

NATO: Investing in Defence Technology

The investment case for future of defence exposure

Historically, the defence sector has been responsible for many ground-breaking technological advances, from the internet and computers to drones and GPS. Western nations have invested heavily in research and development in order to modernise their defence capabilities, equipping it for the future of defence.

North Atlantic Treaty Organisation (NATO) defence budgets have increased in reaction to heightened geopolitical threats such as the Russian-Ukraine conflict and the need to modernise its military capabilities. Allied nations agreed upon NATO's civil and military budget for 2024 at a meeting of the North Atlantic Council on 13 December 2023. The civil budget was set at €438.1 million, and the military budget was set at €2.03 billion, representing an increase of 18.2% and 12% respectively over 2023 levels.¹

Even prior to the heightened risk environment due rising NATO-Russian tensions, NATO budgets were already spending on modernising their defence capabilities with unmanned, autonomous jets and combat vehicles and cyber defence solutions.

¹ NATO.int, 13 December 2023.



The global defence market is expected to grow at a compound annual growth rate (CAGR) of 5.6% to an expected size of \$718.12 billion by 2027.² It is likely that these growth rates will accelerate even further to reflect escalated risks associated with the Russia-Ukraine conflict. Similarly, the global cyber security market is projected to grow at a CAGR of 8.9% from 2023–2027. The rise of data breaches and increasing sophistication of cyberattacks pose a global security threat, driving increased adoption of cloud-based cybersecurity solutions.³

At the Wales Summit in 2014, NATO allies pledged to invest more on defence, targeting 2% of GDP by 2024, with 20% of that spending on defence equipment. As a result, over the last three years, European Allies and Canada have spent almost \$46 billion US dollars more on defence.⁴ Companies with exposure to NATO and NATO+ ally spending stand to benefit from increased defence spending goals, the importance of which has been further reinforced by rising geopolitical tensions associated with the Russian-Ukraine conflict.

As cyber-attacks have become more common, sophisticated and damaging, cyber defence has also

become a rising spending priority for NATO, as it now recognises cyberspace as an “operational domain” in addition to land, sea, and air. In this paper, we aim to explore:

- The history of NATO defence
- The future of defence and growing importance of cyber defence
- The growth prospects and investment case for investment in future of defence-exposed companies
- Our index methodology and investment approach

Major events in the history of NATO

NATO was formed in 1949 by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union. However, according to NATO itself, its purpose was part of a broader effort to: 1) deter Soviet

² Business Research Company, January 2023, <https://www.thebusinessresearchcompany.com/report/defense-global-market-report>

³ MarketsandMarkets, 2022, <https://www.marketsandmarkets.com/Market-Reports/cyber-security-market-505.html>

⁴ NATO.int, 10 May 2022.

expansionism, 2) prevent the revival of national militarism in Europe post World War II, 3) encourage the political integration of Europe.

The aftermath of World War II left much of Europe devastated, and amid those conditions, communism – aided by the Soviet Union – threatened elected governments across Europe. Ultimately, Western European countries allied to deter Soviet aggression, and after much discussion and debate, the North Atlantic Treaty was signed on 4 April 1949. Article 5 of the treaty agrees that “an armed attack against one or more of them... shall be considered an attack against them all,” and that following such an attack, each ally would take “such action as it deems necessary, including the use of armed force” in response.

In 1955, the Soviet Union and its Eastern European client states formed the Warsaw Pact. Europe was in a stand-off, symbolised by the construction of the Berlin Wall in 1961, physically dividing East from West. During this time, NATO adopted a strategic doctrine of “Massive Retaliation” – if the Soviet Union attacked, NATO would respond with nuclear weapons. The intended effect of this doctrine was to deter either side from risking attack to avoid mutually assured destruction. The “Massive Retaliation” strategy also enabled NATO members and allies to focus on economic growth as opposed to military spending.

In the 1960s, Cold War tensions reignited as Soviet Premier Nikita Khrushchev and US President John F. Kennedy narrowly avoided a conflict in Cuba, and American involvement in Vietnam escalated. In August 1968, the Soviet Union led an invasion of Czechoslovakia that put an end to a period of political liberalisation in that country known as the Prague Spring.

During this time, US President John F. Kennedy’s strategy of “Flexible Response” sought to replace Massive Retaliation’s absolute dichotomy of peace or total nuclear war. Adopted in the wake of the Cuban Missile Crisis, Flexible Response enhanced NATO’s conventional defence posture by offering military responses short of a full nuclear exchange in the event of conflict.

Cold War tensions were revived again by the 1979 Soviet invasion of Afghanistan and the Soviet deployment of SS-20 Sabre ballistic missiles in Europe led to the suspension of détente. To counter the Soviet deployment, Allies made the “dual track” decision to deploy nuclear-capable Pershing II and ground-launched cruise missiles in Western Europe while continuing negotiations with the Soviets. The deployment was not scheduled to begin until 1983. In the meantime, the Allies hoped to achieve an arms control agreement that would eliminate the need for these weapons.

Following the ascent of Mikhail Gorbachev as Soviet Premier in 1985, the United States and the Soviet Union signed the Intermediate-Range Nuclear Forces (INF) Treaty in 1987, eliminating all nuclear and ground-launched ballistic and cruise missiles with intermediate ranges. This action signalled the end of the Cold War.

In November 1989, the Berlin Wall fell, proclaiming a new era of open markets, democracy and peace, as emboldened demonstrators overthrew Eastern European Communist governments. But NATO endured even in the absence of a Soviet Union foe. In 1991, NATO became the foundation for a larger, pan-European security architecture, and the Allies established the North Atlantic Cooperation Council in 1991, which was renamed the Euro-Atlantic Partnership Council in 1997. This forum brought

the Allies together with their Central European, Eastern European, and Central Asian neighbours for joint consultations. Many of these newly liberated countries – or partners, as they were soon called – saw a relationship with NATO as fundamental to their stability, democracy, and European integration. This cooperation also extended southward and in 1994, the Alliance founded the Mediterranean Dialogue with six non-member Mediterranean countries: Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia, with Algeria later joining in 2000.

The new cooperation was soon put to the test when the collapse of Communism gave rise to nationalism and ethnic violence in the former Yugoslavia. Allies initially hesitated to intervene in what was perceived to be a civil war, but the conflict escalated into a war of aggression and ethnic cleansing that required collective intervention. NATO carried out a nine-day air campaign in September 1995 that played a major role in ending the conflict. In December of that year, NATO deployed a United Nations-mandated, multinational force of 60,000 soldiers to help implement the Dayton Peace Agreement and to create the conditions for a self-sustaining peace. In 2004, NATO handed over this role to the European Union.

The Yugoslav and other contemporaneous conflicts in the region made it clear that the vacuum left by post-Cold War Europe was still a source of dangerous instability. In 1999, Poland, the Czech Republic and Hungary took seats as full NATO members. NATO's experiences in Bosnia and Kosovo created debate about NATO's role in the region as peacekeeper.

Before the fall of the Berlin Wall, NATO had been a static organisation whose mere existence was enough to deter the Soviet Union. But the modern NATO Alliance was transforming into a more dynamic and responsive organisation. Gone was the Cold War doctrine of nuclear retaliation, and in its place, the determination to use, after all peaceful means had failed, measured and carefully applied force in combination with diplomatic and humanitarian efforts to stop conflict.










The Concept that followed in 1999, stated that since the end of the Cold War, the world had come to face “complex new risks to Euro-Atlantic peace and security, including oppression, ethnic conflict, economic distress, the collapse of political order, and the proliferation of weapons of mass destruction.” These words would soon prove prescient when on 11 September 2001, terrorists attacked the World Trade Centre and the Pentagon.

In response, for the first time, NATO invoked its collective defence clause, Article 5. Substate actors, namely al-Qaida terrorist groups, were to blame. Subsequent attacks, including the Istanbul bombings in November 2003, the attack of the Madrid commuter train system on 11 March 2004 and the public transport system in London on 7 July 2005, made clear that these violent extremists were determined to target civilian populations.

In the aftermath of the 9/11 attacks, a coalition of countries – including many NATO Allies – militarily intervened in Afghanistan in the fall of 2001. The goal of the mission, Operation Enduring Freedom, was to deny al-Qaida a base of operation and capture

The history of NATO

Nato's expressed fundamental goal is to safeguard the Allies' freedom and security by political and military means. With this essential and enduring purpose, NATO remains the principal security instrument of the transatlantic community and expression of its common democratic values.

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- 1949**  **The North Atlantic Treaty (NATO) was officially signed in Washington D.C.**
The ground-breaking document brought together Canada and 11 other countries as founding members with the initial objective to deter expansion of the Soviets, prevent the rise of nationalist militarism, and encourage European political cooperation.
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- 1949 – 1950**  **1949: Wars break out.** The Soviet Union detonates an atomic bomb.
1950: Korean War erupts.
In response to these two events a consolidated command structure was created by NATO to be called the Supreme Headquarters Allied Powers Europe (SHAPE). Belgium became the host nation for both.
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- 1955**  **The Warsaw Pact** is signed as a defensive alliance in reaction to West Germany joining the alliance.
The establishment of the Warsaw Pact by the Eastern European States presented a unified challenge and counterbalance to NATO.
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- 1961 – 1963**  **Tensions escalate** between NATO and the Soviet Union.
1961: The Berlin Wall is built.
1963: The Cuban Missile Crisis arises.
As a result, NATO adopts the doctrine of "Massive Retaliation" where any attack by the Soviet Union — no matter how small — would be met with a nuclear response.
The **Space Race**. NATO allies' political and economic cooperation is bolstered by the adopted doctrine.
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- 1989 – 1991**  **Revolutions spread** across Central and Eastern Europe.
The Soviet Union is dissolved and the Warsaw Pact is disbanded.
1991: Relations between the NATO military alliance and the Russian Federation were established as part of the framework of the North Atlantic Cooperation Council.
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- 1995 – 1998**  **Dayton Peace Agreement.** NATO supports the UN-mandated, multinational force in the former Yugoslavia by deploying 60,000 troops to help.
A **78-day air campaign** is conducted by NATO to cease ethnic cleansing. KFOR, an multinational peacekeeping force, was established in Kosovo to support wider international efforts to build peace and stability in the area.
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- 2001**  **9/11 aftermath.** The 9/11 attacks on the World Trade Centre and Pentagon, invoked Article 5, which states that an attack against one NATO member shall be considered an attack against all. It was the first time in history that NATO's military intervention in Afghanistan increased, solidifying the organization as one that operated outside the traditional North Atlantic sphere.
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- 2014**  **Russia illegally annexes Crimea.** This marked the first time since 1945 a great power had changed Europe's borders by force.
NATO condemned the act stating that it is a breach of international law and continues to be a steadfast supporter of Ukraine — a member of the Partnership for Peace programme. This event escalates tensions between Russia and the West.
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- 2021+**  **NATO 2030 Agenda** was endorsed by leaders at the 2021 Brussels Summit. The agenda has an evolving security climate that includes climate change and constant challenges to the rules-based international order. The leaders pledge to deepen political and defence coordination to uphold and meet these emerging threats.

al-Qaida leaders. In December 2001, following the overthrow of the Taliban regime, UN Security Council Resolution 1386 authorised the deployment of the International Security Assistance Force (ISAF), a multilateral force in and around Kabul to help stabilise the country and create the conditions of a self-sustaining peace. In August 2003, NATO took over command and coordination of the ISAF.

In the modern world, Allies have realised that military power alone is not enough to ensure peace and stability. In 2014, Russia illegally annexed Crimea, marking the first time since the Cold War that tensions escalated between Russia and the West.

This of course became the pre-cursor of Russia's invasion on 24 February 2022 of Ukraine.

The future of defence

The European Defence Agency (EDA) met in 2021 to hold a Technology Foresight Exercise to help identify the future of defence over the next several decades and create a strategic plan and defence toolbox to help meet the needs of the future. The exercise yielded a list of 10 future scenarios for the future of defence by 2040.⁵

The NATO expansion — current membership

Founded in 1949 NATO now has 30 members

The current 30 NATO member countries (and 18 other countries designated as Major Non-NATO Ally [MNNA]) under U.S. law provides foreign partners with certain benefits in the areas of defence, trade and security cooperation. Six European Union (EU) members, of which there are 27 countries, are not NATO members: Austria, Cyprus, Finland, Ireland, Malta and Sweden.

| Original members | Additional members | | Major non-NATO ally (MNNA) |
|-------------------|-----------------------|---------------------|----------------------------|
| 1949 | by year joined | | as of 2023 |
| Belgium | Greece (1952) | Latvia (2004) | Argentina |
| Canada | Turkey (1952) | Lithuania (2004) | Australia |
| Denmark | Germany (1955) | Romania (2004) | Bahrain |
| France | Spain (1982) | Slovakia (2004) | Brazil |
| Iceland | Czech Republic (1999) | Slovenia (2004) | Colombia |
| Italy | Hungary (1999) | Albania (2009) | Egypt |
| Luxembourg | Poland (1999) | Croatia (2009) | Israel |
| Netherlands | Bulgaria (2004) | Montenegro (2017) | Japan |
| Norway | Estonia (2004) | N. Macedonia (2020) | Jordan |
| Portugal | | | Kuwait |
| United Kingdom | | | Morocco |
| United States | | | New Zealand |
| 12 members | 18 members | | Pakistan |
| | | | Philippines |
| | | | Qatar |
| | | | South Korea |
| | | | Thailand |
| | | | Tunisia |
| | | | 18 members |

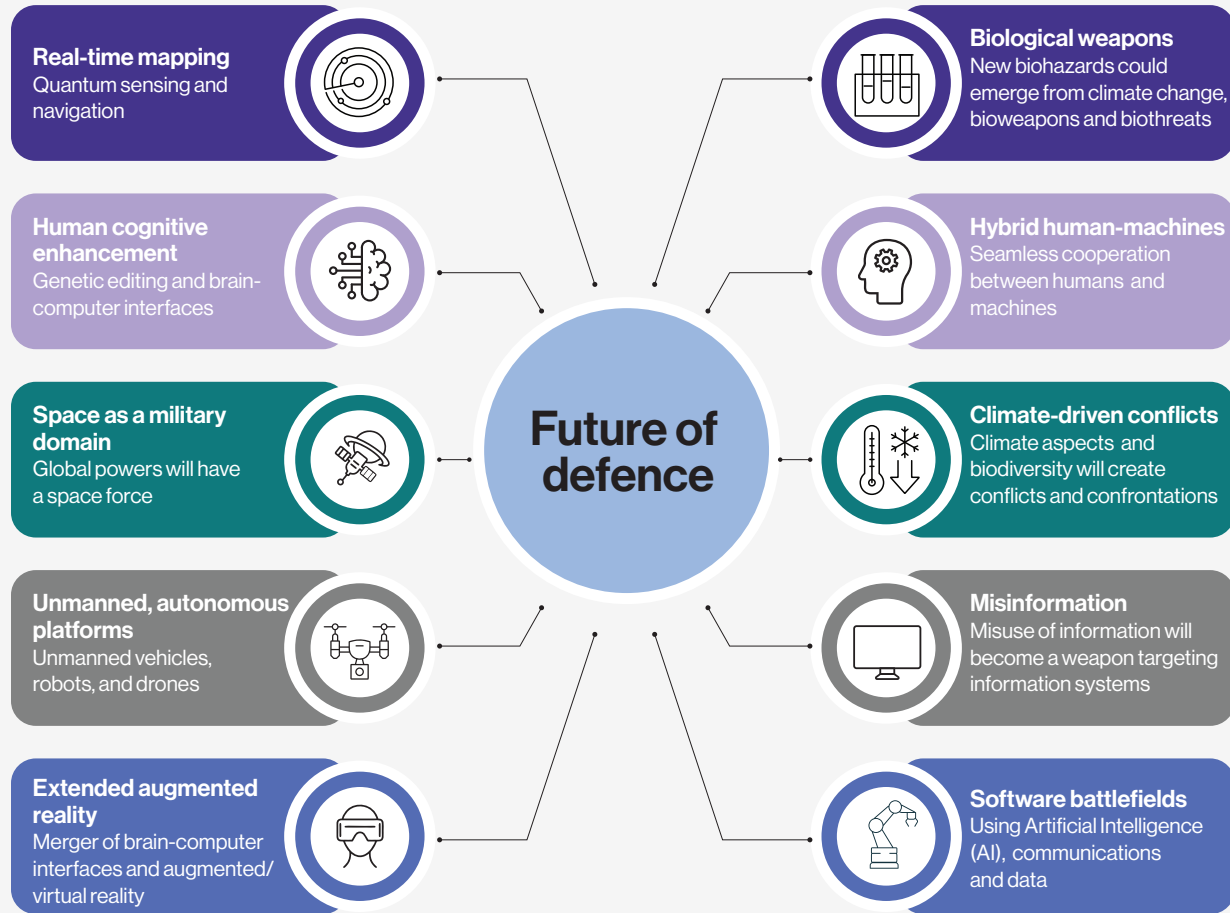
Source: EQM Indexes, NATO, U.S. Department of State

⁵ *Future military scenarios: evolution or revolution?* 15 February 2022, European Defence Agency, <https://eda.europa.eu/news-and-events/news/2022/02/15/future-military-scenarios-evolution-or-revolution>

1. **Software battlefields:** a scenario where software and algorithms will determine military missions' success more than platforms, as the result of disruptive developments and the introduction of artificial intelligence (AI), faster communication networks and system-of-systems defence solutions.
2. **Space as a military domain:** all global powers will have a fully established space force resulting in opportunities but also in threats and challenges. This scenario will call for the establishment of new concept of operations, regulatory frameworks and international agreements.
3. **Extended augmented reality:** the merger of brain-computer interfaces and augmented/virtual reality in the battlefield will lead to a pervasive robotisation of the battlefield and the rise of (mis)information-driven capabilities.
4. **Dominance of unmanned and autonomous platforms on the battlefield:** the extensive integration of unmanned platforms in the military domain will trigger major changes to the structure and organisation of Defence Ministries, particularly regarding military operational doctrine, equipment, acquisition policy and logistics implications.
5. **Hybrid human-machine teaming:** there will be a seamless integration and cooperation between humans and machines.
6. **Proliferation of more and more sophisticated biological weapons:** climate change, global migration and the rise of megacities will result in new diseases, natural catastrophes and new resistant microbes created by the widespread misuse of antibiotics and other drugs. New biohazards stemming from the use of synthetic biology and gene editing technologies will emerge, which may be used as bioweapons or biothreats.
7. **Enhanced cognitive abilities of soldiers (human enhancement):** this scenario outlines the key impact advances in biotechnology, synthetic biology, gene editing technology and brain-computer interfaces will have on soldiers as those technologies can be used to enhance human beings' cognitive and physical capabilities.
8. **Real time mapping of dynamic environments:** quantum sensing and quantum navigation will become increasingly sophisticated, resulting in real-time mapping capabilities of ever-changing environments.
9. **Use of misinformation:** the misuse of information will become a weapon targeting all information systems and enabling a scale of influencing operations challenging the capability of nation-states to counter or control. The boundaries between military and civilian domains will continue to blur.
10. **Environmental problems, energy supply, and climate change:** climate aspects and biodiversity will become geo-strategic drivers and subjects of conflicts and confrontations. Energy supply, too, will remain a major factor of strategic dominance. From a defence point of view, and despite the huge investments made in new energy generation and storage systems, energy will remain a critical challenge for most defence systems and operations.

Top 10 defence scenarios

The European Defence Agency (EDA) met in 2014 and identified a list of 10 scenarios for the future by 2040



Source: EQM Indexes, The European Defence Agency

Growing importance of cyber defence

Based on these predictions, the future of defence will integrate technological solutions such as AI

and predictive analytics that make cyber defence solutions even more important.

Cyber defence is recognised as a key component of NATO's core task of collective defence.⁶ NATO now recognises cyberspace as an "operational domain" in addition to land, sea, and air.

⁶ NATO.int, Cyber Defence, 23 March 2022.

Allies made a Cyber Defence Pledge in July 2016 to enhance their cyber defence and have continued to bolster cyber security as a matter of priority. NATO and the EU are strengthening their cooperation on cyber defence, notably in the areas of information exchange, training, research and exercises.

At the 2018 NATO Summit in Brussels, allies agreed to set up a Cyberspace Operations Centre as part of NATO's strengthened Command Structure. They also agreed that NATO can draw on national cyber capabilities for operations and missions. In February 2019, allies endorsed a NATO guide that sets out a number of tools to further strengthen NATO's ability to respond to significant, malicious and cumulative cyber activities. NATO is also intensifying its cooperation with industry through the NATO Industry Cyber Partnership (NICP).

At the 2021 NATO Summit in Brussels, Allies endorsed a new Comprehensive Cyber Defence Policy, which supports NATO's core tasks and overall deterrence and defence posture to increase the resilience of the Alliance. NATO Cyber Rapid Reaction teams are on standby 24 hours a day to assist Allies, if requested and approved.

Investment case

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at a meeting of the North Atlantic Council on 13 December 2023. The civil budget was set at €438.1 million, and the military budget was set at €2.03 billion, representing an increase of 218.2% and 12% respectively over 2023 levels.⁷

Even prior to the heightened risk environment due to rising NATO-Russia tensions, NATO budgets were already spending to modernise their defence capabilities with unmanned, autonomous jets, combat vehicles and cyber defence solutions.

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Companies with exposure to NATO and NATO+ ally spending stand to benefit from increased defence spending goals, the importance of which has been

⁷ NATO.int, 13 December 2023.

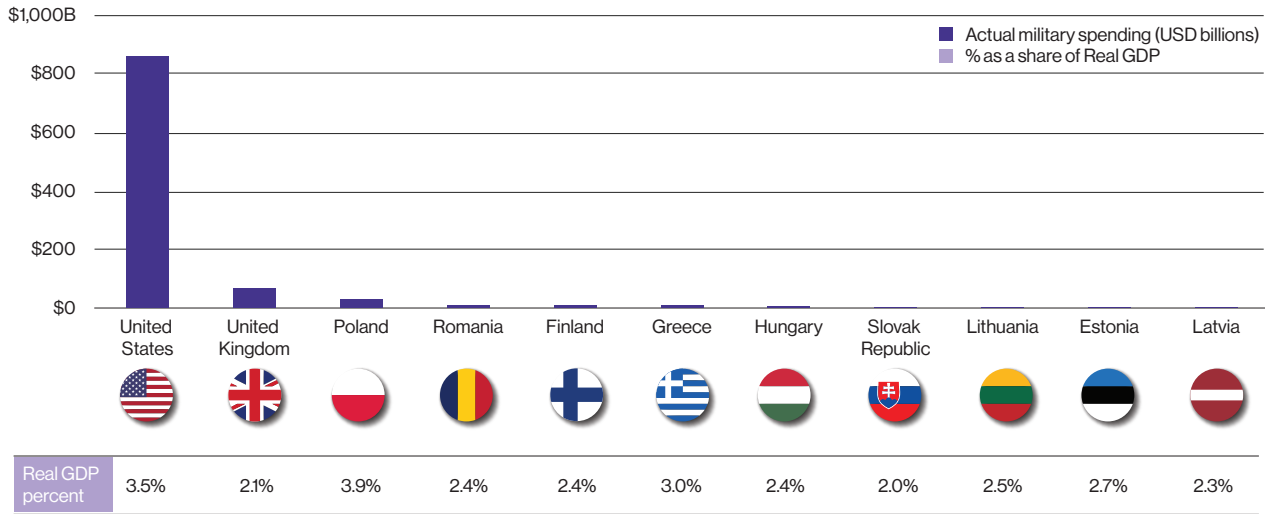
⁸ Business Research Company, January 2023, <https://www.thebusinessresearchcompany.com/report/defense-global-market-report>

⁹ MarketsandMarkets, 2022, <https://www.marketsandmarkets.com/Market-Reports/cyber-security-market-505.html>

¹⁰ NATO.int, May 10, 2022.

NATO has called for Allies to meet the 2% of GDP guideline for defence spending

11 of the current 31 member nations are meeting this goal. Others are expected to do so in the future



Source: NATO, as of December 2023.

further reinforced by rising geopolitical tensions associated with the Russian-Ukraine conflict.

As cyber-attacks have become more common, sophisticated and damaging, cyber defence has also become a rising spending priority for NATO, as it now recognises cyberspace as an “operational domain,” in addition to land, sea, and air.

Our index approach

The EQM Future of Defence Index (NATONTR), is designed to provide defence exposure by investing in global companies generating revenues from NATO and non-NATO ally defence and cyber defence spending. Using a passive, rules-based approach, companies must derive more than 50% of their revenues from the manufacturing and development of military aircraft and/or defence equipment, such as: military armoured vehicles & tanks, weapon systems and missiles, munitions and accessories,

electronics & mission systems, and naval ships; or have business operations in cyber security, contracted with a NATO+ member country.

The initial investable universe consists of global equities trading on a major global exchange headquartered in NATO+ countries, which include NATO member countries and select major non-NATO allies. Constituents must be at least \$1 billion USD in market capitalisation, with a minimum free float of at least 20% and a 3-month average daily traded value (ADTV) of at least \$1 million USD.

The maximum country weight is 60% in aggregate in order to allow for more European-focused NATO defence exposure. Components must comply with United Nation Global Compact (UNGC) principles and Organisation for Economic Cooperation (OECD) Guidelines for Multinational Enterprises as determined by EQM through a review process of publicly available data provided by the company in regulatory filings (such as Annual Reports, 10-Ks, 10-Qs, 20-Fs, 8-Ks), and quarterly earnings reports.



Index components are weighted according to the free-float market capitalisation with a maximum weight of 5% per component and a minimum position size of 20 bps at each quarterly rebalance.

How does this approach compare to other index products available in the marketplace? The Index is licensed as a UCITS ETF by HANetf and will be the first purely defence-focused UCITS ETF product available in Europe. Its launch is timely in that regard, giving investors exposure to companies benefiting from increased defence and cyber defence spending.

NATO member defence budgets were already increasing to 2% of GDP by 2024, with only 11 out of 31 NATO members already in compliance. Defence and cyber defence spending was also rising due to the need for modernisation trends such as unmanned aircraft and vehicles, and hybrid human-machine solutions. But the Russian-Ukraine war and Russian threats of a nuclear option, has further necessitated and accelerated these spending increases to over 25% year-over-year.

Conclusion

Historically, the defence sector has been responsible for many ground-breaking technological advances, from the internet to computers to drones and GPS. Western nations have invested heavily in research and development to modernise their defence capabilities and that spending has increased further due to heightened risk concerns.

- The NATO civil and military defence budgets increased 18.2% and 12% respectively over 2023 levels.
- Defence and cyber defence companies exposed to NATO+ spending were already seeing increased spending related to modernisation and the 2% of GDP NATO mandate.
- The future of defence will increasingly include technology and cyber defence solutions, which together are expected to grow at a combined compound annual growth rate (CAGR) of 7% through 2027.
- EQM's Future of Defence Index, and the UCITS ETF that tracks it, is designed to provide unique, future-proof exposure to defence and cyber defence spending growth.

To learn more about VettaFi Indexing click [here](#)

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