest (the United Kingdom) allies are found in Europe. The U.S. and Europe share a strong commitment to the rule of law, human rights, free markets, and democracy. During the 20th century, millions of Americans fought alongside European allies to defend these shared ideals—the foundations on which America was built.

America's economic ties to the region are likewise important. For more than 70 years, the U.S. military presence has contributed to regional security and stability, and both Europeans and Americans have benefited economically. The member states of the European Union (EU), along with the United States, account for approximately half of the global economy, and the U.S. and EU member countries are generally each other's principal trading partners.

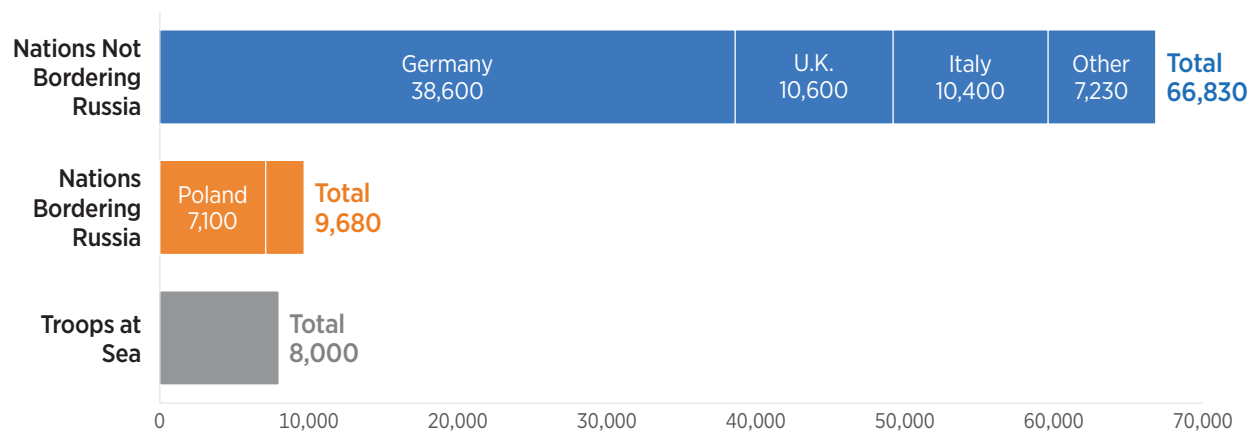
Europe is also important to the U.S. because of its geographical proximity to some of the world's most dangerous and contested regions. From the eastern Atlantic Ocean to the Middle East, up to the Caucasus through Russia, and into the Arctic, Europe is enveloped by an arc of instability. The European region also has some of the world's most vital shipping lanes, energy resources, and trade choke points.

European basing allows U.S. forces to respond robustly and quickly to challenges to America's economic and security interests in and near the region. Russia's brutal effort to remake the borders of Europe by force has shocked many partners, upended the continent's strategic picture, and caused a war with implications that are far wider than the sovereignty of Ukraine itself. Admiral Robert Burke, former Commander of U.S. Naval Forces Europe, U.S. Naval Forces Africa, and Allied Joint Forces Command Naples, has described the European and African theaters as "the forefront of great power competition."⁸

Other external threats to European security include Russia's activity in the Arctic, growing presence in the Mediterranean theater, and efforts to destabilize Western cohesion in addition to the possibility that Russia might expand the scope of its aggression to include the eastern states of NATO. Added to this is the growing threat to the transatlantic alliance from Chinese investments, technology, and propaganda efforts. Russian naval activity in the North Atlantic and Arctic has led to a renewed focus on regional command and control and increased operations by U.S. and allied air and

CHART 8

Few U.S. Troops in Europe Are Stationed Near Russia



NOTE: Data for countries with fewer than 100 troops are excluded.

SOURCE: U.S. European Command, written response to Heritage Foundation request for information on U.S. troop levels in Europe, July 21, 2023.

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naval assets in the Arctic, and one consequence of Russia's strengthened position in Syria has been a resurgence of Russian activity and "congested" conditions in the Mediterranean.⁹

Speaking at an Atlantic Council meeting in March 2019, former U.S. Joint Chiefs of Staff Chairman General Joseph Dunford explained that the U.S. has two key advantages over adversaries: "our network of allies and partners, and the ability to project power where and when necessary to advance our national interest."¹⁰ Nowhere is the value of allies and U.S. basing more apparent than it is in the European operating environment.

U.S. Reinforcements in Europe. Russia's war against Ukraine greatly accelerated a trend of U.S. reinvestment in Europe that had begun following Russia's initial invasion of Ukraine in 2014. In April 2014, the U.S. launched Operation Atlantic Resolve (OAR), a series of actions meant to reassure U.S. allies in Europe, particularly those bordering Russia. Under Operation Atlantic Resolve and funded through the European Deterrence Initiative (EDI), the U.S. increased its forward presence in Europe; invested in European basing infrastructure and prepositioned stocks, equipment, and supplies; engaged in enhanced multinational training exercises; and negotiated agreements for increased cooperation with NATO allies.

The U.S. currently has about 100,000 troops stationed in Europe.¹¹ In response to Russia's invasion of Ukraine, the U.S. increased the flow of forces to Europe, and the U.S. and NATO undertook a reevaluation of long-term basing structures and force posture requirements with a view to preventing Russian aggression from spilling over into alliance member states, especially those like Poland, whose role as a staging ground for aid to Ukrainian forces has made it a Russian target.

In March 2023, the U.S. presence in Poznan, Poland, transitioned to Army Garrison Poland (US-AG-P), the eighth permanent U.S. Army garrison in Europe.¹² Overall, the U.S. has a presence of around 12,000 in Poland.¹³ The Army's V Corps, which had been deactivated in 2013, was reactivated on November 9, 2020, and became fully operational in November 2021.¹⁴ In March 2022, the headquarters, then based in Kentucky, was largely deployed to Europe "to provide additional command and control of U.S. Army forces in Europe" and "to build readiness, improve interoperability, reinforce allies and deter further Russian aggression."¹⁵ In June 2022, President Biden announced that the U.S. would establish the permanent V Corps headquarters in Poland.¹⁶ According to General Christopher Cavoli, Supreme Allied Commander Europe (SACEUR) and Commander, U.S. European Command, "permanently

assigned forces are more operationally effective, as they remain fully oriented to the operational environment and can become interoperable with our Allies and Partners.”¹⁷

During the June 2022 NATO Summit in Madrid, the U.S. announced additional deployments to Europe including the deployment of a new rotational brigade combat team to Romania. Today, around 4,000 U.S. troops, largely based at the Mihail Kogalniceanu Air Base, help to train “soldiers from NATO allies in Bulgaria, Germany, Hungary and Slovakia.”¹⁸ The deployment has been extended through at least the end of 2023 with a new rotation of troops from Kentucky to be joined by a two-star general and staff from Fort Drum, New York. Analysts have noted that having a major general in Romania “that close to the combat zone...would allow for quick decisions about where to position troops and weapons should Russia push the war into NATO territory.”¹⁹ Additional contributions to European security announced in June 2022 include (among others listed) enhanced rotational deployments of “armored, aviation, air defense, and special operations forces” to the Baltics; an “air defense artillery brigade headquarters, a short-range air defense battalion, a combat sustainment support battalion headquarters, and an engineer brigade headquarters” forward stationed in Germany; a “a short-range air defense battery” forward stationed in Italy.²⁰

The U.S. has further strengthened its presence in Norway. The Supplementary Defense Cooperation Agreement signed by the two nations in April 2021 and approved by the Norwegian parliament in June 2022 allows the U.S. to build additional infrastructure at Rygge and Sola Air Stations in southern Norway as well as Evenes Air Station and Ramsund Naval Station above the Arctic Circle.²¹ Construction at Evenes will support the monitoring of Russian submarine activity by Norwegian and allied maritime patrol aircraft. According to former Norwegian Foreign Minister Ine Eriksen Soereide, “The agreement reaffirms Norway’s close relationship with the U.S. and confirms Norway’s key position on the northern flank of NATO.”²²

In October 2021, the U.S. Navy deployed a mobile “Expeditionary Medical Facility to a cave system near Bogen Bay in northern Norway, some 100 miles north of the Arctic Circle.”²³ According to the operations director for the U.S. Navy Expeditionary Medical Support Command (NEMSCOM),

“Expeditionary Medical Facilities are deployable on short notice and contain many capabilities of a modern hospital.”²⁴ In October 2020, at the behest of the United States, Norway announced the reopening of Olavsvern bunker, a mountainside submarine base near Tromsø with “32,000 square feet of deep-water docking space, including a full dry dock for maintenance,” capable of berthing and refitting American submarines. The base, which had been closed in 2002, is now open to U.S. *Seawolf*-class nuclear submarines.²⁵

In August 2020, the Marine Corps announced the end of heel-to-toe rotations of 700 Marines to Norway, which began in 2017, opting for shorter, more sporadic deployments like those that occurred in 2021 and 2022 when U.S. Marines worked with Norwegian forces and utilized Norway’s ample training ranges.²⁶ In February and March 2021, four B-1 Lancers were based out of Ørland Air Station in southern Norway, marking the first time the aircraft have been based in that country.²⁷ The Lancers conducted training exercises with allies Denmark, Germany, Italy, Norway, and Poland while also practicing landing and refueling at Bodø Air Base above the Arctic Circle.²⁸

From March–April 2022, Norway hosted NATO’s Cold Response 2022, at that time the largest Norwegian-led exercise since the Cold War. Among the participants were 3,000 American Marines.²⁹ In February and March 2023, U.S. forces took part in Arctic Forge 23, “an exercise that includes Finland’s Defense Exercise North, and exercise Joint Viking in Norway.”³⁰ The U.S. contributed approximately 930 Marines and Army personnel to Joint Viking and 280 Army personnel to Defense Exercise North, and II Marine Expeditionary Force Commanding General David A. Ottignon assessed that the exercises made U.S. forces “more survivable and lethal in austere environments.”³¹ Finland, Sweden, and Norway reportedly are planning a joint exercise, Nordic Response 2024, that as currently planned would be the largest NATO exercise in the Arctic since the end of the Cold War.³²

In February 2023, the 2nd Armored Brigade Combat Team (ABCT) of the 1st Cavalry Division from Fort Hood, Texas, replaced the outgoing BCT in the tenth armored rotation in support of OAR.³³ Many analysts have noted the special deterrent importance of ground forces. “Land forces provide traditional ‘boots on the ground’ and a visible presence

among local populations,” according to one recent analysis. “They can also enhance the credibility of deterrence through bringing to bear the heavy ground forces required to defend, seize, and hold territory in the event of conflict.”³⁴

In addition to back-to-back rotations of armor, the U.S. has maintained a rotational aviation brigade in Europe since February 2017.³⁵ The ninth such rotation, lasting from August 2022–April 2023, is the 1st Armored Division, Combat Aviation Brigade, from Fort Bliss, Texas, with 2,300 troops, 10 CH-47 Chinooks, 25 AH-64 Apaches, and 40 UH-60 and 15 HH-60 Black Hawk helicopters.³⁶ The tenth rotation will be carried out by the 3rd Combat Aviation Brigade, 3rd Infantry Division, from Fort Stewart, Georgia, from May 2023–February 2024.³⁷

The U.S. also continues to rotate a Sustainment Task Force “comprised of nearly 1,000 personnel and 200 pieces of equipment” from “11 active duty, U.S. Army Reserve and National Guard units.” The units that make up the task force “include ammunition, fuel, movement control, transportation, maintenance, ordnance, supply, and postal services.”³⁸

In May 2018, the U.S. began to fly MQ-9 Reaper drones on unarmed reconnaissance flights out of Miroslawiec Air Base in Poland, which U.S. Air Force (USAF) officials stated was chosen because of its “strategic location.”³⁹ In January 2021, the U.S. announced that 90 USAF personnel and an unspecified number of MQ-9s would be based at Campia Turzii in Romania “to conduct intelligence, surveillance and reconnaissance missions in support of NATO operations.”⁴⁰ According to General Jeffrey Harrigian, then Commander, U.S. Air Forces in Europe, U.S. Air Forces Africa, and Allied Air Command, the base’s location approximately 300 miles from the coast “really facilitates our ability to compete in the Black Sea.”⁴¹ In late 2022, the U.S. began to deploy MQ-9s from Larissa Air Base in Greece near the Aegean Sea,⁴² “a strategic location, allowing the MQ-9s to easily support both the eastern and southern flanks of NATO.”⁴³ The U.S. also operates MQ-9s out of Lask Air Base in Poland.⁴⁴

In April 2022, it was reported that the USAF had “moved additional fighters, tankers, and intelligence, surveillance, and reconnaissance aircraft into the European theater over the past few months, as well as bombers on a rotational basis, all to reassure NATO allies who feel threatened by the invasion of Ukraine.”⁴⁵

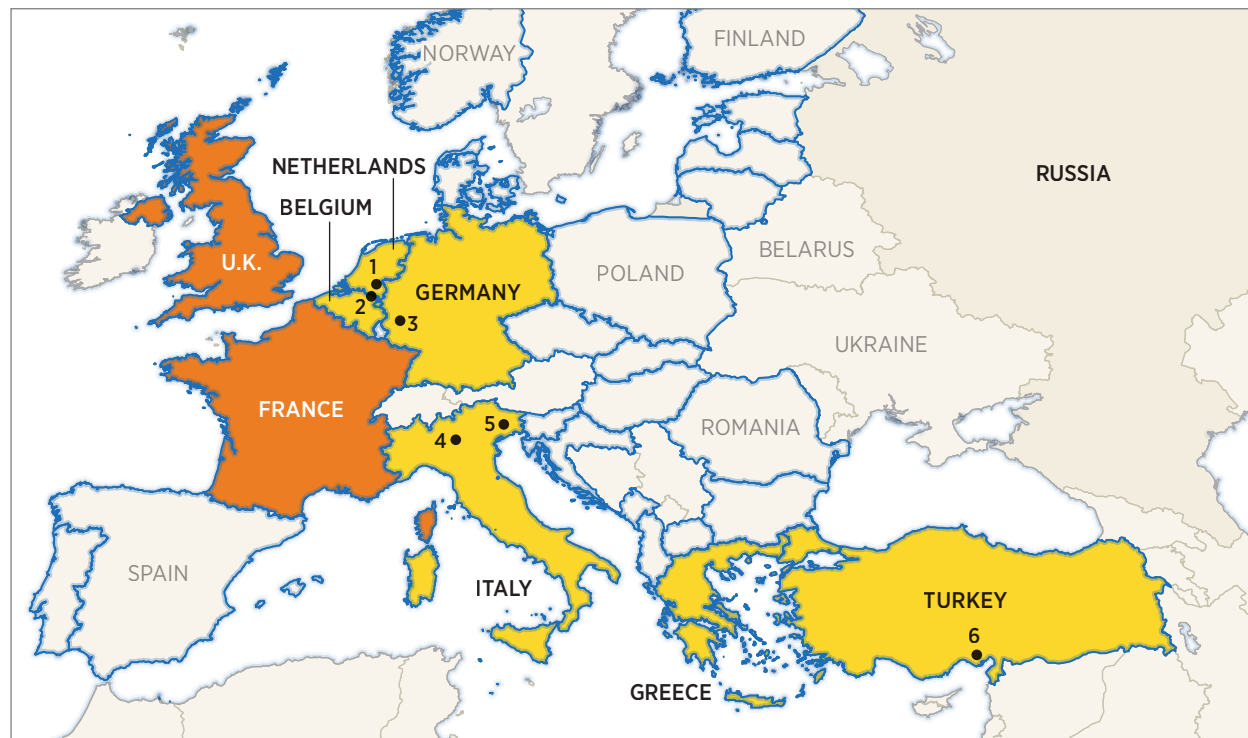
In January 2022, as part of the ongoing U.S. commitment to NATO’s Baltic Air Policing, six F-15Es based in North Carolina deployed to Ämari Air Base in Estonia.⁴⁶ That same month, U.S. F-16s based in Germany deployed to Poland to fly regional air policing missions. The day after Russia’s full-scale invasion of Ukraine in February 2022, six Utah-based F-35As forward deployed to Spangdahlem Air Base in Germany, periodically taking part in Baltic Air Policing missions out of Estonia and Lithuania.⁴⁷ In May 2022, eight F-35As from the Vermont National Guard deployed to Spangdahlem to take part in NATO’s enhanced Air Policing (eAP) mission.⁴⁸ From August–November 2022, F22s based in Alaska and F-15E Strike Eagles based in RAF Lakenheath in the United Kingdom (U.K.), took part in air policing flying out of Poland.⁴⁹

U.S. B-52H Stratofortresses based in North Dakota have periodically deployed to the European theater. In August 2022, B-52s deployed to RAF Fairford, U.K., for exercises in which “U.S., Norway and Sweden military aircraft...executed rapid, global power projection missions to support the mutual defense of NATO partners and Allies, all while achieving multi-domain effects.”⁵⁰ In February 2023, two B52s conducted a low approach flyby of Estonia’s Independence Day celebrations in Tallinn having flown from North Dakota.⁵¹

European Deterrence Initiative. Some U.S. investments in Europe including rotations of Armored and Aviation Brigade Combat Teams are funded through the European Deterrence Initiative (EDI). The Biden Administration has requested \$3,630.4 million for the EDI in fiscal year (FY) 2024, which is \$637 million (15 percent) less than the enacted FY 2023 EDI budget of \$4,267.4 million.⁵² EDI funding requests for FY 2024 include support for such activities as “rotational force deployments, infrastructure investments, and [delivery of] the right capabilities in key locations throughout Europe”;⁵³ intelligence enhancements for special operations forces;⁵⁴ exercises to “increase[] the overall readiness and interoperability of U.S. forces across all domain[s]” and “with our NATO Allies and theater partners”;⁵⁵ “facilities to store prepositioned equipment, munitions and fuel”;⁵⁶ and modernization of “CBRN [Chemical, Biological, Radiological, and Nuclear] defenses to ensure forces are prepared to [defend] against rising threats in the AOR.”⁵⁷

Overview of NATO’s Nuclear Deterrence

■ NATO members
 ■ NATO members in Europe with nuclear weapons
 ■ Countries with nuclear-sharing agreement to carry U.S. nuclear weapons on aircraft



U.S. tactical nuclear weapons storage sites in Europe

1 Volkel Air Base, Netherlands
 2 Kleine Brogel, Belgium
 3 Büchel Air Base, Germany

4 Ghedi Air Base, Italy
 5 Aviano Air Base, Italy
 6 Incirlik Air Base, Turkey

NOTES: There is conflicting information regarding whether the nuclear-sharing agreement with Turkey remains in force. In 2022, Poland raised the possibility of taking part in nuclear sharing in the future.

SOURCES: Center for Arms Control and Non-Proliferation, “Fact Sheet: U.S. Nuclear Weapons in Europe,” August 18, 2021, <https://armscontrolcenter.org/fact-sheet-u-s-nuclear-weapons-in-europe/> (accessed September 9, 2023), and Hans Kristensen, “NATO Steadfast Noon Exercise and Nuclear Modernization in Europe,” Federation of American Scientists, October 17, 2022, <https://fas.org/publication/steadfast-noon-exercise-and-nuclear-modernization/> (accessed September 9, 2023).

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The EDI has supported infrastructure improvements across the region. One major EDI-funded project is a replacement hospital at Landstuhl, Germany, that will “provid[e] primary care, specialized consultative care, hospitalization and treatment for more than 200,000 U.S. military personnel, DoD and interagency civilians and dependents in Europe.”⁵⁸ Landstuhl’s importance is illustrated by

the fact that in early March 2020, it was one of the first two overseas U.S. laboratories to be capable of testing for coronavirus.⁵⁹

In addition to the EDI, as of the end of 2021, the U.S. Department of State had awarded nearly \$300 million in grants since 2018 through its European Recapitalization Incentive Program (ERIP) and repurposed funds to help U.S. allies

in Europe replace Russian equipment with U.S.-made equipment: infantry fighting vehicles for Croatia, Greece, and North Macedonia; helicopters for Albania, Bosnia and Herzegovina, Lithuania, and Slovakia; and air surveillance radars and fixed-wing aircraft for Bulgaria. The program helps allies to “modernize their militaries by building NATO interoperable forces and removing Russian and Soviet-legacy equipment from their force structure.”⁶⁰

Prepositioned Stocks. The U.S. continues to preposition equipment in Europe across all services. In February 2022, the U.S. activated six Army Prepositioned Stock-2 sites to outfit an Armored Brigade Combat Team deploying from the U.S.⁶¹ The FY 2024 EDI budget request includes \$1,246.2 million to support enhanced prepositioning for the U.S. Army, Air Force, and Special Forces.⁶² The U.S. Army lists storage sites in Dülmen, Germany; Eyselshoven, the Netherlands; Zutendaal, Belgium; Livorno, Italy; Mannheim, Germany; and Powidz, Poland.⁶³ The Powidz site opened on April 5, 2023.⁶⁴

In March 2022, NATO opened its first Multinational Ammunition Warehousing Initiative (MAWI) in Estonia for allies to store munitions for Enhanced Forward Presence (EFP) deployments. The alliance plans further MAWI sites to support EFP deployments and the Very High Readiness Joint Task Force (VJTF).⁶⁵ “With Russia’s brutal war against Ukraine,” NATO’s Assistant Secretary General for Defence Investment has stated, “MAWI has gained significant relevance beyond efficiency improvements only. The expansion of NATO’s multinational battlegroups on the eastern flank requires an upgrade of the logistical support infrastructure to match this scope.”⁶⁶

Aid to Ukraine. According to the U.S. Department of State:

Since January 2021, the United States has invested more than \$42 billion in security assistance to demonstrate our enduring and steadfast commitment to Ukraine’s sovereignty and territorial integrity. This includes more than \$41.3 billion since Russia’s [sic] launched its premeditated, unprovoked, and brutal war against Ukraine on February 24, 2022. Since 2014, the United States has provided more than \$44.1 billion in security assistance for

training and equipment to help Ukraine preserve its territorial integrity, secure its borders, and improve interoperability with NATO.⁶⁷

The U.S. is by far the largest donor to Ukraine. According to the Kiel Institute for the World Economy’s Ukraine Support Tracker, the top six donors of total financial, humanitarian, and military assistance from January 24, 2022, to January 15, 2023, were the United States, “EU Institutions,” the United Kingdom, Germany, Canada, and Poland.⁶⁸ European Union aid is heavily weighted toward financial support in the form of loans.⁶⁹ When aid is calculated as a percentage of gross domestic product (GDP), however, “[t]he United States comes in 5th, with total commitments worth around 0.37 percent of its 2021 GDP,” behind Estonia, Latvia, Lithuania, and Poland.⁷⁰

In January 2023, Germany announced that it would be donating at least 14 Leopard 2A6 tanks to Ukraine.⁷¹ The first eight arrived in March. Germany also sent “two specialist tank-recovery vehicles and 40 Marder infantry fighting vehicles.”⁷² In February, Poland became the first nation to deliver tanks (the first four of a total of 14 Leopard 2A4s eventually delivered).⁷³ In March, the U.S. announced that it would send an older Abrams tank version, the M-1A1, rather than the M-1A2 originally planned in order to advance delivery to early fall 2023. The U.S. is planning to outfit a complete tank battalion with 31 of the M-1A1s, which U.S. Secretary of Defense Lloyd Austin has said would “make a pretty significant difference” for Ukrainian operations.⁷⁴

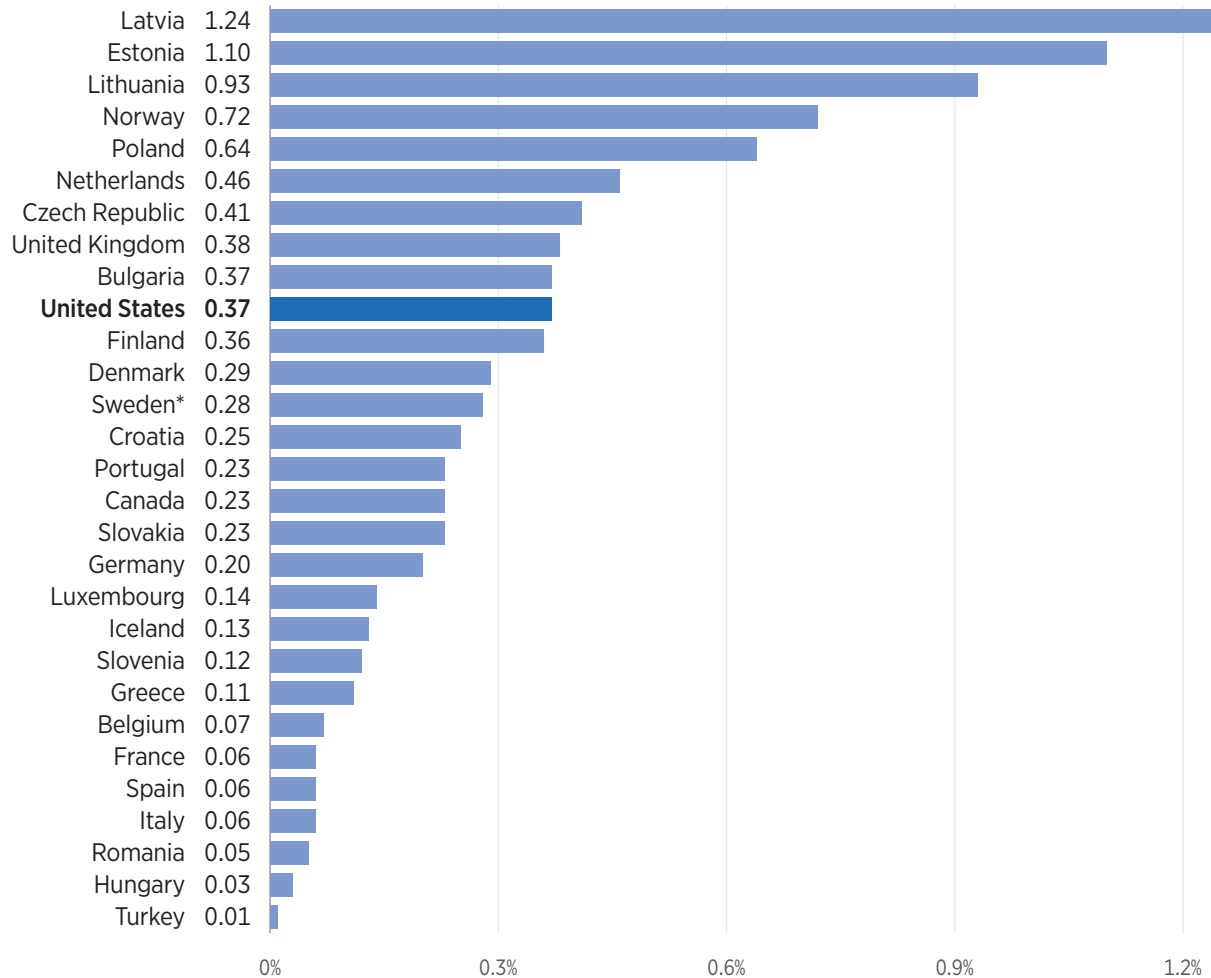
In March 2023, Norway announced that it had delivered eight Leopard 2A4 tanks to Ukraine.⁷⁵ Also in March, the United Kingdom delivered “14 UK Challenger tanks” along with “20 Bulldog armoured troop carriers and 30 AS-90 self-propelled artillery guns.”⁷⁶ Canada sent four Leopard 2 tanks at the end of February, Spain sent six Leopard 2A4 tanks at the end of April,⁷⁷ Finland announced at the end of March that it would soon be sending three Leopard 2 armored mine-clearing vehicles, and Sweden promised in February to “donate up to 10 Leopard 2 tanks.”⁷⁸

In addition to the Abrams, U.S. aid includes such support as ammunition, anti-tank weapons, 20 Mi-17 helicopters, 154 Bradley Infantry Fighting Vehicles, Switchblade Unmanned Aerial Systems,

NATO Aid to Ukraine

Shown below are figures for total military, financial, and humanitarian aid to Ukraine since January 24, 2022, by current and pending members of NATO.

TOTAL BILATERAL COMMITMENTS AS PERCENTAGE OF GDP



* NATO membership pending.

NOTE: Data for Albania, Montenegro, and North Macedonia are not available.

SOURCE: Data from Kiel Institute for the World Economy, "Ukraine Support Tracker," <https://www.ifw-kiel.de/topics/war-against-ukraine/ukraine-support-tracker/> (accessed September 9, 2023).

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and air defenses including one Patriot battery and eight National Advanced Surface-to-Air Missile Systems (NASAMS) and munitions.⁷⁹ Air defenses are a priority for Ukraine. Germany and the Netherlands have stated their intention to donate Patriot missile batteries, and France and Italy have donated SAMP/T Medium Range Air Defense Systems.⁸⁰

Germany has sent two advanced air defense batteries to Ukraine that had been stationed to protect Berlin from incoming missiles.⁸¹

Leaked U.S. Pentagon documents reportedly reveal concerns that Ukrainian air defense ammunition might be used at a high rate of expenditure as well as concerns about the need for a greater

quantity of air defense systems. “While the Patriots and SAMP-T are more sophisticated than S-300,” according to the documents, “the three batteries due to arrive in Ukraine won’t be able to replace the breadth of coverage afforded by the 25 currently operating Ukrainian S-300 batteries.”⁸² The West’s ability to provide munitions without a major increase in production has further revealed the limitations of the Western defense industrial base. According to the Royal United Services Institute, for example, “At the height of the fighting in eastern Ukraine’s Donbas area, Russia was using more ammunition in two days than the entire stock of the British military.”⁸³

Fighter jets also have begun to arrive in Ukraine. By April 17, Slovakia had delivered all 13 promised MiG-29s.⁸⁴ The first Slovakian-donated MiGs saw combat by the end of March.⁸⁵ Slovakia made known that Russian technicians helping to maintain the MiGs until the end of 2022 had sabotaged the jets. Slovakian Defense Minister Jaroslav Nad stated that before being fixed, the jets “were able to fly, but that doesn’t mean they were also capable of combat.”⁸⁶ In April, Poland sent the first five MiG29s to Ukraine, having received export approval from Germany pursuant to the terms of a 2003 purchase agreement.⁸⁷

Many European nations have depleted their own stocks to equip Ukrainian forces. For instance, in addition to Harpoon anti-ship missiles, Denmark is donating all of its 19 Caesar self-propelled howitzers, some of which have been ordered by the Danes but have yet to arrive.⁸⁸ In 2022, Estonia and Latvia donated one-third of their defense budgets to Ukraine.⁸⁹ The expenditure rate of munitions on the battlefield, combined with Western industry’s lack of preparedness for a prolonged war, has Western officials concerned about their ability to maintain the flow of essential capabilities to Ukraine. In November 2022, one NATO official commented, “I think everyone is now sufficiently worried.”⁹⁰

NATO allies continue to train Ukrainian forces, sometimes on specific systems. The U.S. trained 7,000 Ukrainian soldiers between February 2022 and March 2023.⁹¹ Some have traveled to the U.S. for training on systems such as Patriot; others have taken part in combined arms, medical training, and combat casualty care at U.S. bases in Germany. With support from Australia, Canada, Denmark, Finland, Lithuania, the Netherlands, New Zealand, Norway,

and Sweden, the U.K.’s Operation Interflex trained 10,000 Ukrainian troops from June–December 2022 and plans to train 20,000 in 2023.⁹² In early 2023, the U.K. trained Ukrainian tank crews on the Challenger II tank at British bases.⁹³ Germany is heading an EU mission to train 9,000 Ukrainian troops in Germany in 2023 with a goal of eventually training 30,000; the Netherlands and Norway are contributing to this training mission.⁹⁴ The Czech Republic, France, Italy, Romania, Slovakia, and Spain are also training Ukrainian troops.⁹⁵

NATO allies are helping Ukraine to repair and maintain equipment. U.S. forces are helping Ukrainians to troubleshoot equipment issues over the phone or via video link, at times while the capability in question is engaged in battle.⁹⁶ Poland maintains a large facility with 400 personnel to repair Ukrainian armor and artillery.⁹⁷ In April 2023, Poland opened another facility, Bumar-Labędy, to repair and maintain donated T-72 and PT-91 main battle tanks (MBTs) and possibly Leopard IIs.⁹⁸ U.S. Abrams tanks will reportedly be repaired in Poznan, Poland, where U.S. personnel are said to be assisting.⁹⁹ In April 2023, Germany’s Rheinmetall opened a maintenance facility near Satu Mare, Romania, with the ability to service Leopard IIs, “self-propelled howitzers, Marder infantry fighting vehicles, Fuchs armored transport vehicles, and military trucks.”¹⁰⁰ Bulgarian factories have repaired Ukrainian equipment including helicopters.¹⁰¹ In February 2023, Ukrainian “weapons and military hardware manufacturer Ukroboronprom...signed a memorandum with the Czech Republic’s VOP CZ military enterprise on repairing Ukrainian armored vehicles.” The memorandum is part of a 2022 deal “to create joint enterprises to increase military equipment production for Ukraine.”¹⁰²

Other nations have assisted Ukraine with niche capabilities. Estonia, for example, led an EU-funded program to help strengthen Ukraine’s cyber capabilities and in 2022 helped Ukraine’s military to set up a cyber facility.¹⁰³ Also in 2022, the European Union began to reimburse member states for a portion of weapons sent to Ukraine through its European Peace Facility (EPF). In March 2023, the European Council agreed to spend \$1.1 billion from the EPF to reimburse ammunition donations from the existing stocks of member states. An additional €1 billion will be drawn to fund “joint procurements through the European Defense Agency and will

place new orders at the European defense industry to speed up production to replenish stockpiles.”¹⁰⁴

The transatlantic community has also accepted large numbers of Ukrainian refugees fleeing the war. Since February 24, 2022, 10.7 million Ukrainian refugees have crossed the border into Poland, and more than 1.5 million have elected to remain rather than return to Ukraine or move elsewhere within Europe.¹⁰⁵ Other nations have accepted numbers that are far smaller but still significant in proportion to their populations.

U.S. Nuclear Weapons in Europe. In his 2023 EUCOM posture statement, General Christopher Cavoli reaffirmed that:

As long as nuclear weapons exist, NATO will remain a nuclear Alliance. The nuclear capability of NATO-member Nuclear Weapons States deters aggression, prevents coercion, preserves peace, and instills confidence in the Trans-Atlantic bond. The U.S. continues to make available its strategic nuclear forces to defend NATO, serving as the Alliance’s supreme guarantor of security. With key Allies, we maintain the capability to deploy strategic nuclear forces that support Alliance security.¹⁰⁶

It is believed that until the end of the Cold War, the U.S. maintained approximately 2,500 nuclear warheads in Europe. Today, the U.S. maintains around 100 tactical nuclear warheads that are spread out across bases in Belgium, Italy, Germany, the Netherlands, and Turkey.¹⁰⁷

In October 2019, reports surfaced that in light of ongoing tensions, the U.S. was considering moving the approximately 50 tactical nuclear weapons stored at Incirlik Air Base in Turkey, but this has not happened. All of these weapons are free-fall, variable yield¹⁰⁸ gravity bombs designed for use with U.S. and allied dual-capable aircraft. Although tactical nuclear weapons are forward deployed to Incirlik, “there are no aircraft capable of delivering the B-61 gravity bombs co-located at Incirlik Airbase.”¹⁰⁹ The U.S. has agreements with Belgium, Italy, Germany, and the Netherlands that allow for delivery of U.S. tactical nuclear weapons by allied aircraft, but “[t]he weapons at Incirlik...are solely for use on U.S. aircraft.”¹¹⁰ In October 2022, Polish President Andrzej Duda stated that Poland has raised the possibility of taking part in the nuclear sharing program.¹¹¹

The B61 nuclear gravity bomb that is “deployed from U.S. Air Force and North Atlantic Treaty Organization (NATO) bases” is undergoing a life extension program that is expected to add at least 20 years to its service life and “improve the B61’s safety, security, and effectiveness.”¹¹² According to experts, “[t]he upgrades are all in the non-nuclear aspects of the unguided bomb’s design, and involve removing a parachute and installing a new tail kit and other improvements for ‘significantly greater accuracy.’”¹¹³ The first production unit was completed in February 2022, and the extension program is to be completed by 2026.¹¹⁴ The U.S. accelerated the fielding of the first upgraded units to Europe to December 2022 rather than Spring 2023 in a decision that was probably meant to reassure allies.¹¹⁵

China. As noted, NATO’s 2022 Strategic Concept outlines the threat posed by the People’s Republic of China:

The People’s Republic of China’s (PRC) stated ambitions and coercive policies challenge our interests, security and values. The PRC employs a broad range of political, economic and military tools to increase its global footprint and project power, while remaining opaque about its strategy, intentions and military build-up. The PRC’s malicious hybrid and cyber operations and its confrontational rhetoric and disinformation target Allies and harm Alliance security. The PRC seeks to control key technological and industrial sectors, critical infrastructure, and strategic materials and supply chains. It uses its economic leverage to create strategic dependencies and enhance its influence. It strives to subvert the rules-based international order, including in the space, cyber and maritime domains. The deepening strategic partnership between the People’s Republic of China and the Russian Federation and their mutually reinforcing attempts to undercut the rules-based international order run counter to our values and interests.¹¹⁶

The growing nexus between Russia and China has been noted by Heritage Foundation analysts as well:

Just weeks prior to Russia’s second invasion of Ukraine, Putin and [Chinese Communist Party

General Secretary] Xi [Jinping] announced a strategic partnership which promised “no ‘forbidden’ areas of cooperation.” While Chinese support hasn’t quite lived up to the hype, Beijing certainly hasn’t been sitting on the sidelines. Recent analysis shows that China is shipping critical components including “navigation equipment, jamming technology and jet-fighter parts to sanctioned Russian government-owned defense companies.” While China isn’t the only nation helping Russia skirt western sanctions, it is the key enabler.¹¹⁷

China has significantly increased its presence in the European theater. In 2021, Admiral Burke warned that Chinese warships and investments are “increasingly present” in the Mediterranean and highlighted the potential risk to U.S. and alliance interests from Chinese infrastructure acquisitions in Europe:

Today, the Chinese have a controlling interest in 12 European ports. So, are NATO countries going to be able to count on those ports for Free Trade, and if NATO has to defend Europe, will they allow us into those ports to refuel, re-supply, do repairs, rearm? We don’t know if we can count on that. It’s a troubling pattern and our European partners are increasingly aware and awakened to this potential threat.¹¹⁸

Chinese investments in key European infrastructure present two serious risks. First, “port investments could be an indirect source of political leverage—the more a country’s economy benefits from the presence of Chinese port operators, the more it depends on good relations with China.”¹¹⁹ Second, “China’s investment in European strategic infrastructure has the potential to interfere with allied military mobility—the ability of NATO to move troops and equipment across Europe.”¹²⁰

These concerns may be having some effect. In October 2022, German Chancellor Olaf Scholz’s government agreed to allow a Chinese company to buy a 25.9 percent stake in one of three terminals at the port of Hamburg. Former EUCOM Commander General Ben Hodges criticized the agreement, noting the critical importance of German ports in bringing American troops and equipment into Europe, especially during a crisis: “[K]nowing that the

Chinese may be able to influence or disrupt activities at critical transportation infrastructure, that’s a problem.”¹²¹ Then, in 2023, Germany’s Federal Office for Information Security reclassified the terminal as “critical infrastructure,” setting off a security review that could nullify the deal.¹²²

Important Alliances and Bilateral Relations in Europe

The United States has a number of important multilateral and bilateral relationships in Europe. First and foremost is the North Atlantic Treaty Organization, the world’s most important and arguably most successful defense alliance.

North Atlantic Treaty Organization. NATO is an intergovernmental, multilateral security organization that was designed originally to defend Western Europe from the Soviet Union. It anchored the U.S. firmly in Europe, solidified Western resolve during the Cold War, and rallied European support after the 9/11 terrorist attacks. NATO has been the bedrock of transatlantic security cooperation ever since its creation in 1949 and is likely to remain so for the foreseeable future.

In April 2021, following a U.S. decision to withdraw forces from Afghanistan and “recognising that there is no military solution to the challenges Afghanistan faces,” NATO ended Operation Resolute Support, a non-combat operation intended to provide “training, advice and assistance to Afghan security forces and institutions.”¹²³ The withdrawal of alliance forces was completed in August 2021, and the mission was terminated in September 2021. Currently ongoing operations include:

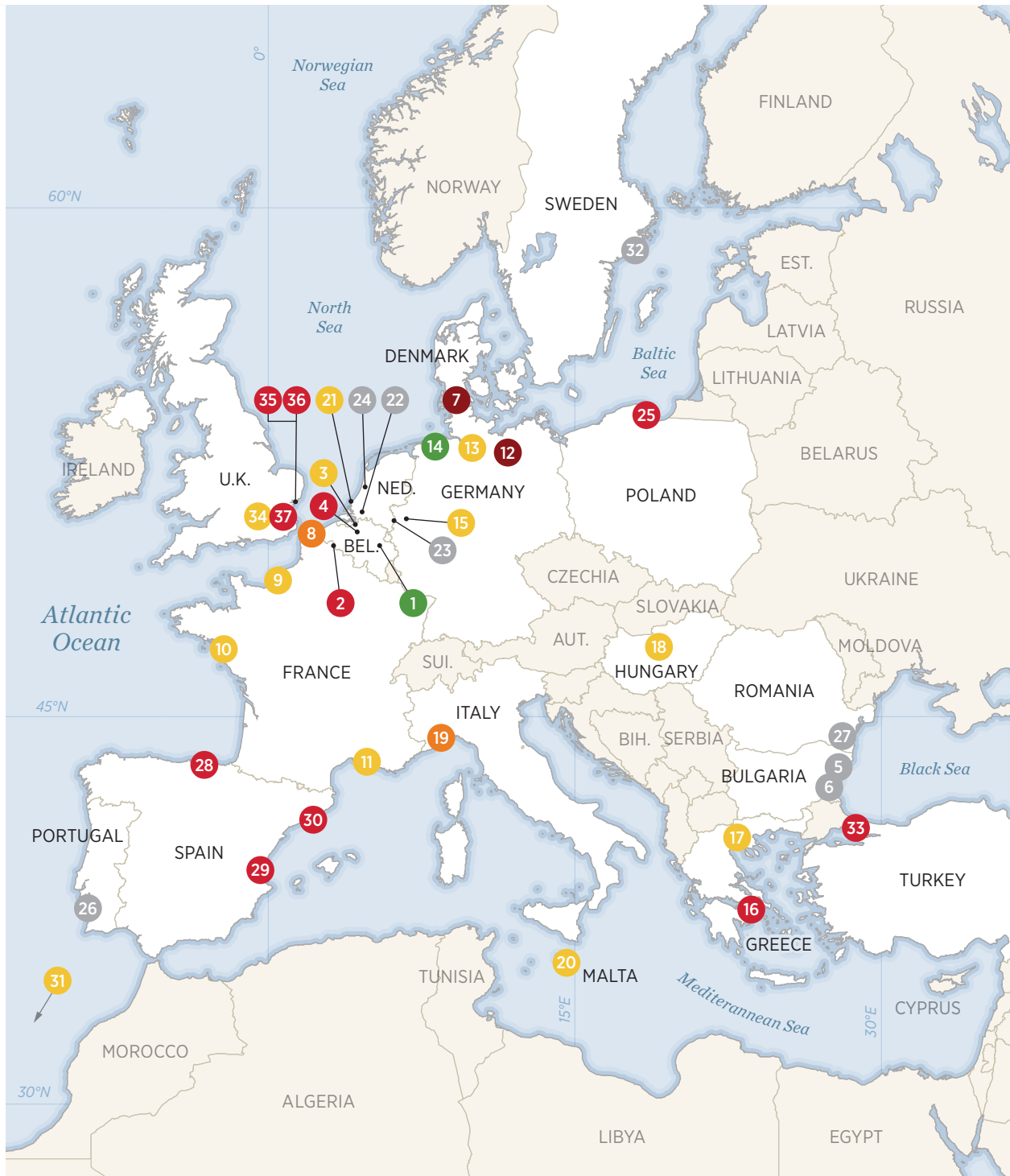
- Kosovo Force (KFOR), which involves 5,081 troops from 31 nations;¹²⁴
- Operation Sea Guardian, which “is NATO’s maritime security operation in the Mediterranean and is presently conducting three maritime security tasks: maritime security capacity building, support to maritime situational awareness and maritime counter-terrorism”;¹²⁵
- NATO Air Policing, “an integral part of NATO Integrated Air and Missile Defence (IAMD) for 60 years” that covers the Baltic States (Estonia, Latvia, and Lithuania); the Benelux countries (Belgium, the Netherlands, and Luxembourg);

TABLE 5

China's Ownership Stake in European Ports, Airports, and Railways

Country	Type	Site/Location	Unknown	Lease	Less than Half	Nearly Half	Majority	Own
			●	●	●	●	●	●
Belgium	Airport	Logistics hub at Liège airport		1				
	Port	Zeebrugge (Bruges)					2	
	Port	Antwerp Gateway			3			
	Port	Willebroek Terminal					4	
Bulgaria	Port	Port of Varna	5					
	Port	Port of Burgas	6					
Denmark	Port	Maersk Container Industry (Tinglev)						7
France	Port	Terminal des Flandres (Dunkirk)					8	
	Port	Terminal de France (Le Havre)			9			
	Port	Terminal du Grand Ouest (Nantes)			10			
	Port	Eurofos Terminal (Marseille)			11			
Germany	Airport	Schwerin-Parchim Airport						12
	Port	Port of Hamburg			13			
	Port	Jade-Weser-Port Logistics Center (Wilhelmshaven)		14				
	Railway	Port of Duisburg			15			
Greece	Port	Piraeus Container Terminal					16	
	Port	Port of Thessaloniki			17			
Hungary	Railway	BILK Kombiterminal (Budapest)			18			
Italy	Port	Vado Reefer Terminal (Genoa)				19		
Malta	Port	Malta Freeport Terminal (Marsaxlokk)			20			
Netherlands	Port	Euromax Terminal (Rotterdam)			21			
	Port	Port of Moerdijk	22					
	Railway	Port of Venlo	23					
	Railway	Port of Amsterdam	24					
Poland	Port	Gdynia Container Terminal					25	
Portugal	Port	Port of Sines	26					
Romania	Port	Port of Constanța	27					
Spain	Port	Noatum Container Terminal (Bilbao)					28	
	Port	Noatum Container Terminal (Valencia)					29	
	Port	Port of Barcelona					30	
	Port	Port of Las Palmas (Canary Islands)			31			
Sweden	Port	Port of Stockholm	32					
Turkey	Port	Kumport Sea Terminal (Istanbul)					33	
U.K.	Airport	Heathrow Airport (London)			34			
	Port	Port of Felixstowe					35	
	Port	Port of Harwich					36	
	Port	London Thamesport (Kent)					37	

SOURCE: Heritage Foundation research.



NOTE: Locations are approximate.

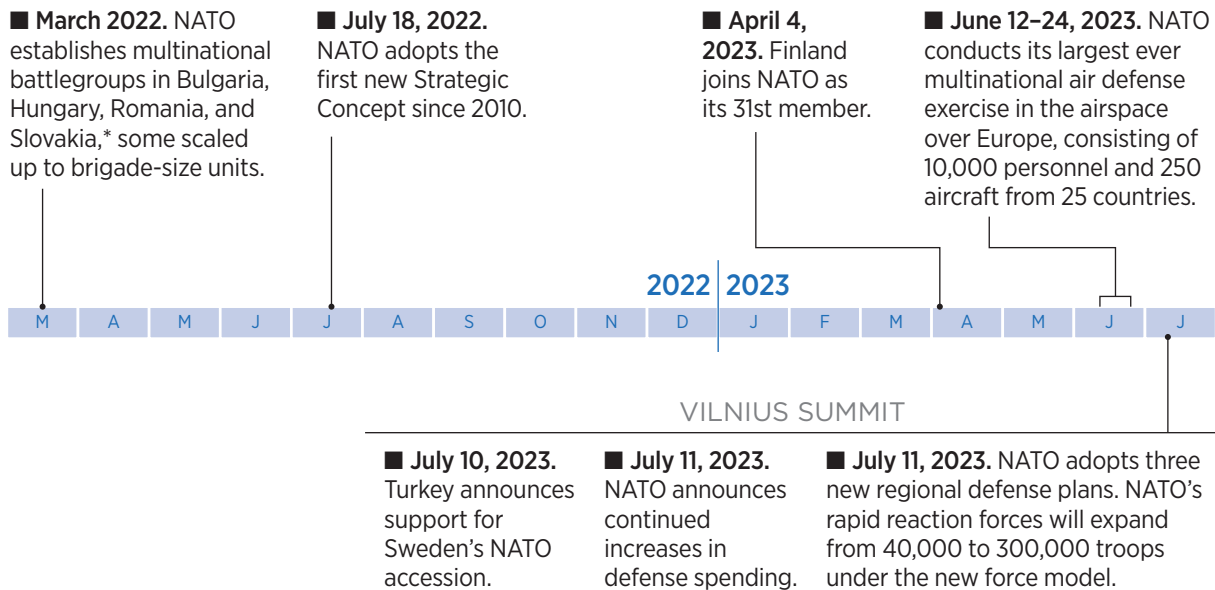
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Iceland; and the Adriatic and Western Balkans (Slovenia, Albania, Montenegro, and North Macedonia) in addition to “supplement[ing] the existing NATO Air Policing forces in the

Baltic States, deploy[ing] additional aircraft to Poland, and augment[ing] the national air policing capabilities of the Bulgarian and Romanian air forces”;¹²⁶

FIGURE 2

Shoring up NATO Defenses: A Timeline of Recent Developments



* In 2017, multinational battlegroups were established in Estonia, Latvia, Lithuania, and Poland.

SOURCES: North Atlantic Treaty Organization press releases and media reports.

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- Support for the African Union Mission in Somalia, which includes “strategic air- and sealift” and “focused support to the African Stand-by Force Concept and its associated projects including exercises, early warning and disaster preparedness”;¹²⁷ and
- NATO Mission Iraq (NMI), “a non-combat advisory and capacity-building mission that assists Iraq in building more sustainable, transparent, inclusive and effective armed forces and security institutions, so that Iraqis themselves are better able to stabilise their country, fight terrorism and prevent the return of ISIS/Daesh.”¹²⁸

Underscoring the value of NATO air policing missions, in 2022, NATO jets scrambled 570 times to intercept Russian military aircraft.¹²⁹ This was a significant increase over 2021, when NATO jets were scrambled 370 times.¹³⁰

In May 2022, in a historic shift brought about by Russia’s war against Ukraine, Finland and Sweden

applied for NATO membership. On April 4, 2023, Finland became the 31st NATO member state.¹³¹ Sweden, whose accession has yet to be ratified by Hungary and Turkey, is likely to become the alliance’s 32nd member state. The inclusion of Finland and Sweden brings substantial capabilities to the alliance and enhances the security of the Baltic Sea region.

NATO Responses to Russia’s War in Ukraine.

On February 25, 2022, for the first time in its history, NATO activated approximately one-third of its 40,000-strong NATO Response Force (NRF).¹³² In announcing the activation, General Tod Wolters, then NATO Supreme Allied Commander Europe, stated that the NRF “represent[s] a flexible, combat credible force that can be employed in multiple ways.... These deterrence measures are prudent and enhance our speed, responsiveness and capability to shield and protect the one billion citizens we swore to protect.”¹³³

In June 2022, the alliance announced that the NRF would be increased from 40,000 to 300,000 troops.¹³⁴ Secretary General Stoltenberg noted that

“[f]or the first time since the Cold War, we will have pre-assigned forces to defend specific Allies. So that we can reinforce much faster if needed.”¹³⁵ At the June 2022 Madrid summit, NATO agreed to a new force model that will “deliver an allied response at much greater scale and at higher readiness than the current NATO Response Force, which it will replace.”¹³⁶ The new force model envisions having “well over 100,000” troops ready within 10 days, “around 200,000” ready in 10–30 days, and “at least 500,000” ready in 30–180 days.¹³⁷ The force model also “involves a more focused and ambitious training and exercise programme, including larger-formation collective defence exercises.”¹³⁸ Filling out and implementing the NATO force model will take time and will certainly hit snags based on the inability of some allies to generate the forces needed to fulfill their quotas.¹³⁹

NATO’s Strategic Concept reaffirms the vitality of the transatlantic alliance and places collective defense of the member states firmly at the heart of NATO. It also clearly identifies the main threat to member states: “The Russian Federation has violated the norms and principles that contributed to a stable and predictable European security order. We cannot discount the possibility of an attack against Allies’ sovereignty and territorial integrity.”¹⁴⁰

NATO is updating its regional defense plans pursuant to a Political Guidance for Defence Planning 2023 that was approved by NATO Defense Ministers in February 2023.¹⁴¹ In 2022, General Cavoli stated that “[w]e’re developing strategic, domain-specific and regional defense plans to improve our ability to respond to any contingency and to ensure timely reinforcement.”¹⁴² Some planners have concluded that 300,000 troops will be needed to defend against Russian aggression in the eastern part of the alliance. The first readiness tier of about 100,000 soldiers could come from Poland, Norway, and the Baltic States of Estonia, Latvia, and Lithuania, and a second tier would deploy from countries like Germany.

Once regional defense plans are finalized, “capitals will be asked to weigh in—and eventually make available troops, planes, ships and tanks for different parts of the blueprints.”¹⁴³ More troops from allied nations will be placed under SACEUR’s direct command, and “under a new rubric of ‘defend and defend,’ General Cavoli is for the first time since the Cold War integrating American and allied

war-fighting plans.”¹⁴⁴ NATO defense planning will likely become “more demanding and specific,” and “[i]f the other allies all agree that a country’s plan is inadequate, they can vote to force adaptation in what is known as ‘consensus minus one.’”¹⁴⁵

NATO has eight multinational battlegroups, all of which “are integrated into NATO’s command structure to ensure the necessary readiness and responsiveness.”¹⁴⁶ The first four (Estonia, Latvia, Lithuania, and Poland) were established in 2017 and the second four (Bulgaria, Hungary, Romania, and Slovakia) in 2022. As of June 2023, the composition of these battlegroups was as follows:¹⁴⁷

Host nation: **Bulgaria**

Framework nation: Italy

Contributing nations: Albania, Greece, Montenegro, North Macedonia, Turkey, and the United States

Host nation: **Estonia**

Framework nation: United Kingdom

Contributing nations: Denmark, France and Iceland

Host nation: **Hungary**

Framework nation: Hungary

Contributing nations: Croatia, Italy, Turkey, and the United States

Host nation: **Latvia**

Framework nation: Canada

Contributing nations: Albania, Czechia, Denmark, Iceland, Italy, Montenegro, North Macedonia, Poland, Slovakia, Slovenia, and Spain

Host nation: **Lithuania**

Framework nation: Germany

Contributing nations: Belgium, Croatia, Czechia, Luxembourg, the Netherlands, Norway, Portugal, and the United States

Host nation: **Poland**

Framework nation: United States

Contributing nations: Croatia, Romania, and the United Kingdom

Host nation: **Romania**

Framework nation: France

Contributing nations: Belgium, Luxembourg,

the Netherlands, North Macedonia, Poland, Portugal, and the United States

Host nation: **Slovakia**

Framework nation: Czechia

Contributing nations: Germany, Slovenia, and the United States

At the Madrid summit, “Allies agreed to enhance the multinational battlegroups from battalions up to brigade size, where and when required.”¹⁴⁸ This phrasing has led to differing interpretations with host nations usually supporting a beefed-up presence on the ground and contributing nations preferring to maintain a smaller footprint. For example, while the United Kingdom briefly doubled its troop presence in Estonia in 2022, for 2023, the Ministry of Defence (MOD) decided that “[i]nstead of the additional battlegroup, the UK will hold at high readiness the ‘balance of a Brigade’ in the UK, available to deploy if needed. The UK will also ‘surge’ forces throughout the year for exercises, enhance its headquarters and provide support to Estonian armed forces.”¹⁴⁹ Similarly, Lithuania has publicly called for a German brigade to deploy to Rukla, and German Chancellor Scholz has said that the decision on permanent deployment of a brigade is “up to NATO.”¹⁵⁰ France deployed a Brigade Forward Command Element to Romania in November 2022¹⁵¹ but remains cagey about sending additional troops as it seeks to advance further French contracts with Romania.¹⁵²

NATO has also established eight Force Integration Units located in Sofia, Bulgaria; Tallinn, Estonia; Riga, Latvia; Vilnius, Lithuania; Bydgoszcz, Poland; Bucharest, Romania; Szekesfehervar, Hungary; and Bratislava, Slovakia. These new units “will help facilitate the rapid deployment of Allied forces to the Eastern part of the Alliance, support collective defence planning and assist in coordinating training and exercises.”¹⁵³

The U.S.-led DEFENDER (Dynamic Employment of Forces to Europe for NATO Deterrence and Enhanced Readiness) exercises are some of the largest undertaken by the NATO allies. According to U.S. Army Europe and Africa, DEFENDER Europe 23, which was conducted in April, May, and June 2023, was “a U.S. European Command directed multi-national, joint exercise designed to build readiness and interoperability between U.S. and NATO allies

and partners” and was intended to “include more than 7,000 U.S. and 17,000 multi-national service members from more than 20 Allied and partner nations”; “demonstrate U.S. Army Europe and Africa’s ability to quickly aggregate combat power in Eastern Europe”; increase lethality of the NATO Alliance through long-distance fires”; “build unit readiness in a complex joint, multi-national environment”; and “leverage host nation capabilities to increase operational reach.”¹⁵⁴

As part of these exercises, in June, “250 military aircraft, including 100 from the United States,” participated in Air Defender 2023, “the biggest air defense exercise of its kind in the history of the Euro-Atlantic military alliance”¹⁵⁵ and the U.S. Air National Guard’s “largest deployment across the Atlantic since the Gulf War.”¹⁵⁶

In October 2019, addressing a NATO capability gap in aerial refueling, the Czech Republic, Belgium, Germany, Luxembourg, the Netherlands, and Norway jointly procured A330 air-to-air refueling aircraft. Currently, seven aircraft are operating out of Eindhoven air base in the Netherlands and Germany’s Cologne–Wahn air base. The eighth and ninth are to be delivered in 2024 and a tenth, ordered in March 2023, in 2026. The tankers were active for the withdrawal from Kabul in 2021 and continue to aid in refueling missions along NATO’s eastern flank, having flown 500 refueling missions in 2022.¹⁵⁷

In November 2019, NATO announced a \$1 billion upgrade of its Airborne Warning and Control System (AWACS) planes. The upgrades “will provide AWACS with sophisticated new communications and networking capabilities, including upgrades to the NE-3A’s data link and voice communications capabilities, and enhanced Wide-Band Beyond Line-of-Sight airborne networking capability” and will extend the aircrafts’ service life to 2035.¹⁵⁸ In February 2023, NATO began its assessment of industry bids to replace its AWACS fleet under the Allied Future Surveillance and Control (AFSC) capability program, which aims to define ‘a new generation of surveillance and control capabilities’...intended to integrate ‘multiple capabilities and platforms’ for future multidomain operations.”¹⁵⁹ In January 2023, NATO deployed three AWACS and 180 military personnel to a Romanian air base near Otopeni where the aircraft operated for “several weeks.”¹⁶⁰ NATO’s Alliance Ground Surveillance system consists of five RQ-4D Phoenix remotely piloted aircraft based out

of Sigonella, Italy, along with ground command and control stations, and provides “a state-of-the-art Intelligence, Surveillance and Reconnaissance (ISR) capability to NATO.”¹⁶¹

In 2018, NATO established two new commands with a combined total of 1,500 personnel: a Joint Force Command for the Atlantic based in Norfolk, Virginia, and a logistics and military mobility command headquartered in Ulm, Germany.¹⁶² Logistics has recently been a significant alliance focus. In November 2022, the chairman of NATO’s Military Committee stated that “[i]n many, many nations—not only the eastern flank—but in many, many nations, there are shortfalls in infrastructure.”¹⁶³ Continued shortfalls in the alliance’s ability to move soldiers and equipment swiftly and efficiently include “limitations of road surface weight capacity, bridges capacity and railway traffic limits” as well as differences in rail gauges and continued legal, procedural, and regulatory slowdowns.¹⁶⁴ In November 2022, for example, French tanks traveling through Germany to exercises in Romania were denied transit because their weight exceeded regulations and once inside Romania had to use a circuitous route to get to their base because structural deficiencies had caused a key bridge to be closed.¹⁶⁵

NATO has worked with the European Union, which retains competencies that are critical to improving military mobility, particularly with regard to overcoming legal and regulatory hurdles, to overcome these barriers. In May 2021, NATO Deputy Secretary General Mircea Geoană noted that continued improvements are needed in such areas as “regulations for swift border-crossing, close coordination between military forces and civil government bodies, access to necessary transport capabilities, and ensuring that national transport infrastructure is fit for purpose.”¹⁶⁶ Former U.S. EU-COM Commander Hodges has described the issue facing the alliance in stark terms: “We do not have enough transport capacity, or infrastructure that enables the rapid movement of NATO forces across Europe,” adding that “[w]hat we have learned from Russia’s war against Ukraine is... that war is a test of will, and it’s a test of logistics.”¹⁶⁷

Some allies are investing heavily on their own to address infrastructure issues. Poland, for example, is building a €35 billion Solidarity Transport Hub, a project that involves building roads, rails, an airport, military infrastructure, and bridges with a

completion goal of 2028. Polish officials promise that “[i]t will be a place where large tactical connections, large amounts of ammunition, supplies and logistics can be taken to Poland very quickly.”¹⁶⁸

In April 2022, the alliance established the Defence Innovation Accelerator of the North Atlantic (DIANA). With a \$1.1 billion “innovation fund” that will invest in “deep-tech startups” over a 15-year period and working through “more than 10 accelerator sites and over 50 test centers,” DIANA is “tasked to bring innovative civilian and military organizations closer together to develop cutting-edge solutions in the realms of emerging and disruptive technologies” such as artificial intelligence, autonomy, big-data processing, biotechnology, hypersonic technology, new materials, propulsion, quantum-enabled technologies, and space-related systems.¹⁶⁹ DIANA’s charter was approved in June 2022, and in December, the board of directors “agreed that energy resilience, secure information sharing and sensing and surveillance will be the priority areas of focus for DIANA’s work on Emerging and Disrupting Technologies (EDTs) in 2023.”¹⁷⁰

Cyber Capabilities. NATO’s 2022 Strategic Concept states that:

Maintaining secure use of and unfettered access to space and cyberspace are key to effective deterrence and defence. We will enhance our ability to operate effectively in space and cyberspace to prevent, detect, counter and respond to the full spectrum of threats, using all available tools. A single or cumulative set of malicious cyber activities; or hostile operations to, from, or within space; could reach the level of armed attack and could lead the North Atlantic Council to invoke Article 5 of the North Atlantic Treaty.¹⁷¹

Through the NATO Industry Cyber Partnership, NATO has invested in a stronger relationship with industry. This partnership includes “NATO entities, national Computer Emergency Response Teams (CERTs) and NATO member countries’ industry representatives” and is also relevant for small and medium enterprises, which can often provide innovative solutions in cyberspace.” Participants are “encouraged to share reports of intrusion events, participate in damage assessments with the NCI Agency and report any cyber security incident that may be of interest to NATO.”¹⁷²

Cooperation within NATO is also facilitated by two other entities.

- The NATO Intelligence on Cyberspace Community of Interest was created “to more regularly exchange information, assessments and best practices—improving NATO’s ability to prevent and respond to cyber threats.”¹⁷³
- The NATO Communications and Information Agency “is responsible for ensuring that the Alliance has the secure networks, communications and software it needs to guarantee peace and stability for all Allies.” It “also runs the NATO Cyber Security Centre, which is responsible for 24/7 monitoring and defending NATO’s networks from cyber attacks and malicious activity” and upon request “helps Allies and partner countries boost their capabilities in areas such as cyber defence.”¹⁷⁴

With respect to the likely effects of Chinese 5G technology on the sharing of intelligence in Europe, U.S. officials have said that relying on Chinese state-controlled companies for next-generation wireless networks would be “nothing short of madness.”¹⁷⁵ A Chinese presence in European telecommunications networks could decisively compromise the communications integrity of both the military and the intelligence community. The 2021 Brussels Statement notes that “NATO and Allies, within their respective authority, will maintain and enhance the security of our critical infrastructure, key industries, supply chains, and communication information networks, including 5G.”¹⁷⁶ In April 2023, General Cavoli testified that:

The PRC’s efforts to expand Huawei 5G networks throughout Europe via PRC state-sponsored firms pose security risks to our Allies and partners. These activities allow the PRC to access and exploit intellectual property, sensitive information, technology, and private personnel information. Beyond economic impacts, these technology-related activities provide the PRC a military capacity that put U.S. national interests in the USEUCOM AOR at risk.¹⁷⁷

Many nations have decided to restrict Chinese vendors from 5G networks, but these threat

perceptions are not uniform, and even within nations that have taken a more restrictive approach, implementation of decisions remains a significant variable.

Recent research sheds perspective on the cascading impact on NATO member states of China’s becoming embedded in the 5G networks:

Huawei’s emergence as a dominant fifth-generation (5G) telecommunications infrastructure supplier for many countries gives Beijing access to key parts of emerging communications networks, generating choke points of vulnerability for Allied nations. Within fifteen years, 5G is likely to be replaced by dual-use 6G technologies with embedded AI-enabled capabilities of military significance. China is likely to incorporate them into its civil-military fusion strategy, as it has with 5G.¹⁷⁸

The impact of the current patchwork approach to Chinese 5G technology on the European operating environment is a risk that should not be underestimated.

Space. The most recent Secretary General’s annual report discusses NATO’s increasingly important work in the space domain:

The space security environment has become more dangerous and unpredictable. At the 2022 Madrid Summit, Allies underlined that strategic competitors and potential adversaries are investing in technologies that could restrict the Alliance’s access and freedom to operate in space, degrade space capabilities, target civilian and military infrastructure, impair defence and harm security. The 2022 Strategic Concept highlights that maintaining secure use of and unfettered access to space and cyberspace is key to effective deterrence and defence. NATO Leaders have committed to enhancing the ability to operate effectively in space and cyberspace to prevent, detect, counter and respond to the full spectrum of threats, using all available tools. NATO Leaders also agreed to boost the resilience of space capabilities.¹⁷⁹

To enhance its awareness and common understanding of the space environment, NATO

announced plans in 2021 to develop a Strategic Space Situational Awareness System at its Brussels headquarters. The system is being established with funding from Luxembourg and will “allow the Alliance to better understand the space environment and space events, and their effects across all domains.”¹⁸⁰ The NATO Space Center established in 2020 at Ramstein, Germany, continues to increase its connections with national space centers. According to the alliance, following Russia’s full-scale invasion of Ukraine, “NATO Space Centre continuously supported the Alliance’s situational awareness, posture management and decisionmaking. In addition, satellite images delivered by Allies were critical for timely intelligence and for monitoring the situation.”¹⁸¹

In addition, NATO’s military authorities have accepted an offer from France to establish a NATO Centre of Excellence devoted to space in Toulouse. In 2022, space operational activities were integrated into several exercises, including “Loyal Leda 2022, Neptune Strike 2022, Coalition Warrior Interoperability Exercise 2022 and Dynamic Mongoose 2022. These exercises help to maintain the Alliance’s advantage and agility, as well as its ability to withstand jamming and other attempts to disrupt its access to space.”¹⁸²

Ballistic Missile Defense. NATO’s ballistic missile defense (BMD) achieved initial operational capability in July 2016, offering a stronger capability to defend alliance populations, territory, and forces across the southern portion of Europe from a potential ballistic missile attack. For example:

- An Aegis Ashore site in Deveselu, Romania, became operational in May 2016, and upgrades were completed in August 2019.¹⁸³
- An AN/TPY-2 forward-based early warning BMD radar is located at Kürecik, Turkey, pursuant to the U.S. European Phased Adaptive Approach (EPAA).¹⁸⁴
- BMD-capable U.S. Aegis-equipped ships are forward deployed at Rota, Spain.¹⁸⁵ General Wolters has characterized Rota’s four current destroyers as the “workhorses of deterrence,” adding that “[w]e currently have a set number of four and the request is for two additional and we have infrastructure in place to be able

to house all six in Rota, Spain.”¹⁸⁶ In June 2022, the U.S. announced its intention to increase the number of destroyers at Rota to six.¹⁸⁷ In January 2023, Spain approved the plan to base two new destroyers at Rota in 2024 and 2025.¹⁸⁸

- A second Aegis Ashore site in Redzikowo, Poland, was commissioned in September 2020. In March 2023, officials stated that the facility would become operational by the end of the year after summer and fall testing was completed.¹⁸⁹
- Ramstein Air Base in Germany hosts the command center.¹⁹⁰
- The U.K. operates an early warning BMD radar at RAF Fylingdales in England. In May 2022, the U.K. announced that its Type 45 destroyers would be upgraded with BMD-capable missiles.¹⁹¹

The May 2023 Formidable Shield 23 exercise, which “took place over a 1,000 nautical mile area of water space, from northern Norway to the west coast of Scotland,” involved “multiple NATO Allied and partner nations, more than 20 ships and 35 aircraft, and nearly 4,000 personnel from across the NATO Alliance” who “fired 30 missiles across 23 live-fire scenarios against subsonic and supersonic targets testing capability in the air, land and maritime domains.”¹⁹²

In January 2017, the Russian embassy in Norway threatened that if Norway contributed ships or radar to NATO BMD, Russia “[would] have to react to defend our security.”¹⁹³ Norway operates four *Fridtjof Nansen*-class Aegis-equipped frigates that are not currently BMD-capable.¹⁹⁴ A fifth Aegis-equipped frigate, the *Helge Ingstad*, collided with an oil tanker and sustained so much damage that the government decided to scrap it in 2021.¹⁹⁵

Denmark, which agreed in 2014 to equip at least one of its *Iver Huitfeldt*-class frigates with radar to contribute to NATO BMD, reaffirmed this commitment in the Defence Agreement 2018–2023.¹⁹⁶ Russia’s ambassador in Copenhagen responded by publicly threatening Denmark: “I do not believe that Danish people fully understand the consequences of what may happen if Denmark joins the American-led missile defense system. If Denmark

joins, Danish warships become targets for Russian nuclear missiles.”¹⁹⁷

In March 2019, the first Dutch *De Zeven Provinciën*-class frigates received a SMART-L Multi-Mission/Naval (MM/N) D-band long-range radar upgrade that is “capable of BMD mission (surveillance and tracking of ballistic missiles) up to 2000 km while simultaneous[ly] maintaining the air defence capability.”¹⁹⁸ In May 2022, the Netherlands announced that for budget reasons, only two of four frigates will receive the radar upgrade and missile upgrades.¹⁹⁹ In May 2021, as part of NATO’s Formidable Shield exercise, radar aboard the HN-LMS *De Zeven Provinciën* “was used to eliminate a ballistic missile, marking a first in Europe.”²⁰⁰ In December 2020, the Royal Netherlands and German navies signed an agreement to work jointly to develop a replacement for the Dutch *De Zeven Provinciën*-class frigate and Germany’s three F124 *Sachsen*-class frigates.

The Netherlands and Belgium are jointly procuring two anti-submarine warfare (ASW) frigates apiece, the first of which are to be delivered to the Royal Netherlands Navy and Belgium in 2029 and 2030, respectively.²⁰¹ The vessels will be equipped with the Evolved Sea Sparrow Missile.²⁰² Belgian Admiral Jan de Beurme stated in April 2021 that “we are studying the feasibility of integrating ballistic missile defense shooter capabilities into the new frigates.”²⁰³

Spain currently “operates five F-100 *Alvaro de Bazan*-class Aegis frigates and in 2024 will accept the first F110-class frigate.”²⁰⁴ Spain’s F-100 frigates are not BMD-capable.²⁰⁵ In April 2019, Spain signed an agreement to procure five F-110 multi-mission frigates, the first of which will likely be deployed in 2026. These frigates “will host the [Spanish Navy’s] first naval solid-state S-band radar,” which “will form part of the Aegis Weapon System of the ship’s combat management system SCOMBA.”²⁰⁶

The Italian Navy is procuring seven multi-role offshore patrol vessels (PPAs) that are to be delivered from 2021–2026. The first of two BMD-capable PPAs in full configuration is scheduled for delivery in 2024.²⁰⁷

Quality of Armed Forces in the Region

Article 3 of the 1949 North Atlantic Treaty, NATO’s founding document, states that members at a minimum “will maintain and develop their

individual and collective capacity to resist armed attack.”²⁰⁸ Regrettably, only a handful of NATO members are living up to their Article 3 commitments.

In 2022, only seven NATO countries spent the required minimum of 2 percent of GDP on defense: Estonia (2.12 percent); Greece (3.54 percent); Latvia (2.07 percent); Lithuania (2.47 percent); Poland (2.42 percent); the United Kingdom (2.16 percent); and the United States (3.46 percent).²⁰⁹ However, NATO defense spending continues its upward trend: According to the NATO Secretary General’s annual report for 2022, “European Allies and Canada have increased defense spending for the eighth consecutive year. From 2021 to 2022, defense spending increased by 2.2% in real terms. In total, over the last eight years, this increase added USD 350 billion for defense.”²¹⁰

Although less than a third of member states are attaining the 2 percent benchmark, 24 of 30 member states attained the second benchmark by spending 20 percent of defense budgets on equipment in 2022.²¹¹

Germany. In February 2022, German Chancellor Olaf Scholz characterized Russia’s full-scale invasion of Ukraine as a “turning point” and pledged that “from now on, we will invest more than 2% of gross domestic product in our defense year for year.”²¹² An immediate component of Scholz’s pledge was approval of a onetime €100 billion (\$107 billion)²¹³ procurement fund to rebuild the nation’s military forces. Germany’s Basic Law (constitution) was amended to allow for creation of the special fund, which is financed through loans.²¹⁴

Despite Scholz’s pledge, Germany managed to spend only 1.44 percent of GDP on defense in 2022, although it did hit the second NATO spending benchmark by spending 20.9 percent if its defense budget on equipment.²¹⁵ The Ministry of Defence has stated that €30 billion of the €100 billion is already designated for specific contracts.²¹⁶ However, some analysts have noted that inflation, taxes, and rising interest payments on the loan have left only €50 billion to €70 billion for actual equipment purchases.²¹⁷

Germany’s decision to acquire new equipment has been hampered by a sclerotic procurement bureaucracy and long delivery times once decisions are made. In addition, many important areas such as rising fuel costs are not covered by the special fund. As a result, Defense Minister Boris Pistorius is reportedly seeking a €10 billion increase in the

regular German defense budget.²¹⁸ According to a Defence Ministry spokesperson, “it is clear that we need a constantly increasing defence budget to cover the needs of the military and to be able to react to conditions such as inflation and price increases.”²¹⁹

In 2022, Germany increased the total number of its troops in Lithuania, where it serves as the framework nation for NATO’s EFP battalion, from 1,000 to 1,500.²²⁰ In September, Germany permanently deployed the command unit (100 troops plus “equipment for command and control, communications and logistics”) of a brigade with 3,000–5,000 personnel; combat units remain based in Germany and rotate to the region for exercises.²²¹ German officials have stated that the brigade could be sent to Lithuania within 10 days in the event of conflict. Lithuanian Defense Minister Arvydas Anusauskas has said that “[t]he defence strategy of the Baltic states cannot rely only on reinforcements. It has to also rely on trustworthy in-place capabilities. Our geography demands it.”²²² Lithuanian Foreign Minister Gabrielius Landsbergis, however, has stated that the facilities in his nation will not be ready to accept a full German brigade until 2026.²²³

Germany and Lithuania plan to spend €200 million over the next few years to upgrade facilities used in part by NATO’s EFP. This project will include “building barracks, command spaces, a canteen and training places.”²²⁴

In April 2022, Germany deployed Ozelot short-range self-propelled air defense systems with Stinger missiles to Rukla.²²⁵ In August 2022, NATO’s Allied Air Command announced that “[i]n the coming months, Germany augments NATO’s Air Policing mission with their Eurofighter jets flying out of Ämari” and that this was “the 13th time German Air Force fighters support the mission in the Baltic region; Germany led BAP five times in 2005, 2008, 2009, 2011, and 2012, and was the augmenting nation at Ämari—once a year since 2014.”²²⁶ In March 2023, the Luftwaffe announced the initiation of “[j]oint NATO Baltic Air Policing (BAP) missions involving German and British Eurofighter Typhoons” and that “[t]his joint detachment—the first of its kind—will operate under German command until the end of March, after which the German fighters will remain in Estonia throughout April with the mission under British command.”²²⁷

Germany maintains 68 troops in Kosovo as part of NATO’s Kosovo Force.²²⁸ In February 2023, the

Bundestag extended the mandate for “up to 550 soldiers” to participate in NATO’s Sea Guardian maritime security operation through March 31, 2024²²⁹ and approved a one-year extension, also through March 31, 2024, of Germany’s participation in the United Nations Mission in South Sudan (UNMISS).²³⁰

In May 2022, Germany announced the end of its participation in the EU Training Mission Mali (EUTM), where 300 German soldiers had served.²³¹ In November 2022, Germany announced that it would be ending its participation in the U.N.’s Multi-dimensional Integrated Stabilization Mission in Mali (MINUSMA) and that all troops would be withdrawn by the end of 2023. Germany took part in MINUSMA for a decade with up to 1,400 troops but faced difficulties that included the breakdown in relations between France and the military junta in Mali, the growing regional presence of Russian mercenaries, and the frequent need to “suspend reconnaissance patrols after being denied flyover rights.”²³²

In the Middle East, German forces participate in the United Nations Interim Force in Lebanon (UNIFIL) peacekeeping mission, the mandate for which extended through June 2023.²³³ In October 2022, Germany extended its non-combat training mission in Iraq and its air-to-air refueling, air surveillance radar, and air transport missions in support of the counter-ISIS coalition through the end of October 2023.²³⁴

Germany assumed lead authority for NATO’s VJTF in 2023 and “is providing up to 2,700 soldiers as lead nation”²³⁵ with Lithuania, Belgium, Latvia, the Netherlands, Czechia, Slovenia, Luxembourg, and Norway also contributing.²³⁶ In addition, “[f]or the first time, Germany also leads the VJTF’s designated Special Forces command.”²³⁷ In June 2022, Germany announced that it would contribute “15,000 soldiers, 65 aeroplanes, 20 navy units, and other formations to the New Force Model” that was announced at the NATO Summit in Madrid, thereby greatly increasing the strength of the NRF.²³⁸ Germany also has reportedly “agreed to provide NATO with a first operational land division in 2025 to support the Very High Readiness Joint Task Force (VJTF), while long-term targets of providing a modern mechanized division by 2027 and a further two divisions, to the alliance by 2031, both remain.”²³⁹

Although Germany’s forces have taken on additional roles in recent years, its military continues

to suffer serious equipment, personnel, and readiness issues. In early 2023, Defence Minister Boris Pistorius stated that decades of neglect had left Germany with “no armed forces that are capable of defending [Germany] that is, capable of defending [it] against an offensive, brutally waged aggressive war.” In February, Chief of the German Army Lieutenant General Alfons Mais noted similarly that “[t]he army that I have the duty to lead is more or less bare.” One evocative example is the reality that only 30 percent of the Army’s 300 Leopard 2 tanks are operational.²⁴⁰

The navy is not much better off. Problems with submarines include “long yard periods, difficulties with main batteries and the practice of ‘controlled removal’ from some submarines in order to keep others operational.”²⁴¹ Reports surfaced in March 2021 that “at least 100” German vessels including submarines rely on a Russian navigation system that does not meet NATO standards and that “[d]uring a worst-case cyberattack, navigation data could be hacked and the ship could fully lose operability.”²⁴²

According to Parliamentary Commissioner for the Armed Forces Eva Hoegl’s most recent annual report, “compensat[ing] for all shortages...would require a total of EUR 300 billion,” and it “would take around half a century to completely modernise merely the infrastructure of the Bundeswehr already in existence.”²⁴³ Among the many issues raised in the report are kit shortages; shoddy infrastructure; unprofessional and overly bureaucratic personnel management; barracks with walls propped up by sandbags; 66 parachuting accidents; clothing shortages; lack of adequate gear for protecting against biological, chemical, and nuclear attacks; tank shortages that routinely lead to training cancellations; and ammunition shortages. The report estimates that “replenish[ing] the empty ammunition storage sites” would cost “at least EUR 20 billion” but that only “EUR 1.125 billion is available for this purpose in 2023.”²⁴⁴

A memorandum from the Inspector of the Army to the Inspector General of the Bundeswehr reportedly states that “without countermeasures,” Germany will not be able to meet its commitment to field a fully equipped Army division by 2025 and calls plans for a second division by 2027 “unrealistic.” The memo reportedly states that under current conditions, “the army will not be able to hold

its own in high-intensity combat and will also only be able to fulfill its obligations to NATO to a limited extent.”²⁴⁵

Challenges to the rebuilding of Germany’s military capabilities include a lack of domestic industry capacity, a need to rely on manufacturers to repair and upgrade equipment, manpower shortages, and an outdated and slow procurement structure.²⁴⁶ “The first projects are on the way,” Defence Commissioner Hoegl has said, “but in 2022 our soldiers still haven’t received a single cent from special funds.”²⁴⁷ In January 2023, German officials announced plans to use money from the special fund to purchase “for every soldier in the German armed forces in the next three years” such items as “protective gear, helmets, night vision goggles, [and] rucksacks.”²⁴⁸

In March 2022, Germany announced an \$8.4 billion deal to purchase 35 F-35A fighters “as replacement for the Tornado in the role of nuclear sharing.” The Tornados are to be phased out between 2025 and 2030. The Luftwaffe also announced the purchase of 15 Eurofighter Typhoons “equipped for electronic warfare.”²⁴⁹ German pilots will be trained on the platform in the U.S. beginning in 2026, and training will then move to Germany in 2027, and initial operational capability should be declared in 2028. The planned F-35 base at Büchel will require major upgrades to be ready by 2027.²⁵⁰

Germany has stated that these purchases do not change its commitment to take part in the Future Combat Air System (FCAS). In December 2022, a contract was awarded to develop a flying demonstrator for the FCAS with “in flight demonstrators” sought by 2028 or 2029. This contract covers “FCAS Phase 1B. Running for around three and a half years, this phase will include broader research and technology (R&T) elements, as well as the flying demonstrators themselves and related subsystems.”²⁵¹ FCAS, which is funded in equal measure by France, Germany, and Spain, has been slowed by industry “[w]orkshare-related delays.”²⁵² After delays awaiting U.S. approval, which is needed because “the Arrow-3 includes technological components developed in the US,” Germany intends to procure the Israeli-made Arrow-3 anti-ballistic missile defense system for \$3.1 billion once the Bundestag has given its required approval.²⁵³ In March 2021, the Ministry of Defence announced plans to upgrade its Patriot missiles to keep them in service until 2030

and to invest in drone technology rather than a next-generation air defense platform.²⁵⁴

Pursuant to Germany's offer to send Poland three Patriot missile batteries to help defend against incoming missiles, the first two were sent in January 2023 along with 350 German troops.²⁵⁵ The batteries are stationed at Zamość, and "the system comprises more than 10 elements, including radars, guiding units and launchers, which can hold between four and sixteen missiles each."²⁵⁶ The performance of the IRIS-T air defense system in Ukraine led Germany to purchase eight systems for itself in February.²⁵⁷

Germany operates Europe's largest fleet of heavy transport aircraft and has taken delivery of 40 of 53 A400M cargo aircraft ordered.²⁵⁸ France and Germany are procuring a joint transport capability with C-130J Hercules aircraft and KC-130J tankers. The French Air and Space Force and the German Luftwaffe are providing two and three of each aircraft, respectively, and all should be received by the end of 2024 with full operating capability expected by 2024–2025.²⁵⁹ A new joint training center for both aircraft in Normandy is scheduled to begin operations in 2024.²⁶⁰ The aircraft will be based at Évreux, France, where "this binational air transport squadron will have unrestricted exchange of aircraft, air crews, and maintainers, as well as technical and logistical support based on a common pool of spare parts and a common service support contract."²⁶¹

Germany announced the end of its P-3C ORION maritime patrol aircraft (MPA) modernization program in June 2020. In July 2021, Germany's Defence Ministry signed a letter of offer and acceptance to procure five P-8 Poseidon maritime patrol aircraft under the U.S. government's Foreign Military Sales process.²⁶² In September 2021, Boeing signed a contract with the U.S. Navy to produce the five planes at a "total price tag" of \$1.6 billion with deliveries to begin in 2024.²⁶³ In April 2022, "sources confirmed that the German Navy will add 7 additional Boeing P-8A Poseidon to complete a fleet of 12 Maritime Patrol Aircraft (MPA)."²⁶⁴ In July, parliament approved a \$344 million support package for things like training, future software upgrades, and spare parts.²⁶⁵

In June 2022, Germany announced plans to purchase 60 Block 2 CH-47F Chinook transport helicopters at a cost of \$5.36 billion. Each helicopter will have "an aerial-refueling probe to enable connections with the Lockheed KC-130J Hercules

and potentially the Airbus A400M airlifter configured as a tanker."²⁶⁶

In April 2022, an agreement was struck for the procurement of 140 missiles for Germany's five Heron TP unmanned aerial vehicles (UAVs).²⁶⁷ Armed drones have been a contentious political issue for years in Germany, resisted in large part by the Social Democrats. That the decision has now been taken is a significant shift. Germany, France, Italy, and Spain plan to acquire a collective fleet of Eurodrones at an estimated total cost of \$7.5 billion. Germany will have seven systems, each with two ground stations and three aircraft.²⁶⁸

In January 2023, officials stated that all Leopard 2 main battle tanks would be upgraded to the 2A7 configuration; the upgrades, which include digitizing the tanks' turrets, are expected to keep the Leopards in service until 2045.²⁶⁹ Germany continues to work with France on development of the Main Ground Combat System (MGCS), which will replace both nations' MBTs²⁷⁰ and is currently projected to reach full operational capability in 2040.²⁷¹ In addition, contract negotiations are "underway for 133 Boxer heavy weapon carrier (HWC) armored vehicles, which will see deliveries start in 2025 and run through to 2030."²⁷²

Germany's troubled F-125 *Baden-Württemberg*-class frigate procurement has been completed. In December 2017, the frigate failed sea trials because of "software and hardware defects."²⁷³ It reportedly had "problems with its radar, electronics and the flameproof coating on its fuel tanks," was "found to list to the starboard," and lacked sufficiently robust armaments as well as the ability to add them.²⁷⁴ In addition, the frigate's ability to defend against aerial attack is so deficient that the ship may be fit only for "stabilization operations," and the lack of sonar and torpedo tubes makes it vulnerable to attack by submarines.²⁷⁵ Germany returned the ship to the shipbuilder following delivery.²⁷⁶ The redesigned *Baden-Württemberg* was belatedly commissioned in June 2019, and Germany took delivery of the fourth and final F-125 in January 2022.²⁷⁷

In January 2020, Germany awarded a \$6.7 billion contract to the Dutch Damen Shipyards for the next-generation F-126 frigate.²⁷⁸ Damen is building the frigates "together with its [German] partners Blohm+Voss and Thales," and the first of four ordered (with the possibility of another two) is to be delivered in 2028.²⁷⁹ In November 2022, Damen

signed an agreement with Rheinmetall to produce two MLG27-4.0 naval guns for each vessel.²⁸⁰

In July 2021, Germany and Norway signed an agreement for a joint program to construct six Type 212CD submarines, two for Germany and four for Norway, the first of which are to be delivered to the Norwegian Navy in 2029 with Germany taking delivery of its submarines in 2032 and 2034.²⁸¹ German K130 Corvette procurement is currently at least two years behind schedule, and it is not expected that the first of five vessels will be commissioned until 2025 at the earliest.²⁸²

Germany has increased its presence in the Indo-Pacific. The frigate *Bayern* returned in February 2022 from a seven-month deployment that included official port visits to Australia, Japan, India, Israel, Pakistan, Singapore, South Korea, Sri Lanka, and Vietnam.²⁸³ In March 2022, the Luftwaffe deployed six Eurofighters, four transport aircraft, three air-to-air refueling tankers, 100 tons of matériel, and 250 soldiers to Darwin, Australia, for military exercises with allies. Transferring the deployment to Singapore en route to Darwin took place in less than 24 hours as part of a “strategic deployment capability.”²⁸⁴

German Indo-Pacific deployments are visible and strategically valuable, but they also strain the military. According to one analyst, the six-month deployment of the *Bayern* to the Mediterranean, Indian Ocean, and Pacific theater beginning in August 2021 “came ‘at the price of gutting the fleet,’ with ship maintenance plans and training schedules altered to accommodate the *Bayern* mission.” Even Germany’s robust contribution to Baltic Air Policing closer to home “takes everything it has, often at the expense of training initiatives.”²⁸⁵

Germany also suffers from a shortage of personnel. The military, which as of December 31, 2022, included “183,051 service personnel,” has “a long way to go to achieve the target figure [of 203,000 personnel] by 2031, especially with numbers of applications also declining significantly by around 11 per cent in [2022].”²⁸⁶

Germany’s significant cultural aversion to military service remains a difficult obstacle to overcome. A survey in August 2022 found that “52 percent of Germans said the country should continue practicing restraint in international crises, and 68 percent rejected the notion that Germany should become a leading military power in Europe.”²⁸⁷

France. France has one of NATO’s most capable militaries and retains an independent nuclear deterrent capability. It rejoined NATO’s Integrated Command Structure in 2009 but remains outside the alliance’s nuclear planning group.

In 2022, France spent 1.89 percent of GDP on defense and 28.55 percent of defense spending on equipment, just short of both NATO benchmarks.²⁸⁸ In January 2023, President Emmanuel Macron announced a major increase in defense spending: a planned \$450 billion for 2024–2030 compared to \$320 billion for 2019–2025, an increase of over one-third.²⁸⁹ The previous military program law (LPM) focused on expeditionary forces and counterterrorism; the upcoming LPM will focus largely on high-intensity state-on-state warfare.²⁹⁰ France is also planning to add €1.5 billion to its 2023 defense budget with increases of €3.1 billion in 2024; €3 billion each year in 2025, 2026, and 2027; and €4.3 billion each year in 2028, 2029, and 2030.²⁹¹

Following the Cold War, France drew down the capabilities needed for peer-to-peer conflict. Between 1991 and 2021, “the number of battle tanks dropped from 1,349 to 222, the number of fighters from 686 to 254, the number of large surface ships from 41 to 19 and its active-duty manpower from 453,000 to 203,000.” “Today, the French Army is beautiful,” French General Eric Laval has said, “but in a high intensity conflict, would it be able to hold beyond 48 hours? High intensity would imply potentially very tough battles which could last between 72 to 96 hours and which we are not allowed to lose.” Chief of the Army General Pierre Schill has described the current transformation process as the “most important modernization undergone since World War II.”²⁹²

The new LPM focuses on such areas as nuclear modernization, drone/anti-drone technology, air defenses, and intelligence gathering.²⁹³ “Nuclear deterrence,” according to President Macron, “is an element that makes France different from other countries in Europe. We see anew, in analysing the war in Ukraine, its vital importance.”²⁹⁴ French intelligence agencies will see a 60 percent increase in their budgets, although some analysts have predicted that high energy prices and inflation will reduce the value of that increase. “Capabilities in all layers of air defense will increase by at least 50 percent,” Macron has explained, “obviously including anti-drone technologies.” Long-range strike capability,

the suppression of enemy air defense, and anti-submarine warfare “are all part of these priorities.”²⁹⁵

The LPM also calls for France to maintain a focus on its overseas territories, particularly in the Indo-Pacific,²⁹⁶ and to expand industrial capacity. “An issue we unfortunately rediscovered with the war in Ukraine is the issue of the ammunition stocks,” Armed Forces Minister Sébastien Lecornu has said. “We will need a ten-year period of time to upgrade all infrastructures and equipment of our military.”²⁹⁷

Air Force procurements include an upgrade to the aerial refueling and airlift fleet. In February 2020, France received the second of two KC-130J Super Hercules.²⁹⁸ It also has been introducing new A330 MRTT (Multi-Role Tanker Transport) aircraft and as of April 30, 2023, had received nine of 13 ordered.²⁹⁹ France has received 21 of 50 A400M Atlas military transport aircraft ordered, and the “military programming law plans for a fleet of 25 A400Ms to be in service in 2025.”³⁰⁰ In October 2020, the government announced that the final 10 NH90 Tactical Troop Helicopters on order for delivery in 2025 and 2026 would be upgraded to meet special forces requirements.³⁰¹

In January 2023, Macron announced that France would move to an “all-Rafale force” by 2035.³⁰² France signed a \$2.3 billion agreement with Dassault Aviation in January 2019 for development of the F4 Standard upgrade to the Rafale fighter aircraft, the first of which was received in March 2023. The “new standard includes upgrades to existing capabilities like the Thales AESA radar and Talios targeting pod along with the Rafale’s electronic warfare system and communications suite,” and “the Thales Scorpion Helmet Mounted Display, MBDA’s MICA NG (Next-Generation) air-to-air missile and the 1,000 kilogram variant of Safran’s AASM (armement air-sol modulaire) ‘Hammer’ precision-guided munition” are among the plane’s “new capabilities.”³⁰³ France is expecting to receive 13 Rafales during the year with deliveries of another 40 to be completed by 2025.³⁰⁴ Forty-two additional Rafales will be ordered in 2023, partly to backfill aircraft sold to Croatia in 2021.

Introduction of the Rafale F5 standard is planned for the 2035–2038 period. It is expected that the F5 will “further improve connectivity,” “have enhanced manned/unmanned teaming capabilities,” and “be capable of carrying the new ASN4G hypersonic ramjet missile, which will ensure the

continuity of the airborne component of the French nuclear deterrent, replacing the ASMP-A missile.”³⁰⁵

In May 2021, France, Germany, and Spain signed an agreement to develop a flying demonstrator aircraft for the Future Combat Air System (FCAS), which is to begin entering service in 2040.³⁰⁶ In December 2022, the governments working on FCAS awarded a \$3.4 billion contract to develop flying demonstrators by 2028 or 2029.³⁰⁷ In March 2022, France announced that it would upgrade 42 of 67 Tiger MkIII attack helicopters at a cost of \$3.06 billion with delivery expected in 2029.³⁰⁸ Because a lack of German interest has made the planned capability upgrades increasingly unaffordable, “the less extensive Tiger upgrade now planned may lack new missiles,” although it “retains sensors and communication enhancements that perhaps can be paired with pre-existing advanced missiles...”³⁰⁹

France established a 220-person Space Command under the French Air Force in September 2019. In September 2022, Prime Minister Élisabeth Borne announced that France would increase its space investments by 25 percent (\$9 billion) over the next three years with launch vehicles as “a major priority.”³¹⁰ In January 2021, NATO approved a Center of Excellence for Military Space to be located alongside French Space Command in Toulouse. The first researchers arrived in 2021, and the center is to be fully staffed by 2025.³¹¹

France intends to have a “fully capable” system to defend its space assets in place by 2030. “If our satellites are threatened,” then-Armed Forces Minister Florence Parly stated in 2019, “we intend to blind those of our adversaries. We reserve the right and the means to be able to respond: that could imply the use of powerful lasers deployed from our satellites or from patrolling nano-satellites.”³¹² However, in November 2022, France pledged “not to conduct destructive direct-ascent anti-satellite missile tests.”³¹³

In March 2021, with German and U.S. space forces also participating, France launched AsterX, its first military exercise in space, “to evaluate its ability to defend its satellites and other defense equipment from an attack.”³¹⁴ AsterX 23 took place in February and March 2023, again with the U.S. participating. Instead of “the time-lapse approach used in previous editions, the 2023 iteration took place “in real-time,” which “provides increased tactical realism during the phases of data processing

and space situation analysis.”³¹⁵ France is reportedly working on a ground-to-space laser system and planning to launch “a new orbital space surveillance project, using nanosatellites to patrol Geostationary Orbit (GEO), identify potential on-orbit threats to national assets, and if necessary, disable the threat with an on-board laser.”³¹⁶

Army procurements include Kochi HK416 Assault Rifles, more than 50 percent of which had been delivered as of March 2022; 300 ANAFI USA micro-drones; and 364 Serval Armored Vehicles ordered in 2021 with the possibility of more than 900 being ordered by 2030.³¹⁷ As of January 2023, the Army had received 38 JAGUAR armored reconnaissance and combat vehicles and 452 GRIF-FON multi-role armored vehicles since 2019.³¹⁸ In December 2022, the Army ordered 50 upgraded Leclerc tanks, 18 of which are set to be delivered in 2023.³¹⁹ The upgrade includes a new fire control system as well as “enhanced protection against mines and rockets” and “a 7.62-millimeter remotely-operated turret to support urban combat.”³²⁰

France plans to invest €58 million in the Main Ground Combat System, a next-generation tank that is being developed jointly with Germany.³²¹ The program, however, remains stuck in study and design, a sluggish start that the French Armed Forces Minister, in February 2023 testimony before a committee of the French Senate, “appeared to attribute...largely to discord between the ambitions of the German government and its industry vendors as well as industry infighting.”³²²

One major project is an upgrade to the French sea-based and air-based nuclear deterrent. The French military procurement agency test-fired the M51.2, the current three-stage, sea-land strategic ballistic missile (without a warhead), in April 2021 as part of a development program for the M51.3, which is expected in 2025.³²³

France’s sea-based deterrent is provided by four *Le Triomphant*-class ballistic missile submarines.³²⁴ In March 2022, in response to Russian aggression and threats, France reportedly had three of its four ballistic missile submarines at sea at the same time—something that has not happened in decades. Similar messaging was behind the successful test of the ASMP-A air-launched nuclear weapon in March 2022.³²⁵

The government launched France’s third-generation ballistic missile submarine program in

February 2021. Delivery of the first submarine is planned for 2035 with three additional subs to be delivered every five years after that. Former Armed Forces Minister Parly has described the third-generation submarines in colorful terms as able to “hear better and defend themselves better whilst at the same time being more silent: They will not make more noise than a school of shrimp.”³²⁶

Other major naval procurements include \$1.09 billion through 2025 for the design phase of a new nuclear-powered aircraft carrier (a model of which was unveiled in October 2022) that will deploy 32 Future Combat Aircraft Systems and is planned to enter service in 2038.³²⁷ In December 2021, the U.S. Department of State’s Defense Security Cooperation Agency (DSCA) cleared a potential \$1.3 billion sale to France of an Electromagnetic Aircraft Launch System (EMALS), an Advanced Arresting Gear (AAG) system, and related equipment for its new carrier, which will incorporate two or three relatively new electromagnetic catapult systems. According to the DSCA, “[t]he proposed sale will result in continuation of interoperability between the United States and France.”³²⁸ In August 2022, the U.S. Department of Defense (DOD) awarded a contract for the development of EMALS and AAG for the French carrier.³²⁹

The *Suffren*, the first of six new fifth-generation *Barracuda*-class nuclear-powered attack submarines, was commissioned in November 2020.³³⁰ The second, the *Duguay-Trouin*, began sea trials in March 2023.³³¹ The remaining four, the *Tourville*, *De Grasse*, *Rubis*, and *Casabianca*, “are scheduled for delivery no later than 2030.”³³²

France is procuring five defense and intervention frigates, the first of which is due in 2024 and the second and third of which are due in 2025.³³³ In November 2022, the French Navy took delivery of the FREMM multi-mission frigate *Lorraine*, the last of eight FREMMs procured.³³⁴ The final two have enhanced air defense capabilities in addition to the focus on anti-submarine warfare that characterizes the six that were delivered between 2012 and 2019.³³⁵

In November 2020, France announced the overhaul of its mine countermeasures systems by 2029.³³⁶ In the same month, France and the U.K. signed a production contract for the joint Système de lutte anti-mines futur (SLAM-F) program, known in the U.K. as the Maritime Mine Counter Measures (MMCM) system, which “combines

unmanned underwater and surface vehicles and should enable sailors to operate outside of the mine field.”³³⁷ Identical unmanned mine-hunting demonstrators were delivered to France and the U.K. in December 2021.³³⁸ The SLAM program’s first mine warfare drones are expected in 2023.³³⁹

In December 2016, France opened a cyber-operational command.³⁴⁰ In April 2023, the Ministry of Defense announced that among the planned investments in the government’s proposed 2024–2030 military programming law is “€4 billion for cyber defense.” Other plans outlined in the latest LPM include “€16 billion for munitions, including the modernization of long-range anti-ship missiles, as well as F321 heavy torpedoes and new surface-to-air and air-to-air interceptors (MBDA’s Aster-MICA and METEOR families, respectively);” “€10 billion for innovative technology investments, to include directed energy technology, swarming drones, and robotic capabilities;” and “€6 billion for the space domain.”³⁴¹

France, which has NATO’s third-largest complement of active-duty personnel,³⁴² withdrew the last of its troops from Afghanistan at the end of 2014, although all of its combat troops had left in 2012. France continues to remain engaged in the fight against the Islamic State, deploying 600 troops in Operation Chammal.³⁴³ In February 2022, the *Charles de Gaulle* Carrier Strike Group undertook a three-month operational deployment to the Mediterranean that included support for Operation Chammal. During the deployment, the CSG took part in “‘tri carrier operations’ with the Italian Navy...Cavour CSG and the U.S. Navy’s Truman CSG” to “maintain interoperability between allied navies, and train with new assets such as Italian F-35Bs, and American E-2D Advanced Hawkeye aircraft.”³⁴⁴

In November 2022, the CSG left France again for a deployment to the Mediterranean and Indian Ocean in Mission Antares. “During the Mediterranean phase of the deployment, the Charles De Gaulle CSG included U.S. Navy destroyer USS *Arleigh Burke* (DDG-51), Italian Navy frigate ITS *Virginio Fasan* (F 591) and the Hellenic Navy frigate HS *Adrias* (F459).” In January 2023, the *Charles de Gaulle* and a French Maritime Patrol Aircraft took part in bilateral exercises with the Indian Navy off the western Indian coast. Simultaneously, a French A330 MRTT and three Rafales deployed to a Singaporean air force base for exercises.³⁴⁵

France’s contributions to NATO deterrence missions in Eastern Europe include the deployment of approximately 219 soldiers to Estonia as part of NATO’s Enhanced Forward Presence.³⁴⁶ France also has deployed 500 troops and an air defense system to Romania where it serves as framework nation for one of NATO’s battlegroups.³⁴⁷ France has taken part in Baltic Air Policing 10 times, most recently with four French Rafale jets flying out of Lithuania from December 2022 to March 2023.³⁴⁸ French fighters continue to fly air patrol missions over Bulgaria, Croatia, Poland, and Romania from bases in France as part of NATO’s “enhanced Vigilance Activities [eVA].”³⁴⁹

France, which NATO reported in March 2022 was leading “this year’s highest-readiness element of the NRF, a multinational force comprised of up to 40,000 land, air, maritime and special operations personnel that NATO can deploy at short notice as needed,”³⁵⁰ is preparing for high-intensity warfare. In February 2023, it launched ORION (Operations for a Resilient, Integrating, high-intensity Oriented and New Army) 23, “France’s biggest war games in decades,” which involved 12,000 troops from allied nations, including 7,000 French troops, as well as “naval and land vehicles, aircraft and an aircraft carrier.” There was a clear emphasis on large-scale conflict including amphibious landings. “Such preparation is absolutely essential,” explained General Vincent Desportes, “and I hope that it will be reproduced in the future so that we regain the know-how of managing large, joint forces that we lost because we have been focused on narrow operations in small spaces with relatively limited means for the past two decades.”³⁵¹

On February 17, 2022, President Macron announced that France would “begin a military withdrawal [of its 2,400 troops] from Mali after more than nine years fighting a jihadist insurgency” and that “[t]he heart of this military operation will no longer be in Mali but in Niger...and perhaps in a more balanced way across all the countries of the region which want this [help].”³⁵² France has reduced its force in the Sahel region from 4,300 to 3,000 troops in Chad and Niger and has 1,500 troops stationed in Djibouti, 900 in Côte d’Ivoire, 350 in Gabon, and 400 in Senegal.³⁵³ It also has 700 troops stationed in the United Arab Emirates,³⁵⁴ and a 15-year defense agreement between the two countries has been in effect since 2012.

In the Mediterranean, French Rear Admiral Jean J. de Muizon is Deputy Operation Commander of the EU-led Operation Irini, which is charged principally with enforcing a U.N. arms embargo on Libya.³⁵⁵ France also conducts occasional freedom-of-navigation operations in the Pacific. In April 2023, it reportedly conducted a freedom-of-navigation operation through the Taiwan Strait, most likely with the Frigate *FS Prairial*.³⁵⁶

France is keenly aware of and concerned about Chinese activity in the Pacific. In June 2021, French Admiral Pierre Vandier said that France faced “a logic of suffocation” in the region because of China’s activities:

We have a lot of evidence showing a change in posture. Our boats are systematically followed, sometimes forced to maneuver in front of Chinese ships to avoid a collision, in defiance of the rules of freedom of navigation that we defend. Some of our stopovers in countries in the region where we used to pass are canceled at the last moment, without clear explanations.³⁵⁷

The French-led, Abu Dhabi–based Awareness Strait of Hormuz initiative to help patrol the waters near Iran became operational on February 25, 2020. France continues to contribute to the initiative’s military mission, Operation Agenor.³⁵⁸

At 10,000 soldiers, Operation Sentinelle, launched in January 2015 to protect the country from terrorist attacks, is the largest operational commitment of French forces.³⁵⁹ A 2021 RAND Corporation study found that French forces were highly capable but struggled with readiness, which would become increasingly apparent in large-scale conflict: “[T]he French armed forces lack depth, meaning that demanding operations would quickly exhaust both France’s human and material resources.”³⁶⁰ Operation Sentinelle has been a significant burden on French forces since its inception. With the military slated to assist in securing the 2024 Paris Olympics, military leaders worry that any additional tasks levied as the games approach will further strain resources.³⁶¹

The United Kingdom. America’s most important bilateral relationship in Europe is its Special Relationship with the United Kingdom. From the sharing of intelligence to the transfer of nuclear technology, a high degree of military cooperation has helped to make this relationship unique.

In 2022, the U.K. spent 2.16 percent of GDP on defense and 28.1 percent of its defense budget on equipment, meeting both NATO benchmarks.³⁶² On March 15, 2023, Chancellor of the Exchequer Jeremy Hunt announced that “we will add a total of £11 billion to our defense budget over the next five years and it will be nearly 2.25% of GDP by 2025.” On March 13, the government had announced a £5 billion increase that “over the next two years would be spent on Britain’s nuclear submarine building and support activities and replenishing missile and munition stocks depleted by the supply of weapons to Ukraine.” Two days later, the Treasury announced the addition of another £6 billion, to be “equally split across the final three years of a five-year period starting 2023/24.”³⁶³

The U.K., which will spend around £48 billion on defense in 2023, remains committed to raising defense spending to 2.5 percent of GDP but without a fixed target date.³⁶⁴ The new funding will be used in part for acquisitions, including frigates, Type 32 warships, and the U.K.’s Future Combat Air System. The U.K. is also standing up a Space Command and an Artificial Intelligence Center.³⁶⁵

In March 2023, the government released its *Integrated Review Refresh 2023 (IR23)*,³⁶⁶ updating *Global Britain in a Competitive Age*, which had been published in 2021.³⁶⁷ Then, in July, the government released *Defence’s Response to a More Contested and Volatile World*,³⁶⁸ updating its 2021 Defense Command Paper.³⁶⁹

IR23 argues that a refresh was necessary in part because “the transition into a multipolar, fragmented and contested world has happened more quickly and definitively than anticipated.”³⁷⁰ It further states that “the government’s overarching assessment is that the broad direction set by IR2021 was right, but that further investment and a greater proportion of national resource will be needed in defence and national security—now and in the future—to deliver its objectives.”³⁷¹

The “Ministerial Foreword” to the Defence Ministry’s 2023 Command Paper states frankly that there are “no new commitments on platforms at all—because on that we stand by what we published in 2021. Instead, we focus on how to drive the lessons of Ukraine into our core business and to recover the warfighting resilience needed to generate credible conventional deterrence.”³⁷²

The return of major war to the continent of Europe—alongside growing threats elsewhere in the world—means we need to sharpen our approach. We need to ensure our warfighting capabilities are robust and credible to be able to deter threats from manifesting in the first place, but also to fight and win if they do. We need to be able to defend the homeland and make ourselves more resilient to all types of shocks. We need to be able to sustain operations today—with sufficient stockpiles of munitions, and critical enablers—as well as investing now in the battle-winning capabilities of the future. We must address increasingly complex and diverse threats, by maximising our own growing but ultimately finite resources, which necessitates ruthless prioritisation and improved productivity.³⁷³

The Command Paper specifies a notable change in emphasis “From Platform-centric to Technology-centric.” Specifically:

We must...think differently about the Armed Forces themselves. To stay at the cutting edge, we need to move decisively away from a platform-centric approach in favour of a focus on the military effects we are seeking to achieve. Through a technology-centric approach we will achieve an acceleration in battlefield decision making, greater mass, increased productivity in the force and, most importantly, significantly more lethality.

In those areas where we do continue to require platforms, we will increasingly procure based on a clear technology strategy, driving more innovative and future-proofed solutions. We will prioritise the ability to upgrade and evolve through-life rather than see platforms that were highly integrated at the point of design becoming technologically obsolete whilst still relatively new from an automotive perspective. We will typically achieve this through open architectures, rapid software updates, and hardware modularity. Across major programmes, we will ensure much stronger technological feasibility and deliverability assessments within our scrutiny and approvals processes.³⁷⁴

Additionally:

The operational productivity of the force—**ensuring greater levels of lethality and readiness**—is essential given the threats we face. As well as exploiting new technology to this end, we have established a dedicated programme to **increase our operational productivity** across the enterprise, focusing on increasing the readiness of our assets. Defence is already well set, with access to some of the very best military capabilities that exist. However, our studies have shown that we can get more out of them by rebalancing investment in their availability and Next Generation Protector RG Mk 1 UAV will offer increased sustainment. In the first wave of projects, we are focused on maximising the return on our investment in the new Type 31 frigate, our Typhoon aircraft and our Challenger 2 tanks—as well as setting ourselves up for bringing Challenger 3 into service.³⁷⁵

The U.K.’s *Defence Equipment Plan 2022–2032* details spending of £242 billion (approximately \$298 billion) across 10 years.³⁷⁶ Navy Command will receive £41.1 billion; Army Command, £40.6 billion; Air Command, £35.1 billion; Strategic Command, £36.3 billion; the Defence Nuclear Organisation, £59.7 billion; and the combined Strategic and Combat Air Programmes, £23.7 billion.³⁷⁷ The MOD estimates total costs across the decade at £240 billion, therefore allowing £2.6 billion in “headroom.”³⁷⁸

According to the National Audit Office:

The Department (MOD) has assessed that the Plan is affordable over the period 2022–2032. This is based on financial data from March 2022 and reflects ongoing improvements to its affordability assessment. However, its assessment continues to be based on optimistic assumptions that it will achieve all planned savings. It will also take some important decisions that affect the Plan’s costs in the next financial planning round. While the Plan continues to serve a useful purpose in reporting to Parliament on planned expenditure, the volatile external environment means this year’s Plan is already out of date.³⁷⁹

Although the number of its active-duty service-members is small in comparison to the militaries of France and Germany, the U.K. maintains one of NATO's most effective armed forces, but underinvestment, particularly in land forces, has eroded these capabilities. In January 2023, a senior U.S. general reportedly told U.K. Defence Secretary Ben Wallace that "the British Army is no longer regarded as a top-level fighting force."³⁸⁰

The Army's Future Soldier plan, published in November 2021, "aims to achieve the most 'radical transformation' of the British Army in 20 years by delivering a fully modernized warfighting division by 2030, largely dependent on entry to service of Challenger 3 main battle tanks, Ajax armored fighting vehicles and Boxer wheeled, armored personnel carriers." However, there is concern that "the recent acquisition record of the service, beset by gross overspending, program cancellations, industrial disputes and equipment not entering service in line with original timeline projections, puts the 2030 target in jeopardy."³⁸¹ The plan envisions reducing the regular Army from 77,000 to 73,000 by 2025, but Wallace has been quoted as saying, "I've always said as the threat changes, so must the size of everything, and I still stick to that."³⁸²

In early 2021, the Defence Ministry announced that it had been granted observer status for the Franco-German Main Ground Combat System program, which is slated to replace French and German main battle tanks "around 2035."³⁸³ In April 2019, the U.K. reported that it was planning to upgrade only 148 of its 227 remaining Challenger IIs, cutting its fleet by one-third.³⁸⁴ The 79 other tanks would be scavenged for spare parts.³⁸⁵ Defence Secretary Wallace has stated that more tanks will be modernized in light of Russia's war in Ukraine, but exactly how many additional tanks will be upgraded is unclear.³⁸⁶ Because Challengers are not currently manufactured, sourcing spare parts is a major problem.³⁸⁷

The 2021 Defence Command Paper laid out plans to spend £1.3 billion on upgrades to "148 of our main battle tanks to ensure the Challenger III will become one of the most protected and most lethal in Europe."³⁸⁸ The Challenger III's upgrade is to include "active protection systems, improved sensors and optics, and a new turret."³⁸⁹ Production of the Challenger IIIs began in March 2022, and initial operating capability is expected in 2027.³⁹⁰ The tank will remain in service "until at least 2040."³⁹¹

Of the 227 Challenger IIs in the Army's current inventory, only 157 could undertake operations within 30 days.³⁹² One former tank officer has observed that because of the small number of tanks available to the U.K., its "armoured brigades can only play a bit part in someone else's military in alliance or coalition."³⁹³

In March 2021, the U.K. announced that it would no longer upgrade its Warrior armored vehicles but that they would remain in service through the mid-2020s.³⁹⁴ In 2019, the U.K. signed a £2.8 billion deal to procure 523 Boxer armored vehicles.³⁹⁵ As a result of the decision to stop upgrading the heavier Warriors, "Defence is considering further Boxer fleet enhancements, uplifts, and potential new variants for a number of programmes for capability coherence in the Brigade Combat Teams, Land Industrial Strategy opportunity, and longer-term strategic planning."³⁹⁶ In 2022, the Army signed a contract extension for 100 additional Boxers (for a total of 623) with the first units expected to enter service in 2023.³⁹⁷ The Ajax infantry fighting vehicle platform has begun to move again after an eight-year delay. The first squadron will receive the Ajax by the end of 2025, but vehicles will not obtain full operating capability until 2028 or later.³⁹⁸

As of March 2023, the U.K. had taken delivery of 30 of 48 F-35Bs ordered with delivery of seven more possible by the end of the year and 11 more to be delivered across 2024 and 2025.³⁹⁹ Although the total number of F-35s that will be procured may not be known until "the 2025 time frame,"⁴⁰⁰ the 2021 Defence Command Paper states an ambition to "grow the [F-35] Force, increasing the fleet size beyond the 48 aircraft that we have already ordered."⁴⁰¹ In December 2022, the MOD reiterated its commitment to procuring a total of 138 F-35s.⁴⁰²

In 2019, the U.K. took delivery of the last of 160 Typhoon aircraft, all of which are expected to stay in service until 2040.⁴⁰³ In January 2023, BAE Systems told Parliament that upgrading the U.K.'s remaining 30 Tranche 1 Typhoons to bring them "up to a standard where they could be retained in service rather than retired in 2025, as currently planned," is "technically feasible." The planes "have an average of 60% of their airframe fatigue lives remaining" but are slated to be retired in 2025.⁴⁰⁴

Project Centurion, a \$515.83 million Typhoon upgrade to integrate additional Storm Shadow long-range cruise missiles and Brimstone precision

attack missiles, was completed in 2018 and enabled the U.K. to retire its fleet of Tornado aircraft.⁴⁰⁵ In 2021, the U.K. detailed a £2 billion investment over the next four years to develop the Tempest, a sixth-generation fighter to be delivered in 2035, in partnership with Italy, Japan, and Sweden.⁴⁰⁶ In December 2022, the U.K., Italy, and Japan announced an agreement to cooperate on development of a sixth-generation fighter aircraft under the Global Combat Air Programme, which would essentially merge the Tempest effort with Japan's F-X program.⁴⁰⁷

Along with the U.K., the U.S. has produced and jointly operated an intelligence-gathering platform, the RC-135 Rivet Joint aircraft, which has seen service in Mali, Nigeria, and Iraq and is now part of the RAF fleet.⁴⁰⁸

The U.K. operates seven C-17 cargo planes and has started to bring the European A400M cargo aircraft into service after years of delays. It has taken delivery of 21 of 22 A400M heavy transport aircraft ordered and plans to procure six more by 2030.⁴⁰⁹ The U.K. has retired four of 14 C-130Js with the remainder to be retired in 2023 rather than 2025. The decision to retire the C-130J—an aircraft favored by special forces—12 years ahead of schedule has drawn criticism from some lawmakers and military personnel. RAF Deputy Commander Capability Air Marshal Richard Knighton testified in February 2023 that “[t]here are a small number of niche capabilities that the C-130J has that will not be transferred across to the A400M program at the point in which the C-130 is retired in the summer [of 2023].” Whether the A400M has the ability to take on these niche capabilities, which include the need for longer runways, remains a matter of concern.

The Sentinel R1, an airborne battlefield and ground surveillance aircraft, flew its last operational flight in February 2021.⁴¹⁰ In January 2021, “[t]he ninth and final Poseidon maritime patrol aircraft—ZP809—[was] delivered to RAF Lossiemouth in Scotland.”⁴¹¹ In 2018, retired Air Vice-Marshal Andrew Roberts testified to Parliament that “capable though the P-8 may be, the number of aircraft planned is undoubtedly inadequate to fulfil even the highest priority tasks likely to be assigned to the force in tension and hostilities.”⁴¹² The P-8s are expected to obtain full operating capability at the end of 2024.⁴¹³

The U.K. is replacing its MQ-9A reaper fleet with 17 MQ-9B “protector” drones.⁴¹⁴ The MQ-9Bs were slated to enter service by 2018 but were delayed by budgetary issues;⁴¹⁵ the U.K. accepted the first in October 2022.⁴¹⁶ The U.K. also plans to procure approximately 44 medium helicopters (a \$1.15 billion program) that will enter service in 2025 and remain in service until the mid-2040s. This platform will replace four different helicopter platforms currently in service.⁴¹⁷

The Royal Navy has lost 40 percent of its fleet since the end of the Cold War.⁴¹⁸ Of the 55 ships lost since the early 1980s, half are frigates, and the U.K. now operates only 12.⁴¹⁹ Overall:

Budget cuts have delayed crucial procurement programmes. The Type 23 frigates and Trafalgar class submarines should have been replaced years ago, and it is becoming increasingly challenging and expensive to maintain aging vessels. The Navy has also taken too long to rectify major problems with vessels. One notable example is the issue with the Type 45 destroyers' propulsion system: the six vessels are not scheduled to be fixed until 2028, and there are already signs that this target may be slipping. As a result of these failures too many of our high-end warships spend too much of their time unavailable for operations.⁴²⁰

As construction of destroyers and frigates picks up steam, “the ambition is to rebuild to more than 20 by the end of the decade.”⁴²¹ However:

The mid-2020s will be a period when the [Royal Navy] must endure an unavoidable low point in strength before it recovers in the early 2030s. There are three main factors that drive this, two of them rather beyond the RN's immediate control. Firstly the backbone of the surface fleet, the Type 23s, are getting older and fewer in number. Secondly, the carrier strike project is some way from reaching its full potential mainly due to the slow delivery of F-35s, a constrained pilot training pipeline and obstacles to the integration of key air weapons. Finally, ship numbers are declining while the RN transitions to autonomous systems that are not yet fully mature or proven on operations.⁴²²

The Royal Navy's surface fleet is based on the new Type-45 destroyer and the older Type-23 frigate. The latter will be replaced by eight Type-26 Global Combat Ships, the first of which is "expected to enter service in the mid-2020s."⁴²³ The Type-26 Global Combat Ships are meant to handle a flexible range of tasks; weaponry will include "the Sea Ceptor missile defence system, a 5-inch medium calibre gun, flexible mission bay, Artisan 997 Medium Range Radar, and towed array sonars" as well as "the Future Cruise/Anti-Ship Weapon (FCASW) from 2028."⁴²⁴ In September 2021, construction began on the HMS *Venturer*, the first of five T31e frigates that are scheduled for delivery by 2028.⁴²⁵ One of the U.K.'s oldest Type-23 frigates, HMS *Monmouth*, was retired early at the end of 2021, and a second, HMS *Montrose*, was retired in March 2023, bringing the U.K.'s frigate fleet down to 11.⁴²⁶ The projected savings of £100 million (\$133 million) "will be invested into the development of the follow-on capabilities of the Type 26 anti-submarine warfare frigate and Type 31 general purpose frigate."⁴²⁷

From May 2021–December 2021, the HMS *Queen Elizabeth* conducted its first operational deployment, which included time in the Mediterranean Sea and the Indian and Pacific Oceans "working alongside ships from 17 countries and participating in 18 major exercises."⁴²⁸ The Carrier Strike Group deployment included a U.S. destroyer and a Dutch frigate, and "[t]he F35B contingent aboard HMS Queen Elizabeth undertook 1,278 sorties...with more than 2,200 hours of flying, including 44 combat missions in support of Operation Inherent Resolve against the Islamic State (ISIS) in Iraq and Syria."⁴²⁹ In November, the Carrier Strike Group took part in interoperability exercises with Italian F-35Bs.

According to Commodore Steve Moorhouse, commander of the U.K. Carrier Strike Group, "[t]he fact that US, Italian, and UK F-35Bs are able to fly to and from one another's decks offers tactical agility and strategic advantage to NATO."⁴³⁰ International Institute for Strategic Studies (IISS) Senior Fellow for Naval Forces and Maritime Security Nick Childs noted that "[f]or the Royal Navy, this was in part a relearning of the lessons of large-scale carrier deployments after a decade-long gap in its operational carrier capability." Additionally:

A significant part of this will have been the exercises with multiple US carriers and aviation-capable amphibious ships to calibrate the added value of a UK carrier, and perhaps also to test how best to mitigate the relatively low endurance of the F-35B, particularly as far as the potential operational challenges in the Indo-Pacific theatre are concerned.⁴³¹

The U.K.'s *Queen Elizabeth*-class carriers are the largest operated in Europe. A second, HMS *Prince of Wales*, was commissioned in December 2019.⁴³² A series of leaks that cost £3.3 million to correct caused the cancellation of planned fixed-wing sea trials with F-35s off the U.S. east coast that were scheduled for January 2021; the *Prince of Wales* returned to the sea in May 2021 after five months of repairs.⁴³³ In September 2022, Forces.net reported that the *Queen Elizabeth* "can carry up to 72 aircraft, with a maximum capacity of 36 F-35B fighter jets" but that "[i]t is more likely the Queen Elizabeth-class carriers will have up to 24 Lightning jets on board for operations."⁴³⁴

In March 2022, the *Prince of Wales* led NATO's Maritime High Readiness Force, serving as command ship for Exercise Cold Response in which 35,000 troops from 28 nations converged in Norway and the surrounding seas through April for cold-weather exercises.⁴³⁵ In August 2022, the carrier was forced to leave exercises with the U.S. early after breaking down off the southern U.K. coast.⁴³⁶ It arrived in dry-dock for repairs in October 2022. Repair costs have soared from an estimated £3 million to £20 million, but a spokesman for the Royal Navy has said that "[w]e expect HMS *Prince of Wales* to commence her operational program as planned, in autumn 2023."⁴³⁷

The Royal Navy is also introducing seven *Astute*-class attack submarines (SSNs) as it phases out its older *Trafalgar*-class subs. The fifth *Astute*-class submarine, HMS *Anson*, was launched in April 2021.⁴³⁸ In March, the U.S., the U.K., and Australia announced that Australia's SSN "will be based upon the United Kingdom's next-generation SSN design while incorporating cutting edge U.S. submarine technologies, and will be built and deployed by both Australia and the United Kingdom."⁴³⁹ Reflecting its close ties with Australia, the U.K. "agreed to provide training to Royal Australian Navy submariners alongside Royal Navy crews on board the HMS *Anson* in September 2022."⁴⁴⁰

The U.K. maintains a fleet of 13 Mine Counter Measure Vessels (MCMVs) that deliver world-leading capability. As a supplement, the U.K. began minehunting and survey operations using unmanned surface vessels (USVs) in March 2020.⁴⁴¹ In February 2022, the U.K. ordered a fifth ATLAS Remote Combined Influence Minesweeping System.⁴⁴² A newly purchased “mother ship to launch drones to find and destroy undersea threats” was “intended to enter service in Spring 2023.”⁴⁴³

Perhaps the Royal Navy’s most important contribution is its continuous-at-sea, submarine-based nuclear deterrent based on the *Vanguard*-class ballistic missile submarine and the Trident missile. In July 2016, the House of Commons voted to renew Trident and approved the manufacture of four replacement submarines to carry the missile. The U.K.’s 2021 Integrated Review announced plans to raise the ceiling on the nation’s nuclear warhead stockpile to “no more than 260 warheads” because of “the developing range of technological and doctrinal threats.”⁴⁴⁴ In November 2022, the U.S. Navy published “an exceptionally rare picture showing the *Ohio*-class ballistic missile submarine USS *Tennessee*, sailing on the surface alongside an unnamed British *Vanguard* class ballistic missile submarine somewhere in the Atlantic Ocean.” *Vanguard* subs “regularly travel to the U.S. Navy’s ranges in the Atlantic off Florida for training and other purposes, including to conduct routine test launches of Trident D5 missiles.”⁴⁴⁵

The U.K. is procuring four new *Dreadnought*-class ballistic missile submarines—HMS *Dreadnought*, HMS *Valiant*, HMS *Warspite*, and HMS *George VI*—at a cost of “£31bn (USD42bn) with a further contingency of £10bn (USD13.6bn).⁴⁴⁶ The first, HMS *Dreadnought*, “is expected to enter service in the 2030s with a service life of a minimum of 30 years.” Construction of HMS *Dreadnought* began in October 2016, “[t]he keel for *Valiant* was laid in 2019,” and “[t]he steel-cutting ceremony for *Warspite* was held...in February 2023.”⁴⁴⁷ In May 2021, the Ministry of Defence ordered a review of the program because of delays that continue to push back the date of completion.⁴⁴⁸

Despite these issues, the U.K. remains a leader in NATO, serving as the framework nation for NATO’s EFP in Estonia and a contributing nation for the U.S.-led EFP in Poland with 140 troops.⁴⁴⁹ In February 2022, the U.K. announced that it was doubling

its troop presence in Estonia by deploying an additional battlegroup, swelling the U.K. contribution to more than 1,700 troops along with 48 Warrior Infantry Fighting Vehicles and 24 Challenger II main battle tanks.⁴⁵⁰ However, the second battlegroup returned to the U.K. in December 2022 and was not replaced this year. Instead, “the UK will hold at high readiness the ‘balance of a Brigade’ in the UK, available to deploy if needed” and “will also ‘surge’ forces throughout the year for exercises, enhance its headquarters and provide support to Estonian armed forces.”⁴⁵¹

In December 2021, the U.K. deployed 140 armed forces engineers to Poland “to provide support at [Poland’s] border with Belarus, where the West says Minsk is orchestrating an ongoing migrant crisis.”⁴⁵² In February 2022, it sent 350 Marines “to support the Polish Armed Forces with joint exercises, contingency planning and capacity building in the face of ongoing tensions on the Ukrainian border. This support is being offered on a bilateral basis and is not part of the UK’s offer to NATO.”⁴⁵³ The U.K. is committed to leading NATO’s VJTF in 2024. The VJTF’s “leadership position is rotated among members to share the burden that it places on the military, and brigades are bound to the VJTF for three years to help with the stand-up, stand-by and stand-down phases, meaning they are not available for other missions or international obligations.”⁴⁵⁴

The Royal Air Force has taken part in Baltic Air Policing seven times since 2004, most recently beginning in March 2023.⁴⁵⁵ In March 2022, four RAF Typhoons were deployed to Romania to take part in NATO’s enhanced Air Policing, the fourth time the RAF has participated in eAP since 2017.⁴⁵⁶ That same month, the RAF announced that F-35s flying from RAF Marham were taking part in patrols of Polish and Romanian airspace as part of NATO’s enhanced Vigilance Activity.⁴⁵⁷ From November 2019–December 2019, four U.K. typhoons and 120 personnel took part in Icelandic Air Policing.⁴⁵⁸

Before its withdrawal early in 2021, the U.K. maintained a force of 750 troops in Afghanistan as part of NATO’s Resolute Support Mission.⁴⁵⁹ It also contributes to NATO’s Kosovo Force;⁴⁶⁰ is an active part of the anti-ISIS coalition “as part of Operation Shader, the UK’s military contribution to the destruction of Daesh which has been running since 2014”;⁴⁶¹ and has 100 soldiers engaged in training Iraqi security forces.⁴⁶²

Italy. Italy hosts some of the U.S.'s most important bases in Europe, including the headquarters of the 6th Fleet. It also has NATO's fifth-largest military⁴⁶³ and one of its more capable (a relative measure) despite continued lackluster defense investment. In 2022, Italy spent 1.51 percent of its GDP on defense and 22.69 percent of its defense budget on equipment, meeting the second NATO spending benchmark.⁴⁶⁴ Current Prime Minister Giorgia Meloni "has vowed to drop Italy's traditional reticence about discussing defense spending and boost budgets" because "[f]reedom has a price and if you are not able to defend yourself, someone else will do it for you, but will not do it for free. They will impose their interests, even if they differ from yours, and I don't think this was ever good business for anyone."⁴⁶⁵ The new government raised the defense procurement budget from €7.85 billion to €8.25 billion.⁴⁶⁶ The Defense Ministry's planning document for 2022–2024, released in July 2022, "anticipates that Rome will reach the current NATO average of 1.64 percent by 2024, inflation permitting."⁴⁶⁷

Italy spends the alliance's second-highest total on salaries (62 percent of its defense budget),⁴⁶⁸ "leaving proportionally less cash for military procurement, training, maintenance and infrastructure."⁴⁶⁹ It has been noted that "[h]igh personnel expenditure is partly linked to the limited generational change within the armed forces. In 2020, for instance, the average age in the Italian Army was 38 and 44 for the air force. By contrast, the average age is 31 in the U.K. military and 33 in both France's armed forces and the Bundeswehr's."⁴⁷⁰

Recruitment difficulties have led to personnel shortages, particularly in the Navy, a service that also suffers from "a shortage of vessels" and "capability gaps in key areas such as anti-submarine warfare and land-attack missiles."⁴⁷¹ For instance, "Navy chief Adm. Enrico Credendino told lawmakers his force lacked drones and submarine-spotting aircraft, complaining that 'When we need one we ask the U.S. to use one of those it has stationed at Sigonella,'" and that "Italian naval performance was hampered by a lack of personnel, claiming that while France provided each of its FREMM frigates with two rotating crews, 'We cannot guarantee one full crew for any of our FREMMs."⁴⁷²

Key naval procurements include plans for four U212A submarines, the first of which is scheduled for delivery in May 2030; a "Special Diving

Operations–Submarine Rescue Ship (SDO–SuRS)"; and the Teseo Mk2/E anti-ship missile, which is in development.⁴⁷³ The U212A project passed a design review in March that "validates the final design of the underwater vessel, demonstrating that it is mature and fully compliant with specific mission requirements."⁴⁷⁴

Italy launched the last of 10 new FREMM frigates in January 2020. Its Landing Helicopter Dock (LHD) Trieste is expected to be delivered this year and "although classified as an LHD...will effectively be Italy's second aircraft carrier, featuring a ski jump that allows the ship to operate the Lockheed Martin F-35B."⁴⁷⁵

The Italian Navy is planning major capabilities expansions that include:

7 PPA medium frigates of the Thaon di Revel class, 8 corvettes of 3000 tons from the European Patron Corvette program, 4 Offshore Patron Vessel of 1500 tons of the Comandanti class, 10 mine warfare ships, as well as 3 large logistics ships of the Vulcano and Etna classes. In addition, it will have 8 to 12 Type 212 anaerobic conventionally powered submarines, and 4 destroyers, two of the 7000-ton Horizon class already in service, identical to the 2 French Forbin-class anti-aircraft defense frigates, and especially two new heavy destroyers over 10,000 tons which will replace the two Durand de la Penne anti-aircraft destroyers.⁴⁷⁶

Scheduled to be delivered by 2028, the DXX destroyers, "[w]ith a length of 175 meters, and a displacement of nearly 11,000 tons...will be the largest surface combatants built in Europe."⁴⁷⁷

Air Force procurements include (among others) T-345 and T-346 jet trainers; three MC-27J Praetorians for support of special forces; and three EC-27J JEDI (Jamming and Electronic Defense Instrumentation) electronic warfare aircraft with capabilities that "are intended for the execution of convoy escort missions where it provides from the air an electromagnetic safety bubble."⁴⁷⁸ In November 2022, Italy announced a €1.12 billion program to purchase six new KC-767B/KC-46A tankers to replace its KC-767A fleet beginning in 2023 and continuing through 2035.⁴⁷⁹

As of March 2023, Italy had received 17 F-35As and six F-35Bs "of the 90 aircraft currently on

order,” with the last to be delivered by 2030.⁴⁸⁰ Italian Air Force Chief of Staff General Luca Goretti has urged a return to the initial purchase number of 131, which “was cut [in 2012] by 30 percent, from 131 to 90 ‘as a consequence of the general economic situation, rather than as a result of scientific military analysis.’”⁴⁸¹ A government-owned plant for final assembly of the F-35 is located in Cameri, Italy. Italy now operates two bases with F-35s: Amendola, north of Bari along the Adriatic, and Ghedi in northern Italy outside Milan.⁴⁸²

Italy will continue funding for development of the Eurodrone in conjunction with France, Germany, and Spain. It also “plans to arm its MQ-9 Reaper drones with upgrades from the United States” and reportedly has expressed interest in acquiring Turkish-made drones for surveillance.⁴⁸³

In December 2020, Italy signed the Future Combat Air System (FCAS) Cooperation agreement with Sweden and the U.K. The agreement covers “cooperation for research, development, and ‘joint-concepting’ of the Tempest fighter which will eventually replace the Eurofighter Typhoon fighter jets in Italy and the UK, and the Saab Gripen fighter jets in Sweden.”⁴⁸⁴ In December 2022, Japan announced “that it will jointly develop its next-generation fighter jet with the U.K. and Italy as it looks to expand defense cooperation beyond its traditional ally, the United States.”⁴⁸⁵ In March 2023, the leaders of Italy, Japan, and the U.K. “confirmed their commitment to achieve the fighter jet deployment by 2025.”⁴⁸⁶

Key Army procurements include the planned acquisition of 150 Centauro II tank destroyers, 650 Lince 2 light multi-role vehicles, VBM Freccia 8x8 infantry combat vehicles, and upgrades to the Ariete main battle tank (MBT). The Army plans to upgrade 125 Ariete MBTs, extending their operational timeline to 2040, but analysts have noted that not enough money has been allocated to upgrade all 125. Because of inadequate funding, other non-priority Army acquisition projects are not likely to come into service until the end of the decade.⁴⁸⁷ The Army began trials of the upgraded Ariete MBT in July 2022.⁴⁸⁸ However, despite these planned upgrades, Italian defense planners reportedly “envisage a current need for 250 main battle tanks, of which 125 could be upgraded Ariete tanks, leaving a need for 125 gap fillers.”⁴⁸⁹

Italy’s focus is the Mediterranean region where it participates in a number of stabilization missions

including NATO’s Sea Guardian, the EU’s Operation Iriini and Operation Atalanta, and the Italian Navy’s own Operation Mare Sicuro (Safe Sea) off the Libyan coast.⁴⁹⁰ Additionally, 400 Italian troops are deployed to Libya as part of the Assistance and Support Bilateral Mission in Libya (MIASIT).⁴⁹¹

Italy also contributes to Standing NATO Maritime Group Two and Standing NATO Mine Countermeasures Group Two;⁴⁹² NATO battlegroups in Bulgaria, where Italy is the framework nation (750 troops), Hungary (250 troops), and Latvia (260 troops); and Operation Prima Parthica in Iraq and Kuwait (650 troops, partly to help train Iraqi Security Forces).⁴⁹³ Italian air assets including Tornado jets operating out of the Ahmed Al Jaber air base in Kuwait are performing reconnaissance missions in support of the coalition to defeat the Islamic State.⁴⁹⁴ With 564 troops, Italy was the third-largest contributor to KFOR, behind the United States (768) and Germany (743), as of April 2023.⁴⁹⁵ In March 2022, it was reported that Italy intended to send two mine countermeasures vessels to Romania “to assist with the recently found drifting sea mine threat.”⁴⁹⁶

Since 2015, “Italian jets...have regularly deployed to support NATO’s Baltic Air Policing mission out of Lithuania and Estonia,” and in August 2022, “Italian Air Force Eurofighters officially took up the mission of safeguarding NATO’s skies above the Baltic region flying out of Malbork, Poland.”⁴⁹⁷ From December 2022–July 2023, the Air Force once again took part in NATO’s enhanced Air Policing in Romania with four Typhoons,⁴⁹⁸ and from April–July 2022, four F-35As and 130 troops were deployed to Iceland.⁴⁹⁹

Poland. Situated in the center of Europe, Poland shares a border with four NATO allies, a long border with Belarus and Ukraine, and a 130-mile border with Russia’s Kaliningrad Oblast, a Russian enclave between Poland and Lithuania on the Baltic Sea that Poland is trying to secure against Russian-facilitated illegal border crossings by building a “temporary barrier.”⁵⁰⁰ Poland also has a 65-mile border with Lithuania, the only land connection linking NATO’s Baltic members with any other NATO member. NATO’s contingency plans for liberating the Baltic States in the event of a Russian invasion reportedly rely heavily on Polish troops and ports.⁵⁰¹

Poland is ground zero for supplies and military equipment from Western allies reaching Ukraine.

Currently, “as many as 10 Boeing 747 jumbo jets carrying cargo land and take off during a single day, on top of regular commercial traffic” at the Rzeszow airport in the country’s East. The city may have 30,000 more residents than it had before Russia’s full-scale invasion of Ukraine began, and the U.S. has deployed Patriot missile batteries at the airport, underscoring its importance.⁵⁰²

Poland has an active military force of 114,050 that includes a 58,500-person army with 647 MBTs.⁵⁰³ It also has a Territorial Defense Force (TDF) that, according to former Minister of Defense Antoni Macierewicz, is intended “to increase the strength of the armed forces and the defense capabilities of the country” and is “the best response to the dangers of a hybrid war like the one following Russia’s aggression in Ukraine.”⁵⁰⁴ The TDF is mostly volunteer; “its personnel combine their civilian careers with limited military service of a minimum of two days twice a month and an annual two-week camp.”⁵⁰⁵ Its planned 17 brigades will be distributed across the country.⁵⁰⁶

The TDF, which currently numbers 36,000, is planned to reach a minimum strength of 50,000⁵⁰⁷ and is “the fifth single service in the Polish Armed Forces next to Land Forces, Air Force, Navy and Special Operations Forces” and “an integral part of Poland’s defence and deterrence potential.”⁵⁰⁸ National Defence Minister Mariusz Blaszczak has stated that during the COVID-19 pandemic, the TDF “impeccably proved their importance and effectiveness.”⁵⁰⁹ According to Blaszczak, Poland plans to “increas[e] the army’s size to at least 300,000 soldiers, supported by a 50,000-strong territorial defence force,” and the 13,742 Poles who joined in 2022 constitute “the highest enrolment...since Poland abolished conscription in 2008.”⁵¹⁰

Poland is investing in cyber capabilities. Its new Cyberspace Defense Force was established in February 2022 with a mission of “defense, reconnaissance and, if need be, offensive actions to protect Poland’s Armed Forces from cyberattacks.”⁵¹¹ In November 2020, the U.S. and Poland signed an enhanced defense cooperation agreement that increased the number of U.S. forces stationed in Poland. The U.S. further expanded its footprint in 2022 following Russia’s second invasion of Ukraine.

In 2022, Poland spent 2.42 percent of GDP on defense and 35.92 percent of its defense budget on equipment, surpassing both NATO benchmarks.⁵¹²

Poland’s 2020 National Security Strategy accelerated the timeline for spending 2.5 percent of GDP on defense from 2030 to 2024.⁵¹³ In January 2023, Prime Minister Mateusz Morawiecki announced that Poland would raise defense spending to 4 percent of GDP in 2023—a “decision, against the background of Russia’s war in Ukraine, [that] would see the country spending even more as a proportion of its economy than the United States.”⁵¹⁴

In October 2022, Poland and the U.K. “signed a series of agreements to move forward on military collaboration, as the Ukraine conflict continues to drive home the necessity of European co-development efforts.” The agreements include an Air Defence Complex Weapons Memorandum of Understanding that “enables the UK and Poland to cooperate in the development and manufacture of current and future complex weapons” and approves the creation of a working group to “explore the potential for the UK and Polish Armed Forces to cooperate on the development of a Future Common Missile.” The countries also signed a Statement of Intent “to collaborate on the procurement and operation of three Miecznik frigates, which will be a variant of the Arrowhead-140 frigates.”⁵¹⁵

Poland is making major investments in military modernization and is planning to spend \$133 billion on new capabilities by 2035 as envisioned in the Defense Ministry’s Technical Modernization Plan for 2021–2035, which was signed in October 2019.⁵¹⁶ Several major acquisitions have been announced in recent years. For example:

- In February 2018, Poland joined an eight-nation “coalition of NATO countries seeking to jointly buy a fleet of maritime surveillance aircraft.”⁵¹⁷
- In March 2018, in the largest procurement contract in its history, Poland signed a \$4.75 billion deal for two Patriot missile batteries. The first was delivered in 2022, and delivery of the second is expected in 2023. The batteries are being deployed at Bemowo military airport in Warsaw, and troops are training on the systems, “which are set to achieve operational readiness in 2024.”⁵¹⁸ In May 2022, Defense Minister Mariusz Blaszczak announced that Poland had “request[ed] the U.S. government to sell it six Patriot batteries with related gear.”⁵¹⁹

- In February 2019, Poland signed a \$414 million deal to purchase 20 high-mobility artillery rocket systems (HIMARS) from the U.S.,⁵²⁰ and in February 2023, it was reported that “[t]he first HIMARS battalion firing module is set to arrive this year.”⁵²¹ In May 2022, Defence Minister Blaszczak sent a letter of request to purchase an additional 500 HIMARS systems from the U.S.⁵²²
 - In April 2019, Poland signed a \$430 million deal to buy four AW101 helicopters that will provide anti-submarine warfare and search-and-rescue capabilities. Delivery of the first helicopter has been delayed until the second half of 2023.⁵²³
 - In April 2020, it was announced that Poland had concluded negotiations for the purchase of 60 Javelin Command Launch Units (CLUs) and 180 Javelin anti-tank missiles.⁵²⁴ In January 2023, Poland exercised an option to order an additional 50 CLUs and 500 missiles, deliveries to be completed by 2026.⁵²⁵ The original FMS contract and the option together are worth \$158 million.⁵²⁶
 - In January 2020, Poland signed a \$4.6 billion deal to purchase 32 F-35As, “with initial deliveries beginning in 2024 and in-country deliveries from 2026,” to be based at Poland’s Lask Air Base. A group of 24 Polish pilots completed F-35 simulator training in Arizona early in 2021.⁵²⁷ Polish pilots will be the first foreign pilots to train at the newly designated Air Force foreign pilot training center at Ebbing Air National Guard Base in Fort Smith, Arkansas, possibly as early as late 2024.⁵²⁸
 - In April 2021, the U.S. and Poland signed an agreement for Poland to acquire five retrofitted C-130H Hercules transport aircraft by 2024 with the first arriving in 2021 and the second in 2022.⁵²⁹
 - In July 2021, Poland announced a deal to procure 250 M1A2 Abrams SEPv3 tanks with deliveries “expected to begin in 2022.”⁵³⁰ In January 2023, Poland signed a \$1.4 billion contract to procure an additional “116 M1A1 Abrams tanks with related equipment and logistics starting this year.”⁵³¹
 - In September 2022, Poland received the first of two Narew short-range air defense system (SHORAD) launchers, originally scheduled for delivery in 2027. The earlier delivery was “prompted by Russia’s invasion of Ukraine.”⁵³²
 - In September 2022, Poland’s Ministry of National Defence sent a letter of request to the U.S. for the purchase of “96 Boeing AH-64E Apache attack helicopters.”⁵³³
 - In February 2023, the U.S. State Department approved a \$10 billion sale to Poland that “covers 18 M142 High Mobility Artillery Rocket System, or HIMARS, launchers and 468 launcher-loader module kits” in addition to “45 M57 Army Tactical Missile Systems, known as ATACMS, and hundreds of guided multiple launch rocket and warheads variants.”⁵³⁴
 - Poland has signed agreements to purchase 48 Korean Aerospace FA-50 light combat fighter jets, 180 Hyundai Rotem K2 Black Panther Tanks, and 212 Hanwha K9A1 self-propelled artillery from South Korea.⁵³⁵ Poland plans to acquire “more than 800 of the K2PL variant of the tank, production of which starts in Poland in 2026,” and an additional 600 K9 howitzers “with domestic production expected to start in 2026.”⁵³⁶ The first 10 tanks and 24 howitzers were delivered to Poland in December 2022.⁵³⁷
- Poland’s Air Force has taken part in Baltic Air Policing 11 times since 2006, most recently operating four F-16s out of Šiauliai Air Base in Lithuania from October 2022–March 2023.⁵³⁸ From August–October 2021, four Polish F-16s and 140 troops took part in Icelandic Air Policing, marking the first time that Poland has taken part in that mission.⁵³⁹
- In 2020, Poland was the lead for NATO’s VJTF, and approximately half of the 6,000 troops in the VJTF’s Spearhead Force were Polish.⁵⁴⁰ Poland also is part of NATO’s EFP in Latvia and Romania⁵⁴¹ and has 230 troops in NATO’s KFOR mission in Kosovo.⁵⁴² In addition, 150 troops are deployed to Iraq, Jordan, Kuwait, and Qatar as part of Operation

Inherent Resolve, and 30 are deployed as part of NATO Mission Iraq.⁵⁴³ In 2021, 80 Polish soldiers deployed to Turkey as part of a NATO assurance mission to assist Turkey by providing additional maritime patrols over the Black Sea and the Mediterranean.⁵⁴⁴

Turkey. Turkey remains an important U.S. ally and NATO member, but autocratic President Recep Tayyip Erdogan's delays in considering Sweden's NATO membership,⁵⁴⁵ Turkey's purchase of S-400 air defense systems from Russia, and Turkey's becoming a haven for illicit Russian money to evade Western sanctions have strained relations. At the same time, Turkey's support for Ukrainian forces has included its February 2022 closure of the Bosphorus and Dardanelles Straits to warships of any nation, thereby hampering the Russian Black Sea Fleet;⁵⁴⁶ facilitation of a deal for the safe export of Ukrainian grain via the Black Sea; and providing the Bayraktar TB2 drone that has proven to be so effective on the battlefield.⁵⁴⁷ So close has the relationship become that in October 2022, Baykar announced it would complete a production facility for the drone in Ukraine within two years.⁵⁴⁸

Turkey has been an important U.S. ally since the closing days of World War II. During the Korean War, it deployed 15,000 troops and suffered 721 killed in action and more than 2,000 wounded. Turkey joined NATO in 1952, one of only two NATO members (the other was Norway) that had a land border with the Soviet Union. It continues to play an active role in the alliance, but not without difficulties.

Following an attempted coup in July 2016, thousands of academics, teachers, journalists, judges, prosecutors, bureaucrats, and soldiers were fired or arrested. As of July 2022, 332,884 people had been detained, and the government continues to jail opposition politicians and civil society leaders. The government is also pursuing an ambitious program of prison construction and "is planning to build 20 new prisons [in 2023], which is expected to significantly increase the country's already high incarceration rate."⁵⁴⁹

The post-coup crackdown has had an especially negative effect on the military. At the end of 2021, 24,253 military personnel had been dismissed,⁵⁵⁰ and military promotions have been politicized. In the words of one military officer:

[T]he power in the promotion and appointment of admirals and generals passed from the military bureaucracy to Erdoğan's government. The changes led to the politicization of the military and undermined its independence. The new system favors officers loyal to the Erdoğan government rather than those best qualified and experienced.⁵⁵¹

Turkey's military is now suffering from a loss of experienced generals and admirals as well as an acute shortage of pilots. The dismissal of 680 of 1,350 pilots greatly exacerbated existing pilot shortages.⁵⁵² In September 2022, it was reported that the "Turkish Ministry of Defence requested that the 15-year limit for mandatory service of pilots be extended to 21, so as to reduce the shortage of combat pilots."⁵⁵³

The dilapidated condition of its air force is partly why Turkey has decided to acquire new ground-based air defense systems.⁵⁵⁴ In December 2017, Turkey signed a \$2.5 billion agreement with Russia to purchase two S-400 air defense systems. Delivery of the first system, consisting of two S-400 batteries and 120 missiles, was completed in September 2019, but delivery of a second system has been delayed by the inability of the two countries to agree on technology transfer and co-production.⁵⁵⁵ Russia's full-scale invasion of Ukraine and Turkey's less urgently felt need for air defenses to cover territory in Syria have led some analysts to conclude that a second S-400 system will never be delivered.⁵⁵⁶

As with other defense capabilities, Turkey is working hard to develop an indigenous replacement for the S-400:

As it drifts from the Russian system, Turkey has been implementing an ambitious plan to locally produce its own missile defense systems. Experts said the short- and medium-range systems have come a long way, and some are operational, though long range air defense systems with capabilities similar to S-400 are still in the testing phase.⁵⁵⁷

In March 2023, the chairman of defense equipment manufacturer Aselsan Elektronik Sanayi echoed this sentiment: "We are making air defense systems. We don't need S-300s, S-400s."⁵⁵⁸

The delivered S-400 system is partly to blame for a souring of relations with the U.S. U.S. officials expressed grave concerns about the purchase and suspended Turkey from the F-35 program in July 2019, stating that “[t]he F-35 cannot coexist with a Russian intelligence collection platform that will be used to learn about its advanced capabilities.”⁵⁵⁹ In addition, Section 1245 of the FY 2020 National Defense Authorization Act for Fiscal Year 2020 prohibits the transfer of “any F-35 aircraft or related support equipment or parts to Turkey” unless the Secretaries of Defense and State certify that Turkey “no longer possesses the S-400 air and missile defense system or any other equipment, materials, or personnel associated with such system.”⁵⁶⁰

Turkey tested the system against its F-16s in November 2019 and further tested the system at Sinop near the Black Sea in October 2020.⁵⁶¹ In December, a U.S. official stated that “[w]e object to Turkey’s purchase of the system and are deeply concerned with reports that Turkey is bringing it into operation.”⁵⁶² That same month, the U.S. decided to impose sanctions that took effect in April 2021.⁵⁶³ Fearful of the effect of these sanctions, Turkey had been stockpiling spare F-16 parts since 2019.⁵⁶⁴ In November 2022, Defense Minister Hulusi Akar stated that S-400 could be deployed if the circumstances warranted: “If any threats arise, we will decide where and how to use it.”⁵⁶⁵ As of March 2023, despite “some testing,” Turkey did “not appear to have made the system generally operational.”⁵⁶⁶

Turkish defense firms made “more than 800 components...for the F-35 as part of a nine-nation consortium,” and Turkey’s suspension from the program may have cost Turkish defense industry as much as \$10 billion (excluding indirect costs).⁵⁶⁷ (The U.S. Government Accountability Office has specified more precisely that 1,005 parts were produced by Turkish firms.⁵⁶⁸) It took some time for the consortium to move away from Turkish suppliers. As a result, “Turkish suppliers continued to supply F-35 parts to US companies until September 2021. As of September 23, 2021, Turkish defense companies stopped supplying F-35 parts and Turkey was officially removed from the program.”⁵⁶⁹

Having been removed from the F-35 program, Turkey is purportedly planning to produce a domestic fifth-generation jet, the TF-X National Combat Aircraft. A prototype was unveiled in early 2023 and may have its maiden flight in 2023 with a

goal of entering service in 2030. The TF-X appears possibly to be using engines from a U.S. company, which if true would have required Biden Administration approval.⁵⁷⁰

Turkey has been a key supporter of Ukraine. In addition to Bayraktar armed drones,⁵⁷¹ it supplies “equipment including Kirpi armoured troop carriers and body armour.”⁵⁷² The first of two Ada-class corvettes being built in Turkey for the Ukrainian Navy was launched at a Turkish shipyard in October 2022,⁵⁷³ and as noted previously, Turkey’s closure of the Bosphorus and Dardanelles straits to warships has blocked Russian warships operating in the Mediterranean from entering the Black Sea to join in the assault on Ukraine.

In October 2019, Turkey launched a major offensive in Syria against the Kurdish-led Syrian Democratic Forces (SDF), partly to create a buffer zone near the Turkish border. The largest Kurdish armed faction within the SDF is the People’s Protection Units (YPG), an offshoot of the Kurdistan Workers’ Party (PKK), a U.S.-designated terrorist group that has waged war against Turkey off and on since 1984. The offensive led to the creation of a buffer zone patrolled jointly by Turkish and Russian forces following an agreement between Presidents Erdogan and Putin in Sochi.

In February 2020, Russian-backed Syrian regime forces launched an attack on Idlib, the last remaining stronghold of forces opposed to Bashar al-Assad. Turkish forces opposed the offensive and lost 36 soldiers before Turkey and Russia agreed to a cease-fire. The cease-fire was extended in February 2021 and, despite violations by the Syrian Army and rebel factions, has held because of a *détente* in Syria between Turkey and Russia. Russia is seeking to craft some sort of agreement between Turkey and Moscow’s client regime in Damascus. According to the Congressional Research Service:

Erdogan has hinted at the possibility of repairing relations with Assad, after more than a decade in which Turkey has sought an end to Assad’s rule. As of early 2023, Russia is reportedly trying to broker better ties. Turkey is seeking Syria’s help to push YPG fighters farther from the border and facilitate the return of Syrian refugees living in Turkey. Assad reportedly wants full Turkish withdrawal in return. It is unclear whether the two leaders

can compromise and how that would affect Turkey's relationship with the [Syrian National Army] and the overall dynamic with other stakeholders in northern Syria. In response to a question about potential Turkey-Syria rapprochement, the State Department spokesperson has said that U.S. officials have told allies that now is not the time to normalize or upgrade relations with the Asad regime.⁵⁷⁴

Turkish threats to renege on a 2016 agreement with the EU under which the EU paid Turkey to stop the flow of migrants to Europe are an enduring source of friction (perhaps at least partly because Turkey did in fact renege on the agreement in 2020).⁵⁷⁵ Turkey and Greece remain at odds over maritime boundaries and drilling rights in the eastern Mediterranean, drilling rights off the Cypriot coast, and migration.⁵⁷⁶ Turkey is reportedly planning to build a naval base in the Turkish Republic of Northern Cyprus⁵⁷⁷ and began to fly UAVs out of Geçitkale Airport in December 2019.⁵⁷⁸ Recent upgrades to the base have further heightened tensions.⁵⁷⁹

In March 2021, Turkey and Qatar signed a deal for Qatari pilots to train in Turkey, leading to speculation that Turkey had “decided to train its fighter pilots on Rafale jets of the Qatar Emiri Air Force (QeAF) so as to counter the Rafale fleet of its adversary, Greece.”⁵⁸⁰ Qatar is sending 250 military personnel and 36 fighter jets to Turkey for training.⁵⁸¹

U.S. security interests in the region lend considerable importance to America's relationship with Turkey. Turkey is home to Incirlik Air Base, a major U.S. and NATO facility, but it was reported early in 2018 that U.S. combat operations at Incirlik had been significantly reduced and that the U.S. was considering permanent reductions. In January 2018, the U.S. relocated an A-10 squadron from Incirlik to Afghanistan to avoid operational disruptions; these aircraft have since returned to their home base in Missouri following the U.S. withdrawal. Restrictions on the use of Incirlik for operations in Syria have proven problematic. “[The] American operation to kill Islamic State leader Abu Bakr al-Baghdadi in Syria,” for example, “saw U.S. forces use a base in Iraq instead of the much closer Incirlik, requiring a round trip of many hours.”⁵⁸² The U.S. reportedly began to review plans to remove nuclear weapons from

Incirlik in 2019, but no such decision has yet been taken, at least as far as is publicly known.

Turkey's Konya Air Base continues to support NATO AWACS aircraft involved in counter-ISIS operations, and Spain has deployed a Patriot system in the Turkish city of Adana under NATO auspices since 2015.⁵⁸³ Turkey also hosts a crucial AN/TPY-2 radar at Kurecik that is part of NATO's BMD system and “may have the ability to track targets more than 1,800 miles away, depending on its position.”⁵⁸⁴

Turkey has a 355,200-strong active-duty military,⁵⁸⁵ which is NATO's second largest after that of the United States, but as one analyst has cautioned, “the size of the military is a direct result of conscription. Mandatory military service, however, does not often translate into power.”⁵⁸⁶ The Turks have contributed to a number of peacekeeping missions in the Balkans; still maintain 335 troops in Kosovo,⁵⁸⁷ and have participated in counterpiracy and counterterrorism missions off the Horn of Africa in addition to deploying planes, frigates, and submarines during the NATO-led operation in Libya. Turkey is among countries listed as contributors to the Standing NATO Maritime Groups and Standing NATO Mine Countermeasures Groups.⁵⁸⁸ It has taken part in Baltic Air Policing twice, most recently from May–September 2021 when four F-16s and 80 troops deployed to Malbork, Poland.⁵⁸⁹ In 2021, Turkey commanded NATO's Very High Readiness Joint Task Force.⁵⁹⁰

Turkey, which in 2023 will spend only 1.37 percent of GDP on defense and 25.52 percent of its defense budget on equipment,⁵⁹¹ has become increasingly self-reliant with respect to its defense capabilities. A particular success has been its Bayraktar drone program, and Turkey is investing further in autonomous systems. This is paying dividends: Turkey surpassed its export target in 2022, attaining \$4.4 billion in arms exports, and hopes to export \$6 billion in arms in 2023.

Between 2020 and 2021, “[r]evenue from overseas defense exports rose by 42%...with foreign contracts making up as much as 90% of revenue for some Turkish companies—like Baykar.”⁵⁹² Nevertheless, \$6 billion will fall short of the \$10.2 billion export target for 2023 set out in the Strategic Plan 2019–2023 released in December 2019 by Turkey's Presidency of Defense Industries.⁵⁹³ The plan also “aims to meet 75% of its weaponry requirements through indigenous production by 2023. However,

GlobalData’s forecast suggest[s] this number will narrowly be missed, with only 71% of procurements in 2023 likely to fulfill this target.”⁵⁹⁴

A key struggle is Turkey’s continued reliance on components from Western companies, including for its drones. In particular, the Bayraktar drone relies on “optical/infrared imaging and targeting sensor systems” from a Canadian company.⁵⁹⁵ As one analyst has written:

Overall, Turkish industries can now design, produce, modernize, and export—at varying levels of domestic contribution—some core conventional arms and equipment such as corvettes, fire support systems, unmanned aircraft systems, gliding munitions for drones, joint-direct attack munitions, across-the-spectrum land warfare platforms (except for main battle tanks), grenade launchers, and tactical anti-material rifles. On the other hand, the defense sector demands international cooperation, marking the limits of independence, at least at the time being, on strategic weapons and high-end arms, such as exo-atmospheric ballistic missile defense, fifth-generation tactical military aviation, air-independent propulsion submarines, and space-based assets....⁵⁹⁶

Over “the next two to three years,” more than 350 indigenously produced Atmaca anti-ship cruise missiles will replace U.S.-produced Harpoon missiles on Turkey’s Ada-class corvettes, Istanbul-class frigates, and TF2000-class anti-air warfare destroyers” with a goal of saving as much as \$500 million “as the homemade missile comes in at around half the price of a Harpoon.”⁵⁹⁷

Turkey “also has plans for a ‘mobile naval mine’ that can be used for surveillance and to attack ships, as well as for unmanned fighter jets and strike aircraft to be used on its amphibious assault ships, which officials say will be able to carry 30 to 50 drones.”⁵⁹⁸ The first flight test for the prototype of the unmanned fighter, the Bayraktar Kizilelma, took place on December 14, 2022. The jet purportedly “will be able to take off and land on aircraft carriers with short runways and conduct missions with internally carried munitions.”⁵⁹⁹

In addition, Turkey is seeking to modernize its manned aircraft, especially in light of planned Greek procurements of F-35s and French Dassault

Rafales F3R fighters.⁶⁰⁰ In October 2021, Turkey made a request to purchase 40 F-16 fighters and 80 modernization kits for its older fleet of F-16s, and in a March 2022 letter to Congress, the State Department found “compelling long-term NATO alliance unity and capability interests, as well as U.S. national security, economic and commercial interests that are supported by appropriate U.S. defense trade ties with Turkey.”⁶⁰¹ In May 2022, the Biden Administration asked Congress to approve the sale of electronics, missiles, and radar to Turkey for F-16 upgrades.⁶⁰² Following Turkey’s June 2022 announcement that it was lifting its objections to Finland and Sweden joining NATO, the Administration reiterated its support for the modernization kits and the sale of new F-16s to Turkey because, “Turkey’s modernization of its fighter fleet...is a contribution to NATO security and therefore American security.”⁶⁰³

In January 2023, the State Department informed Congress that it intended to proceed with the \$20 billion sale of new F-16s and modernization kits.⁶⁰⁴ Congress remains opposed, partly because of Turkey’s continued blocking of Sweden’s accession to NATO despite its earlier assurances.⁶⁰⁵ While “Congress can block a sale by passing a resolution of disapproval after a formal notification of a sale,” it is unclear whether the Administration would proceed in the face of congressional disapproval or whether Congress could muster the votes to block a sale if it were to take place.⁶⁰⁶ Absent U.S. modernization kits, Turkey once again is turning to its own domestic industry to modernize its aging fleet. Its Ozgur Project “includes new avionics, structural improvements, and a locally-produced active electronically scanned array (AESA) radar that will be retrofitted onto its Block 30 F-16s.”⁶⁰⁷

Turkey’s procurement of 250 new Altay main battle tanks has been delayed for years because of the need to acquire foreign components. The tank had relied on a German-made engine and transmission, as well as French armor, but the technology transfer was not approved. In March 2022, Turkey announced an agreement with two South Korean manufacturers to produce the engine and transmission for the tank.⁶⁰⁸ In January 2023, President Erdogan announced that two Altays would be delivered in May and that long-delayed mass production would begin in 2025.⁶⁰⁹

In January 2022, after years of delays, Pakistan cancelled a \$1.5 billion deal for 30 T129 ATAK

helicopters that had been signed in 2018.⁶¹⁰ The helicopter's engine is produced by American and British firms, and Turkey has yet to field a domestic replacement. In April 2021, the U.S. granted export licenses for the sale of six T129s to the Philippines; its refusal to issue export licenses for the sale to Pakistan led to the deal's cancellation.⁶¹¹ In February 2022, Turkey announced that a Ukrainian-developed engine for its larger T929 helicopter gunship would be produced in Turkey. The first two engines were delivered to Turkey in March 2023. The helicopter is scheduled to make its first flight this year.⁶¹²

France and Italy continue to block joint development of anti-ballistic missiles with Turkey because of Turkey's actions in Syria.⁶¹³ President Erdogan has personally lobbied French President Macron to allow Turkey to purchase the French-Italian EUROSAM consortium's SAMP/T missile-defense systems.⁶¹⁴ In March 2022, France and Italy reportedly agreed to "explore reviving the steps for the SAMP/T missile defense system."⁶¹⁵ Italian Prime Minister Meloni reportedly made similar statements about wanting to find a solution to the impasse in November.⁶¹⁶

Another major procurement is for six Type-214 submarines. The first, the TCG *PiriReis*, was launched in May 2021, underwent sea trials in December 2022, and will likely enter service in 2023, and one of the remaining five will be delivered each year from 2023–2027.⁶¹⁷ In February 2019, Turkey announced that upgrades of four *Preveze*-class submarines would take place from 2023–2027.⁶¹⁸ In February 2022, it was reported that "sea acceptance trials of the early delivered systems and the Critical Design Phase of the Preveze Mid-Life Modernisation Project have been successfully completed."⁶¹⁹

The intelligence-gathering ship TCG *Ufuk*, which President Erdogan has described as the "eyes and ears of Turkey in the seas,"⁶²⁰ was commissioned in January 2022.⁶²¹

The Baltic States. The U.S. has championed the sovereignty and territorial integrity of the Baltic States ever since the interwar period of the 1920s. Since regaining their independence from the Soviet Union in the early 1990s, the Baltic States have been staunch supporters of the transatlantic relationship. Although small in absolute terms, the three countries contribute significantly to NATO in relative terms.

Estonia. Estonia has been a leader in the Baltics in terms of defense spending. In 2022, it spent 2.12 percent of GDP on defense and 21.57 percent of its defense budget on new equipment.⁶²² In December, Prime Minister Kaja Kallas announced that Estonia's defense budget would exceed 3 percent of GDP by 2024.⁶²³

In September 2022, Estonia signed an agreement to acquire the short-range, man-portable Piorun air defense system with delivery of 100 Piorun gripstocks and 300 missiles to begin in the second half of 2023.⁶²⁴ Estonia is also expected to announce a contract for the joint procurement with Latvia of medium-range air defense systems and "could be getting its own medium-range air defense system in three years' time."⁶²⁵ In October 2021, Estonia signed a contract to purchase the Blue Spear 5G coastal shore-to-ship mobile defense system.⁶²⁶ The system, likely to arrive by the end of 2023,⁶²⁷ will be integrated with Finland's coastal defense systems, "which would allow the countries to close the Gulf of Finland to Russian warships if necessary."⁶²⁸

Estonia's Ministry of Defence Development Plan 2031, released in December 2021, details investments in ammunition stocks along with renovation of Ämari airfield, a modern War and Disaster Medicine Centre in Tartu, "mid-range anti-tank weapons for all infantry brigades," R-20 Rahe assault rifles, a mid-range air surveillance radar, CV-9035 armored combat vehicle upgrades, and naval mines.⁶²⁹ In February 2022, Estonia announced its largest defense procurement, a \$794 million joint Estonia-Latvia purchase of "mostly logistical vehicles including cranes, loaders and aircraft loaders"⁶³⁰ that were "expected to start arriving in 2023."⁶³¹ In December 2022, Estonia signed an agreement for six M142 High Mobility Artillery Rocket Systems worth more than \$200 million with deliveries to begin in 2024. "[I]n addition to the weapon system," according to an Estonian Centre for Defence Investments official, "Estonia will also procure ammunition, communications solutions, as well as training, logistics, and life-cycle solutions. The package includes rockets with different effects, ranging from 70 to 300 kilometers."⁶³²

Although the Estonian armed forces total only 7,200 active-duty personnel (including the army, navy, and air force),⁶³³ they are held in high regard by their NATO partners and punch well above their weight inside the alliance. Between 2003 and 2011,

455 Estonians served in Iraq. Perhaps Estonia's most impressive deployment was to Afghanistan: More than 2,000 Estonian troops were deployed between 2003 and 2014 and sustained the second-highest number of deaths per capita among all 28 NATO members.

In 2015, Estonia reintroduced conscription for men ages 18–27, who must serve eight or 11 months before being added to the reserve rolls.⁶³⁴ The number of conscripts will increase from 3,500 in 2022 to 3,800 in 2024 and 4,000 in 2025 at a cost of €4 million a year for each additional 500 conscripts in addition to barracks and other facilities to “meet the increased need for space across units.”⁶³⁵

Estonia has demonstrated that it takes defense and security policy seriously, focusing on improving defensive capabilities at home while maintaining the ability to be a strategic actor abroad. Estonia is acquiring 24 South Korean–built K9 self-propelled howitzers at a total cost of \$88 million and as of January 2023 had taken delivery of 18.⁶³⁶ That same month, it signed a \$38.9 million contract for an additional 12 K9s with deliveries through 2026.

In October 2020, Estonia withdrew from a joint armored vehicle development program with Latvia and Finland for financial reasons, but in April 2022, it announced an expedited €200 million procurement for 220 wheeled armored vehicles.⁶³⁷ In 2019, it received two C-145A tactical transport aircraft donated by the U.S.⁶³⁸

In 2017, Estonia and the U.S. strengthened their bilateral relationship by signing a defense cooperation agreement that builds on the NATO–Estonia Status of Forces Agreement, further clarifying the legal framework for U.S. troops in Estonia. U.S. Ambassador James Melville called the agreement “a major step for enhanced defense and security cooperation in the context of the North Atlantic Alliance.”⁶³⁹

Estonian forces have participated in a number of operations. These involvements include, for example, 45 soldiers in Resolute Support before its end, a vessel as part of the Standing NATO Mine Countermeasures Group One, a logistics officer for the EU's Operation IRINI, and troops for NATO Mission Iraq and the U.S.-led Operation Inherent Resolve in Iraq.⁶⁴⁰ In February 2022, Estonia announced the withdrawal from Mali of 95 troops who had been taking part in the French-led Operation Barkhane, completed in November 2022.⁶⁴¹

Latvia. Latvia's recent military experience has been centered on operations in Iraq and Afghanistan with NATO and U.S. forces. Latvia deployed more than 3,000 troops to Afghanistan and between 2003 and 2008 deployed 1,165 troops to Iraq. It also has contributed to a number of other international peacekeeping and military missions. Its clear focus, however, is territorial defense.

A recent IISS analysis notes that “[t]here is no capacity to independently deploy and sustain forces beyond national boundaries, although the armed forces have taken part in NATO and EU missions.”⁶⁴² Nevertheless, despite a military that consists of only 6,600 full-time servicemembers, Latvia deployed troops to NATO's Resolute Support Mission until the mission's completion; participates in Operation Inherent Resolve in Iraq, where the mandate for Latvian soldiers taking part was extended in March 2022 and now runs until February 2024; and has 136 troops deployed in NATO's KFOR mission.⁶⁴³

Latvia aims “to increase the share of combat-ready population...to 50,000” by 2027, with 14,000 “to operate in active service units,” 16,000 “to serve in the National Guard,” and 20,000 “in the reserve force.”⁶⁴⁴ In April 2023, the Latvian parliament passed a bill reintroducing mandatory military conscription for males aged 18 to 27 (conscription had been abolished in 2007).⁶⁴⁵ Conscripts can serve “11 months in the National Armed Forces or the National Guard; five years in the National Guard, with at least 21 individual training days per year and 7 collective training days per year; [or by] finishing a five-year education university program of a Reserve Lieutenant.”⁶⁴⁶

In 2022, Latvia's former Minister of Defense raised the possibility of opening “a new training field and a second international base” in Latvia for allied forces that “are currently based in Ādaži.”⁶⁴⁷ In November 2022, the Canadian commander of NATO's EFP in Latvia expressed his view that “[t]he amount of resources that the Russians have invested now in Ukraine, and that they are losing in Ukraine, is reducing their ability to do something in this theatre rapidly.” Nevertheless, the Russians are still a threat: “What they're going to do in the future is really in President (Vladimir) Putin's hands...but the threat is very real.”⁶⁴⁸

In 2022, Latvia spent 2.07 percent of GDP on defense and 24.58 percent of its defense budget on equipment, exceeding both NATO benchmarks.⁶⁴⁹

Latvia continues to bolster its defense budgets, spending around 2.25 percent of GDP on defense in 2023. In February, Defense Minister Ināra Mūrniece stated that the nation could hit 3 percent of GDP on defense before the planned date of 2027 due to upcoming procurements.⁶⁵⁰ Contracts for the acquisition of six M142 HIMARS, for example, could be signed in 2023,⁶⁵¹ and Latvia is also reportedly in negotiations to purchase the Norwegian-made Naval Strike Missile Coastal Defence System sometime in 2023.⁶⁵²

In December 2022, the first two of Latvia's four UH-60M Black Hawk helicopter procurement (a \$200 million agreement signed in 2018) were delivered from the U.S. with the remaining two "slated for delivery by the end of 2023." As of December 2022, five crews had been trained on the Black Hawks, which are replacing Latvia's Mi-17 helicopter fleet, and "Latvian personnel [had] been training for future helicopter flight and maintenance since 2020."⁶⁵³

Latvia is also procuring the RBS 70 NG short-range ground-based air defense system and Giraffe 1X radar from Swedish manufacturer Saab⁶⁵⁴ and in June 2022 "signed a joint letter of intent [with Estonia] for the purchase of medium-range air defense systems."⁶⁵⁵ According to the IISS, "Estonia signalled its intention in 2022 to join the European Sky Shield initiative, to boost air defence capacity. As well as capability development, modernisation spending is directed toward improving infrastructure and readiness."⁶⁵⁶ Other joint procurements include (with Estonia) logistics vehicles and (with Finland) 200 armored vehicles for Latvian forces, the first two of which were delivered in March 2022 and all of which are to be delivered by 2029.⁶⁵⁷

Latvia is upgrading fencing along its border with Belarus into permanent fencing to stem the flow of migrants "illegally pushed into Latvia from Belarus."⁶⁵⁸ The first phase of the upgrade will be completed in the fall of 2023, with the second and third phases complete by the end of 2024.⁶⁵⁹ Early in 2022, Latvia's State Border Guard received 67 Polaris tactical vehicles worth \$2 million from the United States. "Since 2018, the United States has provided more than seven million dollars in aid to the Latvian Border Guard," which was "scheduled to receive another 18 'Polaris' tactical vehicles by the end of [2022]."⁶⁶⁰

Lithuania. Lithuania is the largest of the three Baltic States, and its armed forces total 23,000 active-duty troops.⁶⁶¹ The government reintroduced conscription in 2015 and lowered the age for compulsory service in December 2019.⁶⁶² In January 2023, Chief of Defence Valdemaras Rupšys detailed potential conscription reforms to "help achieve the goal of having 40,000 active reserve soldiers in the armed forces."⁶⁶³

Lithuania has shown a steadfast commitment to international peacekeeping and military operations. Between 2003 and 2011, it sent 930 troops to Iraq. From 2002–2021, around 3,000 Lithuanian troops served in Afghanistan, and Lithuania continues to contribute to NATO's KFOR, NATO Mission Iraq, and a few EU-led missions in Africa. Lithuania has supported Ukraine in part by taking part in the U.K.-led Operation Interflex to train and support Ukraine's territorial defense forces, as well as the German-led EU Military Assistance Mission in support of Ukraine training.⁶⁶⁴ Lithuania trained Ukrainian forces even before 2022 and will train about 2,000 Ukrainian troops this year.⁶⁶⁵

In 2022, Lithuania spent 2.47 percent of GDP on defense and 34.54 percent of its defense budget on equipment.⁶⁶⁶ In March 2023, Lithuania added another € 97.5 million to its defense budget for the year, raising defense spending to 2.52 percent of GDP for the year. "The Defence Ministry has said it will use additional funds for speeding up certain planned acquisitions, for instance, of multiple launch rocket systems, combat drones, as well as other arms and ammunition."⁶⁶⁷

In April 2019, the U.S. and Lithuania signed a five-year "road map" defense agreement.⁶⁶⁸ According to the DOD, the agreement will help "to strengthen training, exercises and exchanges" and help Lithuania "to deter and defend against malicious cyber intrusions and attacks." The two nations also pledged "to support regional integration and procurement of warfighting systems," including "integrated air and missile defense systems and capabilities to enhance maritime domain awareness."⁶⁶⁹ A Mobilisation and Host Nation Support law took effect in January 2021.⁶⁷⁰ In December 2021, the U.S. and Lithuania signed a Reciprocal Defense Procurement Agreement that U.S. Secretary of Defense Austin stated "will improve conditions for the acquisition of defense items and increase military interoperability."⁶⁷¹

The IISS notes that “Lithuania signalled its intention in 2022 to join the European Sky Shield initiative, to boost air defence capacity. Vilnius is also looking to acquire new rocket artillery capabilities, in common with other Baltic states, and acquire additional self-propelled artillery as well as loitering munitions.”⁶⁷²

In November 2020, Lithuania signed a \$213 million deal to purchase four UH-60M Black Hawk helicopters beginning in late 2024; the U.S. is contributing approximately \$30 million to help with the acquisition.⁶⁷³ In October 2022, Lithuania signed a \$32 million contract to procure additional Swedish-made RBS 70 “very short range air defense missiles,” to be delivered in 2023 and 2024.⁶⁷⁴

In October 2020, Lithuania received two Norwegian-made NASAMS mid-range air defense batteries “armed with US-made advanced medium-range air-to-air missiles (AMRAAM) that can destroy aircraft and missiles located at a distance of several tens of kilometres.”⁶⁷⁵ Lithuania plans to acquire additional NASAMS in 2023, and according to one analyst, “Just having this system is like a big deterrent hedgehog for enemy planes.”⁶⁷⁶ In February, Lithuanian President Gitanas Nausėda said that “Lithuania is ready to contribute to repairing the NASAMS medium-range air defense systems handed over to Ukraine.”⁶⁷⁷

In March 2022, Lithuania announced a \$40 million purchase of additional Javelin anti-tank weapons.⁶⁷⁸ In April 2021, the U.S. donated \$10 million worth of M72 Light-Armor Weapons to Lithuania.⁶⁷⁹ In December 2022, Lithuania announced a \$48 million contract for an unspecified number of Switchblade 600 kamikaze drones.⁶⁸⁰ In October 2022, Lithuania increased its order of U.S.-made Oshkosh Joint Light Tactical Vehicles (JLTV) from 200 to 500. About 100 vehicles were delivered in 2022, with the remaining expected from 2023 to 2024.⁶⁸¹ In January 2022, it was reported that Saab had recently “signed a framework agreement with the Lithuanian Ministry of Defence to provide the country with several Carl-Gustaf M4 recoilless weapons and ammunition” and that Lithuania’s “Defence Materiel Agency has placed a \$16.7 million ammunition order as part of the framework agreement.”⁶⁸²

In December 2022, Lithuania and the U.S. signed a \$495 million agreement for eight M142 HIMARS systems with deliveries beginning in 2025 and

ending in 2026. The agreement “includes Army Tactical Missile Systems, or ATACMS, which have a range of 300 kilometers, and other ammunition. A State Department notice [in November 2022] said several dozen Guided Multiple Launch Rocket Systems, and variants of them, would be included.”⁶⁸³

Current U.S. Military Presence in Europe

At its peak in 1953, because of the Soviet threat to Western Europe, the U.S. had approximately 450,000 troops in Europe operating across 1,200 sites. During the early 1990s, both in response to a perceived reduction in the threat from Russia and as part of the so-called peace dividend following the end of the Cold War, the number of U.S. troops in Europe was slashed. Today, the U.S. has fewer than 66,000 active-duty forces permanently stationed in Europe. However, increased numbers of rotational forces deployed to Europe to bolster deterrence in eastern NATO member states have raised total U.S. deployments to around 100,000.⁶⁸⁴

EUCOM “executes a full range of multi-domain operations in coordination with Allies and partners to support NATO, deter Russia, assist in the defense of Israel, enable global operations, and counter trans-national threats in order to defend the Homeland forward and fortify Euro-Atlantic security.”⁶⁸⁵ It is supported by four service component commands (U.S. Naval Forces Europe, U.S. Army Europe and Africa, U.S. Air Forces in Europe, and U.S. Marine Forces Europe) and one subordinate unified command (U.S. Special Operations Command Europe).

In response to Russia’s second invasion of Ukraine, EUCOM created Control Center Ukraine (ECCU) to coordinate defense assistance to Ukraine. A “senior defense official” has described ECCU as “a combination of a call center, a watch floor, meeting rooms. They execute a battle rhythm to support decision-makers as well as 24/7 engagement and coordination around the globe with about 40 to 60 people at any given time.”⁶⁸⁶

Conclusion

The European region remains a mature and friendly operating environment. Russia remains the preeminent military threat, and its continued operations against Ukraine have added instability to the theater, particularly in the Black Sea region. In addition to the threat from Russia, Chinese propaganda, influence operations, and

investments in key sectors present an additional—and serious—threat.

The past year has proven to be an inflection point for transatlantic security with many European allies reinvesting in defense and capabilities. The long-term capacity of allies to sustain a commitment to defense remains to be seen, as does the outcome of the Russia–Ukraine war, which is dramatically reshaping the threat perception in Europe and necessitating operational planning that takes into account what is transpiring on a daily basis.

America’s closest and oldest allies are located in Europe, and the region is incredibly important to the U.S. for economic, military, and political reasons. Perhaps most important, the U.S. has treaty obligations through NATO to defend the European members of that alliance. If the U.S. needs to act in or near the European region, there is a history of interoperability with allies and access to key logistical infrastructure despite very real military mobility shortfalls that makes the operating environment in Europe more favorable than the environment in other regions in which U.S. forces might have to operate.

The past year saw continued U.S. reengagement with the continent, both militarily and politically, along with continued increases in European allies’ defense budgets and capability investments. The U.S. has increased its investment in Europe, and its

military position on the continent is stronger than it has been for some time. NATO continues to return to a war footing, seeking to relearn the lessons of the past, and to put in place the doctrine, plans, and force structure necessary to provide a lasting deterrent to Russia.

The military, economic, political, and societal impact of Russia’s aggression in Ukraine, including China’s support for and enablement of the regime in Moscow, will have to be reckoned with for years to come. Though Russia is experiencing significant battlefield losses, it will be prudent for defense planners to assume that Russia will replace those losses of old equipment with modern, improved items, thereby sustaining the challenge to U.S. and NATO-partner security interests.

NATO’s renewed focus on collective defense has resulted in a focus on logistics, force generation, capability investment, newly established commands that reflect a changed geopolitical reality, and a robust set of exercises. NATO’s biggest challenges derive from potential spillover from Ukraine, arming and assisting Ukrainian forces with rapidly depleted stocks, continued capability and readiness gaps for many European nations, continuing improvements and exercises in the realm of logistics, and the need to establish the ability to mount a robust response to both linear and nonlinear forms of aggression.

Scoring the European Operating Environment

As noted at the beginning of this section, various considerations must be taken into account in assessing the regions within which the U.S. may have to conduct military operations to defend its vital national interests. Our assessment of the operating environment utilized a five-point scale, ranging from “very poor” to “excellent” conditions and covering four regional characteristics of greatest relevance to the conduct of military operations:

1. Very Poor. Significant hurdles exist for military operations. Physical infrastructure is insufficient or nonexistent, and the region is politically unstable. The U.S. military is poorly placed or absent, and alliances are nonexistent or diffuse.

2. Unfavorable. A challenging operating environment for military operations is marked by inadequate infrastructure, weak alliances, and recurring political instability. The U.S. military is inadequately placed in the region.

3. Moderate. A neutral to moderately favorable operating environment is characterized by adequate infrastructure, a moderate alliance structure, and acceptable levels of regional political stability. The U.S. military is adequately placed.

4. Favorable. A favorable operating environment includes good infrastructure, strong alliances, and a stable political environment. The U.S. military is well placed in the region for future operations.

5. Excellent. An extremely favorable operating environment includes well-established and well-maintained infrastructure; strong, capable allies; and a stable political environment. The U.S. military is exceptionally well placed to defend U.S. interests.

The key regional characteristics consist of:

- a. Alliances.** Alliances are important for interoperability and collective defense, as allies are more likely to lend support to U.S. military operations. Various indicators provide insight into the strength or health of an alliance. These include whether the U.S. trains regularly with countries in the region, has good interoperability with the forces of an ally, and shares intelligence with nations in the region.
- b. Political Stability.** Political stability brings predictability for military planners when considering such things as transit, basing, and overflight rights for U.S. military operations. The overall degree of political stability indicates whether U.S. military actions would be hindered or enabled and considers such questions as whether transfers of power are generally peaceful and whether there have been any recent instances of political instability in the region.
- c. U.S. Military Positioning.** Having military forces based or equipment and supplies staged in a region greatly enhances the ability of the United States to respond to crises and presumably achieve success in critical “first battles” more quickly. Being routinely present in a region also helps the U.S. to maintain familiarity with its characteristics and the various actors that might try to assist or thwart U.S. actions. With this in mind, we assessed whether or not the U.S. military was well positioned in the region. Again, indicators included bases, troop presence, prepositioned equipment, and recent examples of military operations (including training and humanitarian) launched from the region.

d. Infrastructure. Modern, reliable, and suitable infrastructure is essential to military operations. Airfields, ports, rail lines, canals, and paved roads enable the U.S. to stage, launch operations from, and logistically sustain combat operations. We combined expert knowledge of regions with publicly available information on critical infrastructure to arrive at our overall assessment of this metric.

For Europe, the duration of Russia’s war on Ukraine, its mounting cost and savagery, and the questions it poses for the future of Europe, NATO, and individual countries has forced European governments and citizenry to seriously consider the conditions of their political dynamics, economic dependencies, and their ability to provide for domestic security interests. In the *2023 Index*, we noted a strengthening in alliance relationships as NATO member countries conducted reviews of their respective military establishments and the ability of NATO, as a whole, to properly coordinate actions. NATO placed renewed emphasis on logistical matters and the extent to which it could respond to an emergent crisis. In 2024, we have seen a galvanizing effect within political establishments that, while continuing to be dynamic and pointed within the domestic context of each country, appear to be improved in their aggregate stability as countries get serious about national matters that have arguably been neglected since the end of the Cold War. Within specific countries there are ongoing shifts between liberal and conservative governments but the net result has been generally positive with respect to U.S. security interests, especially as countries commit to improving their defense capabilities, readiness, and posture. This has led us to increase Europe’s score for political stability from Favorable to Excellent.

- Alliances: **5—Excellent**
- Political Stability: **5—Excellent**
- U.S. Military Positioning: **4—Favorable**
- Infrastructure: **4—Favorable**

Leading to a regional score of: **Favorable**

Operating Environment: Europe

	VERY POOR	UNFAVORABLE	MODERATE	FAVORABLE	EXCELLENT
Alliances					✓
Political Stability					✓
U.S. Military Posture				✓	
Infrastructure				✓	
OVERALL				✓	

Endnotes

1. Each year, NATO publishes a report on the defense spending of member countries that covers the preceding 10-year period. See: "Defence Expenditure of NATO Countries (2014-2023)," NATO Public Diplomacy Division Press Release, July 7, 2023, https://www.nato.int/nato_static_fl2014/assets/pdf/2023/7/pdf/230707-def-exp-2023-en.pdf (accessed July 20, 2023). Per the latest report, NATO as a whole, though *not counting the U.S.*, realized a 30 percent increase in defense spending from 2014 to 2023 while the U.S. showed an increase of 11.2 percent, per figures provided on page 7. Notably, Lithuania increased its spending 270.6 percent over the decade, Poland 189.5 percent, and Estonia 77.5 percent. On the lower end of the range were France at 15.2 percent increase, Norway with 25.29 percent, and Belgium at 33.72 percent. Each of these three countries—France, Norway, and Belgium—spent 1.90 percent of GDP, 1.67 percent, and 1.13 percent, respectively, in 2023, well short of NATO's two percent objective. In their camp were Luxembourg (0.72 percent), Spain (1.26 percent), Italy (1.46 percent), and Germany (1.57 percent), each spending in 2023 amounts well below the NATO target (numbers taken from p. 8 of the NATO report).
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