

**Future of the Norwegian Defense Industry
– Market Attractiveness, Competitive
Landscape and Forecasts to 2022**



TABLE OF CONTENTS

1. Introduction	8
1.1. What is this Report About?	8
1.2. Definitions	8
1.3. Summary Methodology	11
1.4. About Strategic Defence Intelligence	12
2. Executive Summary	13
3. Market Attractiveness and Emerging Opportunities	15
3.1. Current Market Scenario	16
3.1.1. Primary threat perception.....	16
3.1.2. Military Doctrine & Strategy.....	17
3.1.3. Military Fleet Size	18
3.1.4. Procurement Programs.....	20
3.1.5. Ongoing procurement programs	20
3.1.6. Future procurement programs.....	20
3.1.7. Social, Political and Economic Environment & Support for Defense Projects	21
3.1.8. Political & Strategic Alliances.....	22
3.2. Defense Market Size Historical and Forecast	23
3.2.1. Norwegian defense budget will grow at a CAGR of 4.85% over 2018–2022	23
3.2.2. Modernizing the armed forces, participating in international peacekeeping operations, and an interest in the Arctic region are the main factors driving the Norwegian defense industry	25
3.2.3. Defense expenditure as a percentage of GDP is expected to average 1.2% during the forecast period	27
3.3. Analysis of Defense Budget Allocation	29
3.3.1. Capital expenditure allocation is expected to increase over the forecast period	29
3.3.2. Capital expenditure to increase at a CAGR of 4.87% over 2018–2022	31
3.3.3. Expenditure on the 'other' segment expected to be the largest during forecast period	34
3.3.4. Army expenditure to grow at a CAGR of 3.49% over the forecast period to reach US\$908.8 Million in 2022	36
3.3.5. Air force expenditure to grow at a CAGR of 0.02% over the forecast period	38
3.3.6. Naval expenditure is expected to reach US\$920.8 million by 2022	41
3.3.7. 'Other' expenditure is expected to increase at a CAGR of 6.28% over the forecast period	43
3.3.8. Per capita defense expenditure set to decrease over the forecast period	45
3.4. Homeland Security Market Size and Forecast	47
3.4.1. Norwegian homeland security expenditure is expected to grow at a CAGR of 19.28% over the forecast period	47
3.4.2. Counter-terrorism and enhanced cyber security are expected to drive homeland security expenditure..	49

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

- 3.4.3. Norway is at a “moderately affected” by terrorism50
- 3.4.4. Norway faces moderate level of threat from foreign terrorist organizations 51
- 3.4.5. Norway has a terrorism index score of “2.1” 53
- 3.5. Benchmarking with Key Global Markets 54**
- 3.5.1. Norwegian defense budget expenditure expected to increase over the forecast period54
- 3.5.2. Norway has the one of the fastest-growing defense industries in Europe.....56
- 3.5.3. Norwegian defense budget as a percentage of GDP is expected to grow over the forecast period57
- 3.6. Market Opportunities: Key Trends and Growth Stimulators 58**
- 3.6.1. Fighters and Multi-role aircraft.....58
- 3.6.2. Diesel Electric Submarine & MRO.....59
- 3.6.3. Multi-role Aircraft MRO 60
- 3.6.4. Multi-mission Helicopters 61
- 4. Defense Procurement Market Dynamics62**
- 4.1. Import Market Dynamics 63**
- 4.1.1. Norwegian defense imports are expected to increase over the forecast period63
- 4.1.2. Spain and the US are the largest arms suppliers to Norway 64
- 4.1.3. Ships accounted for the largest percentage share of overall defense imports 65
- 4.2. Export Market Dynamics 66**
- 4.2.1. Norway was among the top 20 countries with the highest volume of defense exports66
- 4.2.2. Exports to European countries are expected to increase over the forecast period..... 67
- 4.2.3. The air defense systems category accounted for the majority of Norway’s defense exports during 2012–2016 68
- 5. Industry Dynamics 69**
- 5.1. Five Forces Analysis 69**
- 5.1.1. Bargaining power of Supplier: Low..... 70
- 5.1.2. Bargaining power of Buyer: High..... 70
- 5.1.3. Barrier to entry: Medium 70
- 5.1.4. Intensity of rivalry: High..... 70
- 5.1.5. Threat of Substitution: High..... 70
- 6. Market Entry Strategy71**
- 6.1. Budgeting Process 71**
- 6.2. Procurement Policy & Process 72**
- 6.3. Market Regulation 73**
- 6.3.1. The Norwegian defense industry is largely driven by government regulation and offset policy 73
- 6.3.2. The Norwegian government supports FDI 74
- 6.4. Market Entry Route 75**
- 6.4.1. Entry through joint development programs 75

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

- 6.4.2. Foreign Military Sales (FMS) to Norway 76
- 6.4.3. Collaborations provide market entry opportunities 77
- 6.5. Key Challenges 78**
- 6.5.1. The Norwegian government prefers Scandinavian and European countries for defense trade 78
- 6.5.2. The Norwegian export policy poses a challenge for domestic defense companies..... 78
- 7. Competitive Landscape and Strategic Insights79**
- 7.1. Competitive Landscape Overview 79**
- 7.2. Key Public Sector Companies 79**
- 7.2.1. Kongsberg Defense Systems: Overview 79
- 7.2.2. Kongsberg Defense Systems: Major Products and Services 80
- 7.2.3. Kongsberg Defense Systems: Recent Announcements and Strategic Initiatives 81
- 7.2.4. Kongsberg Defense Systems: alliances 83
- 7.2.5. Kongsberg Defense Systems: recent contract wins 84
- 7.2.6. Forsvarets ForskningsInstitutt: overview..... 86
- 7.2.7. Forsvarets ForskningsInstitutt: defense products..... 86
- 7.2.8. Forsvarets ForskningsInstitutt: recent announcements and strategic initiatives 86
- 7.2.9. Forsvarets ForskningsInstitutt: alliances..... 87
- 7.2.10. Forsvarets ForskningsInstitutt: recent contract wins 87
- 7.2.11. NAMMO AS: overview 88
- 7.2.12. NAMMO AS: products and services 88
- 7.2.13. NAMMO AS: recent announcements and strategic initiatives 89
- 7.2.14. NAMMO AS: alliances 90
- 7.2.15. NAMMO AS: recent contract wins 91
- 7.2.16. Kitron: overview 92
- 7.2.17. Kitron: products and services 92
- 7.2.18. Kitron: recent announcements and strategic initiatives 92
- 7.2.19. Kitron: alliances 93
- 7.2.20. Kitron: recent contract win..... 93
- 7.2.21. Kitron: financial analysis 94
- 7.3. Key Private Sector Companies 96**
- 7.3.1. Thales Norway AS: overview 96
- 7.3.2. Thales Norway AS: products and services 96
- 7.3.3. Thales Norway AS: recent announcements and strategic initiatives 97
- 7.3.4. Thales Norway AS: alliances..... 97
- 7.3.5. Thales Norway AS: recent contract wins 98
- 7.3.6. UmoeMandal: overview 99
- 7.3.7. UmoeMandal: products and services 99
- 7.3.8. Umoe Mandal: recent announcements and strategic initiatives 99

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.3.9. Umoe Mandal: alliances.....	99
7.3.10. Eidsvoll Electronics AS: overview.....	101
7.3.11. Eidsvoll Electronics AS: products and services	101
7.3.12. Eidsvoll Electronics AS: recent announcements and strategic initiatives	101
7.3.13. Eidsvoll Electronics AS: alliances.....	101
7.3.14. Eidsvoll Electronics AS: recent contract wins	102
8. Business Environment and Country Risk.....	103
8.1. Economic Performance.....	103
8.1.1. GDP per capita at constant prices.....	103
8.1.2. GDP at current prices (US\$)	104
8.1.3. Exports of goods and services (current LCU bn)	105
8.1.4. Imports of goods and services (current LCU bn).....	106
8.1.5. Gross national disposable income (US\$ billion).....	107
8.1.6. LCU per US\$ (period average).....	108
8.1.7. Market capitalization of listed companies (US\$ bn).....	109
8.1.8. Market capitalization of listed companies (% of GDP).....	110
8.1.9. Total Government cash surplus/deficit (LCU billion)	111
8.1.10. Government cash surplus/deficit as a percentage of GDP (LCU).....	112
8.1.11. Goods exports as a percentage of GDP	113
8.1.12. Goods imports as a percentage of GDP	114
8.1.13. Services imports as a percentage of GDP	115
8.1.14. Service exports as a percentage of GDP	116
8.1.15. Foreign direct investment, net (BoP, current US\$ billions)	117
8.1.16. Net foreign direct investment as a percentage of GDP	118
8.1.17. Mining, Manufacturing, Utilities Output (US\$ billion)	119
9. Appendix.....	120
9.1. About SDI	120
9.2. Disclaimer	120

LIST OF FIGURES

Figure 1: Norwegian Defense Expenditure (NOK Billion), 2013–2022.....	24
Figure 2: Norwegian Defense Expenditure (US\$ Billion), 2013–2022	24
Figure 3: Norwegian GDP Growth vs. Defense Expenditure as Percentage of GDP, 2013–2022	28
Figure 4: Norwegian Defense Budget Split Between Capital and Revenue Expenditure (%), 2013–2022	30
Figure 5: Norwegian Defense Capital Expenditure (NOK Billion), 2013–2022	32
Figure 6: Norwegian Defense Capital Expenditure (US\$ million), 2013–2022	33
Figure 7: Norwegian Defense Expenditure Breakdown (%), 2013–2022.....	35
Figure 8: Norwegian Defense Expenditure for Army (NOK Billion), 2013–2022.....	37
Figure 9: Norwegian Defense Expenditure for Army (US\$ Million), 2013–2022.....	37
Figure 10: Norwegian Defense Expenditure for Air Force (NOK Billion), 2013–2022	39
Figure 11: Norwegian Defense Expenditure for Air Force (US\$ Billion), 2013–2022	40
Figure 12: Norwegian Defense Expenditure for Navy (NOK billion), 2013–2022	42

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 13: Norwegian Defense Expenditure for Navy (US\$ billion), 2013–2022	42
Figure 14: Norwegian Defense Expenditure for Other Categories (NOK billion), 2013–2022	44
Figure 15: Norwegian Defense Expenditure for Other Categories (US\$ billion), 2013–2022	44
Figure 16: Norwegian Per Capita Defense Expenditure (US\$), 2013–2022	46
Figure 17: Norwegian Homeland Security Expenditure (NOK billion), 2013–2022	48
Figure 18: Norwegian Homeland Security Expenditure (US\$ billion), 2013–2022	48
Figure 19: Terrorism Heat Map, 2017	50
Figure 20: Terrorism Index, 2017	53
Figure 21: Benchmarking with Key Markets – 2013–2017 vs. 2018–2022	55
Figure 22: Benchmarking with World’s Largest Defense Spenders (US\$ Billion), 2017 and 2022	56
Figure 23: Defense Expenditure as a Percentage of GDP of Largest Military Spenders (%), 2017	57
Figure 24: Fighters & Multi-Role Aircraft (US\$ Million), 2017–2027	58
Figure 25: Diesel Electric Submarine (US\$ Million), 2017–2027	59
Figure 26: Multi-role Aircraft MRO (US\$ Million), 2017–2027	60
Figure 27: Multi-mission Helicopters (US\$ Million), 2017–2027	61
Figure 28: Norwegian Defense Import Trend, 2012–2016 (TIV values*)	63
Figure 29: Norwegian Defense Import by Country, 2012–2016 (TIV values)	64
Figure 30: Norwegian Defense Imports by Category (%), 2012–2016	65
Figure 31: Norwegian Defense Exports by Value (%), 2012–2016	66
Figure 32: Norwegian Defense exports by Country (%), 2012–2016	67
Figure 33: Norwegian Defense Exports by Category (%), 2012–2016	68
Figure 34: Industry Dynamics – Porter’s Five Forces Analysis	69
Figure 35: Kitron – Revenue Trend Analysis (NOK Million), 2011–2015	94
Figure 36: Kitron – Operating Profit Trend Analysis (NOK Million), 2011–2015	95
Figure 37: Kitron – Net Profit Trend Analysis (NOK Million), 2011–2015	95
Figure 38: Norwegian GDP Per Capita at Constant Prices (US\$), 2015–2025	103
Figure 39: Norway GDP at Current Prices (US\$ Billion), 2015–2025	104
Figure 40: Norwegian Exports of goods and services (LCU Bn), 2005–2014	105
Figure 41: Norwegian Imports of goods and services (LCU Bn), 2005–2014	106
Figure 42: Norwegian Gross national disposable income (US\$ billion), 2005-2013	107
Figure 43: Norway LCU per US\$, 2015–2024	108
Figure 44: Norwegian market capitalization of listed companies (US\$ billion), 2005–2012	109
Figure 45: Norwegian market capitalization of listed companies (% of GDP), 2005–2012	110
Figure 46: Norwegian Total Government cash surplus/deficit (LCU billion), 2003–2012	111
Figure 47: Norwegian Government cash surplus/deficit as % of GDP (LCU), 2005–2012	112
Figure 48: Norway- Goods exports as a % of GDP (%), 2005–2013	113
Figure 49: Norway- Goods imports as a % of GDP (%), 2005–2013	114
Figure 50: Norwegian Services imports as a % of GDP (%), 2005–2013	115
Figure 51: Norwegian Service exports as a % of GDP (%), 2005–2013	116
Figure 52: Norway- Foreign direct investment, net (BoP, current US\$ billion), 2005–2013	117
Figure 53: Norwegian Net foreign direct investment as % of GDP, 2005-2014	118
Figure 54: Norwegian Mining, Manufacturing, Utilities Output (US\$ billion), 2005–2014	119

LIST OF TABLES

Table 1: Norwegian Army Strength	18
Table 2: Norwegian Navy Strength	18
Table 3: Norwegian Air Force Strength	19
Table 4: Norwegian Ongoing Procurement Programs	20
Table 5: Norwegian Future Procurement Programs	20
Table 6: Norwegian Defense Expenditure (NOK billion & US\$ billion), 2013–2022	23
Table 7: Norwegian GDP Growth vs. Defense Expenditure as a Percentage of GDP, 2013–2022	27
Table 8: Norwegian Defense Budget Split Between Capital and Revenue Expenditure (%), 2013–2022	29
Table 9: Norwegian Defense Capital Expenditure (NOK Billion & US\$ Million), 2013–2022	32
Table 10: Norwegian Defense Expenditure Breakdown (%), 2013–2022	34
Table 11: Norwegian Defense Expenditure for Army (NOK Billion & US\$ Million), 2013–2022	36
Table 12: Norwegian Defense Expenditure for Air Force (NOK Billion & US\$ Million), 2013–2022	39
Table 13: Norwegian Defense Expenditure for Navy (NOK Billion & US\$ Million), 2013–2022	41
Table 14: Norwegian Defense Expenditure for Navy (NOK Billion & US\$ Billion), 2013–2022	43
Table 15: Danish Per-Capita Defense Expenditure (US\$), 2013–2022	45
Table 16: Norwegian Homeland Security Expenditure (NOK Billion & US\$ Billion), 2013–2022	47
Table 17: Terrorism Index, 2017	51
Table 18: Benchmarking with Key Markets – 2013–2017 vs. 2018–2022	54
Table 19: Norwegian Budget Formation Timetable:	71
Table 20: Offset Multiplier Categories	73
Table 21: Market Entry Strategies by Key Foreign Companies	75
Table 22: FMS deals to Norway	76
Table 23: Kongsberg Defense Systems – Major Products & Services	80
Table 24: Kongsberg Defense Systems – Alliances	83
Table 25: Kongsberg Defense Systems – Recent Contract Wins	84
Table 26: Forsvarets ForskningsInstitutt – Product Focus	86
Table 27: Forsvarets ForskningsInstitutt – Alliances	87
Table 28: Forsvarets ForskningsInstitutt – Recent Contract Wins	87
Table 29: NAMMO AS – Product Focus	88
Table 30: NAMMO AS – Alliances	90
Table 31: NAMMO AS – Recent Contract Wins	91
Table 32: Kitron – Product Focus	92
Table 33: Kitron – Alliances	93
Table 34: Kitron - Recent Contract Wins	93
Table 35: Thales Norway AS – product focus	96
Table 36: Thales Norway AS – Alliances	97
Table 37: Thales Norway AS – Recent Contract Wins	98
Table 38: Umoe Mandal – Product Focus	99
Table 39: Umoe Mandal – Alliances	100
Table 40: Eidsvoll Electronics AS – Product Focus	101
Table 41: Eidsvoll Electronics - Alliances	101
Table 42: Eidsvoll - Recent Contract Wins	102

1. Introduction

1.1. What is this Report About?

This report offers insights into the market opportunities and entry strategies adopted by foreign OEMs (original equipment manufacturers) to gain a market share in the Norwegian defense industry. In particular, it offers in-depth analysis of the following:

- **Market opportunity and attractiveness:** detailed analysis of the current industry size and growth expectations during 2018–2022, including highlights of the key growth stimulators. It also benchmarks the industry against key global markets and provides a detailed understanding of emerging opportunities in specific areas
- **Procurement dynamics:** trend analysis of imports and exports, together with their implications and impact on the Norwegian defense industry
- **Industry structure:** five forces analysis to identify various power centers in the industry and how these are expected to develop in the future
- **Market entry strategy:** analysis of possible ways to enter the market, together with detailed descriptions of how existing companies have entered the market, including key contracts, alliances, and strategic initiatives
- **Competitive landscape and strategic insights:** analysis of the competitive landscape of the defense industry in Norway, providing an overview of key defense companies (both domestic and foreign), together with insights such as key alliances, strategic initiatives, and a brief financial analysis
- **Business environment and country risk:** a range of drivers at country level, assessing business environment and country risk. It covers historical and forecast values for a range of indicators, evaluating business confidence, economic performance, infrastructure quality and availability, labor force, demographics, and political and social risk

1.2. Definitions

For the purposes of this report, the following timeframes apply:

- **Historic Period:** 2013 to 2017
- **Forecast Period:** 2018 to 2022

The following are definitions of military expenditure:

- **Revenue expenditure** includes troop training, institutional education, construction, and maintenance of various undertakings. It also covers the salaries, allowances, pensions, transportation, food, insurance, welfare benefits, and miscellaneous expenditures pertaining to all unit allowances for training, contingency, and other grants for officers, non-commissioned officers, enlisted men, and contracted civilians

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

- **Capital expenditure (CAPEX)** covers research and development (R&D), procurement, maintenance, and the transportation and storage of weaponry and other equipment. It also includes expenditure on aircraft and aero engines, heavy and medium vehicles, naval equipment, and expenditure on the purchase of land, construction plants, and machinery

The following are definitions of defense categories:

- **Military hardware** refers to the broad range of machinery, systems, equipment, and weapons used by defense forces
- **Air defense systems** are defined as all measures designed to nullify or reduce the effectiveness of hostile air action. They include ground- and air-based weapon systems, associated sensor systems, command and control arrangements, and passive measures. This may be to protect naval, ground, and air forces wherever they are positioned, but does not include missile defense systems
- **Missile defense systems** are systems, weapons, or technologies involved in the detection, tracking, interception, and destruction of attacking missiles
- **Naval defense systems** are used to protect sea lanes, ferry troops, or attack other navies, ports, or shore installations. They include surface ships, amphibious ships, submarines, and seaborne aviation
- **Homeland security (HLS)** involves the protection of a country's civilians and critical infrastructure from natural or man-made disasters. Its margins extend to border and maritime patrol, customs checks in ports and airports, search and rescue operations, disaster recovery, and combating terrorism and cyber-attacks

The following are miscellaneous definitions:

- **Indirect offsets** involve both barter and counter trade deals, investment in the buying country, or the transfer of technology unrelated to the weapons being sold
- **Direct offsets** is defined as an arrangement wherein the purchaser receives work or technology directly related to the weapons sale, typically by producing the weapon system or its components under license
- **Multipliers** are additional credits assigned over and above the market value provided to offsets for a technology, product, or service being offered.
- **Command, control and communications and intelligence system (C3I)** refers to an information system employed by a military's top command to direct its forces. This system provides the military with information on various parameters associated with executing a strategy during a military exercise. The parameters include reconnaissance and surveillance, troop positions, inventory levels, and weather conditions. The communication system enables the transfer of images and video captured by surveillance systems, and data and voice between the command and control center. In addition, the system aids in joint operations between the army, navy, and air force
- **Maintenance, repair and overhaul (MRO)** involves the servicing of a defense system with the objective of restoring it to a state where it can perform its intended function. This could be routine maintenance, the replacement of faulty spare parts, or checking the entire system to ensure smooth functionality

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

- **Airborne early warning and control systems (AEW&C)** are airborne radar systems used by the military to detect the movement of aircraft in its airspace. Used at high altitudes in both defensive and offensive air operations, they have the ability to help distinguish between civilian and military aircraft

1.3. Summary Methodology

SDI's dedicated research and analysis teams consist of experienced professionals with a background in industry research and consulting in the defense sector. The following research methodology is followed for all databases and reports.

Secondary Research

The research process begins with exhaustive secondary research to source reliable qualitative and quantitative information related to the defense market. The secondary research sources that are typically referred to include, but are not limited to:

- Industry associations
- National government documents and statistical databases
- Company websites, annual reports, financial reports, broker reports, investor presentations
- Industry trade journals and other literature
- Internal and external proprietary databases
- News articles, press releases, and webcasts specific to the companies operating in the market

Primary Research

SDI conducts hundreds of primary interviews a year with industry participants and commentators in order to validate its data and analysis. A typical research interview fulfills the following functions:

- Provides first-hand information on market size, market trends, growth trends, competitive landscape, and future outlook
- Helps to validate and strengthen secondary research findings
- Further develops the analysis team's expertise and market understanding
- Primary research involves e-mail interactions, telephone interviews, and face-to-face interviews for each market category, division, and sub-division across geographies

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, business development managers, market intelligence managers, and national sales managers
- External experts: investment bankers, valuation experts, research analysts, and key opinion leaders specializing in defense markets

Conventions

- Currency conversions are performed on the basis of average annual conversion rate format calculations
- All the values in tables, with the exception of compound annual growth rate (CAGR) and compound annual rate of change are displayed to one decimal place; therefore, growth rates may appear inconsistent with absolute values due to this rounding method
- The forecast values are projected on the basis of nominal values; inflation was not taken into account

1.4. About Strategic Defence Intelligence

This report is one of a series that is available to subscribers of our premium research platform — Strategic Defence Intelligence. Strategic Defence Intelligence provides a stream of continuously updated customer and competitor intelligence, as well as detailed research reports providing an unrivalled source of global information on the latest developments in the defense industry.

Strategic Defence Intelligence's unique monitoring platform tracks global defense activity for over 2,500 companies and 65 product categories in real-time in a highly structured manner — giving a comprehensive and easily-searchable picture of all defense industry activity. The site features daily updated analysis, comment and news, company and customer profiles, defense spending, tenders, and contracts, product and technology intelligence, a research and analysis database giving you access to industry and competitor reports to inform your business and market planning, as well as fully customizable tools including instant personalized report generation and custom alerts.

2. Executive Summary

Norwegian defense expenditure is expected to reach US\$7.6 billion in 2022, at an estimated CAGR of 4.85% during the forecast period

Recovering from global financial crisis, Norway aims to develop a strong and modern defense force that is capable of addressing national threats as well as contributing effectively in allied and international operations for security and peace. The country is part of NORDEFCO (Nordic Defence Cooperation), which was established in 2009 and has the goal of strengthening defense capabilities through cost-effective collaborations. The country has expressed interest in multinational defense cooperation via procurement, training, and support agreements. The government is also keen to enter into bilateral and multilateral collaborations with allies within neighboring areas, to contribute actively to EU security and defense operations and to establish Nordic security and defense cooperation. These measures are likely to stimulate the Norwegian defense budget over the next five years; the defense budget is expected to grow at an estimated CAGR of 4.85% over the forecast period, to reach US\$7.6 billion in 2022.

Norwegian defense capital expenditure is expected to increase from US\$1.8 billion in 2017 to US\$2.4 billion in 2022, growing at a CAGR of 4.87%. The Norwegian Defense Ministry is expected to procure multi-role fighter aircraft, search and rescue helicopters, armored vehicles, main battle tanks, cyber security, a joint strike missile (JSM) system, and submarines. Revenue expenditure is expected to increase from US\$4.2 billion in 2017 to US\$5.2 billion in 2022; attributed to additional training and development programs that are to be undertaken over the forecast period.

The Norwegian defense budget is inclusive of expenditure on the army, navy, and air force, the procurement of material, building, and construction work, and the 'others' category (which includes Norwegian Forces Abroad, Common Institutions, and expenses under the Headquarters Command, Common Management, and Command Structure). The 'others' category accounted for the highest budget allocation during the historic period, with an average of 67.6%. The Norwegian Air Force received an average allocation of 12.2%, followed by the Army at 12%, and the navy at 8.3%.

Norwegian homeland security expenditure to be US\$16.8 billion by 2022

Norwegian homeland security expenditure (HLS) stands at US\$7.2 billion in 2017, reflecting a CAGR of 7.51% over 2013–2017. Over the forecast period, the budget is expected to grow from US\$8.3 billion in 2018 to US\$16.8 billion in 2022, driven by the government's efforts to curb the continuing problems of terrorism and cyber-crimes. The country is anticipated to spend significantly on cyber security, surveillance systems, airport security, biometric systems, video-surveillance systems, training, and cyber security software during the forecast period.

Norwegian defense imports and exports are expected to increase over the forecast period

Overall defense imports were high between 2011 and 2015; however, due to the modernization and procurement plans of the Norwegian MoD, the country's defense imports are expected to increase over the forecast period. European countries such as France, Germany, Italy, and the UK are expected to remain the key suppliers during the forecast period.

Norway is among the top arms exporters worldwide. During the forecast period, the country's defense exports are expected to grow significantly as a result of expansion into Thailand, Singapore, and South Africa, in which, demand for defense equipment is expected to be strong. Furthermore, new collaboration programs with foreign OEMs are expected to drive Norwegian defense exports over the forecast period.

The government's strict offset policy and preference for Scandinavian and European countries are major challenges for the domestic defense industry

The Norwegian defense industry is largely regulated by the government's offset policy, where offsets are mandatory for all transactions exceeding NOK50 million, with foreign investors required to invest 100% of the contract value back into the Norwegian economy. For all acquisitions, a considerable part of the commitment must be covered by obligatory contracts with the Norwegian industry prior to the Armed Forces entering into an agreement with the supplier. Furthermore, in the case of non-execution of the signed agreement, the foreign investor is obligated to pay with the minimum penalty being 10% of the outstanding amount. The Norwegian government prefers Scandinavian and European countries for all types of defense trade, as Norway is a member of the European Defense Agency, which limits the scope for foreign companies to enter the Norwegian defense industry. Additionally, as a part of NORDEFECO, the country focuses on enhancing regional security, pooled equipment procurement, and joint capacity building.

3. Market Attractiveness and Emerging Opportunities

Norway's total defense expenditure values US\$6 billion in 2017 and is expected to reach US\$7.6 billion by 2022; this can be attributed to military modernization initiatives and training programs that are expected to be executed during the forecast period. A considerable portion of the budget is anticipated to be directed towards the procurement of military aircraft such as the F-35 fighter aircraft, the Norwegian All Weather Search and Rescue Helicopter (NAWSARH) program, maritime patrol aircraft, Advanced Medium Range Air-to-Air Missiles (AMRAAM), upgrade and support for C-130J aircraft, the soldier modernization program, cyber security, and the purchase of advanced technology equipment. In addition, the defense budget will likely be driven by participation in peacekeeping initiatives. During 2013–2017, the average capital expenditure allocation stood at 27.5% of the total defense budget, and this is expected to increase to 32% during the forecast period.

3.1. Current Market Scenario

3.1.1. Primary threat perception

Norway shares a small arctic border with Russia, and as such is one of the frontline NATO states to directly border Russia. As a founding member of NATO Norway's armed forces have been traditionally geared for countering a Russian invasion across its land borders. As a major NATO state straddling arctic ocean, the country faces its greatest security threat from resurgent Russia, which has over the years heavily invested in building arctic warfare capabilities and developing hybrid warfare doctrine. The Russian hybrid warfare doctrine emphasizes misinformation, and focuses on deliberately creating confusion within the opponent military structure to temporarily paralyse them. The new Russian hybrid warfare doctrine attempts to mix hard power with soft power and employs wide range of military as well as non-military instruments to confound, shock and wear down the opponent and since the hybrid warfare doctrine remains vague in intent as well as source it is particularly difficult for large multi-national military coalitions to mount a robust military response in a timely manner. Moreover, ever since 2013, Russia has been organizing large scale military exercises, at minimal notice and has already organized over eight large scale military exercises close to NATO countries borders. In December 2013, Russia organized a major military exercise in Kaliningrad exclave, which shares land borders with Poland and Lithuania and has heavily invested in modernizing its armed forces equipment. Against the backdrop of its ongoing tension with NATO, Russia is also investing in developing large arctic military bases on several islands. Therefore, Norway is a major front line military station for NATO and US has decided to pre-position significant military equipment in Norway to enhance prospects of mounting a rapid counter-strike.

Apart from this, Norway also faces significant threat from Islamic State (IS) inspired extremism and terrorist activities within the country. With significant part of the migrants from the war-torn Iraq, Libya and Syria taking the northern route to migrate to Europe, there exists a significant threat of extremists infiltrating the country. Therefore, Norway is expected to fortify its Northern borders with Russia to prevent unauthorized infiltration.

3.1.2. Military Doctrine & Strategy

Faced with an increasingly unpredictable Russia, willing to employ military force to secure interests, Norway has been forced to increase budgetary allocations for defense. Norway as a part of a long-term investment plan, has decided in favor of restructuring its military and eliminate in-efficient spending sectors to make it more compact and efficient fighting force. As a part of initiative Norway has adopted a cross-service cost-efficiency drive to cut down on superfluous expenditure and streamline defense expenses. The country plans to save about US\$300 million, through 2017-2020 and divert them to fund critical military procurements especially within Army and Navy. In order to realize such savings, Norway plans to winddown operations and close 11 different military bases across the country to allocate greater resources for defense capital spending.

Apart from this, Norway's membership of NATO gives it the power to invoke article 5 of NATO charter, and allows it to call upon the collective military strength of all NATO partners, which reassures the country's security in case of attack. Norway has also decided to host 300 US marines on a 6-month rotational basis deployment and is stockpiling war materials within the country to handle any emergencies.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.1.3. Military Fleet Size

Norwegian armed forces have a yearly requirement of about 8,000 – 10,000 conscripts out of a pool of about 60,000 personnel, falling within the relevant age group. Norway plans to have over 20% women within its armed forces by 2020.

Table 1: Norwegian Army Strength	
The Royal Norwegian Army	Strength
Personnel Strength	~11,500
Leopard 2A4NO Main Battle Tanks	52
Armored Fighting Vehicles (AFV)	~500
- M113	~300-315
- CV90	104
- Patria Pasi	75
- Fuchs 1A8	6
Artillery	50
- M109A3GNM Self Propelled Artillery	14
- M270 MLRS	12
- NM204 Mortar Carrier	~8
- CV 90 MultiC mortar carrier	16
Armored Engineering Vehicle	47
- CV90 STING*	16
- NM190 Broleggerpanservogn	9
- NM189 Ingeniørpanservogn	22
Armored Recovery Vehicle (ARV)	19
- Bergepanzer Wisent 2*	6
- Bergepanzer 2	13
Infantry Mobility Vehicle (IMV)	189
Iveco LMV	169
ATF Dingo	20

Source: Ministry of Defense, Norway and SDI analysis © SDI

Table 2: Norwegian Navy Strength	
The Royal Norwegian Navy – Key Capital Vessels	Number of Units
Fridtjof Nansen-class frigates	5
Support Vessels	2
- Reinøysund (L4502)	1
- Rotsund (L4505)	1
Mine Clearance Vessels	9
- Oksøy class mine hunter	4
- Alta class mine sweeper	4

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 2: Norwegian Navy Strength

- Tyr (N50) Minelayer/Minesweeper	1
Ula class Submarines	6
Corvettes/ Missile Torpedo Boats (MTB)	6
Source: Ministry of Defense, Norway and SDI analysis	
© SDI	

Table 3: Norwegian Air Force Strength

The Royal Norwegian Air Force – Key Capital Assets	Total Units
Personnel	3,650
Multi-Role Aircraft	50
- F16 A/B	56
- F-35*	4
Helicopters	
- Bell 412	18
- NHIndustries NH90	6
- Westland Sea King	11
Source: Ministry of Defense, Norway and SDI analysis	
© SDI	

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.1.4. Procurement Programs

3.1.5. Ongoing procurement programs

Program	Contract Date	Volume	Supplier	Delivery	Value
AW101 Merlin	December 2013	16	Leonardo	NA	€1.2 billion
Lockheed Martin F-35 Lightning II	November 2014	25	Lockheed Martin	2020 onwards	NA
AIM-9X Block II Sidewinder Tactical Missiles	May 2015	262	Raytheon	NA	US\$345 million
NASAMS modernization	April 2015	NA	Kongsberg	NA	US\$20.7 million
CV 90 IFV	June 2012	144	BAE	2015-2018	£500 million
Leopard 2 Modernization*	2016	~46	-	2016-2021	NOK 1-2 billion
Extenda High Mobility Vehicles (HMT)	May 2015	NA	Supacat	2017-2019	£23 million

Source: Ministry of Defense, Norway and SDI analysis © SDI

3.1.6. Future procurement programs

Program	Type	Stage	Comments
Submarines	Diesel Electric	RFI	Norway has chosen to partner with Germany for its Ula class submarine replacement, which are to be inducted in 2020.
P-8 Poseidon	Maritime Patrol Aircraft	Planning	Norway is expected to phase out its ageing P-3C Orion's aircrafts in over the forecast period and is planning on investing US\$ 1.15 billion for replacing them with five P-8 Poseidon Maritime Patrol Aircraft.
Weapon Locating Radar	Radar	RFI	The contract for producing a weapon locating radar is expected to be given in 2017.
Nordkapp-class Coast Guard Vessel replacement program	Patrol Vessel	RFI	The contract is expected to be awarded in 2018 and is estimated cost NOK 3000-5000 million
Stridsbåt 90 replacement for inland water operations	Patrol Vessel	RFI	The contract is expected to be awarded in 2018 and is estimated to cost NOK 300-500 million
Mid Life upgrade for Svalbard-class Coast Guard Vessel	Patrol Vessel	Under Evaluation	The project is presently under evaluation and is estimated to cost NOK 100-300 million

Source: Ministry of Defense, Norway and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.1.7. Social, Political and Economic Environment & Support for Defense Projects

Faced with a resurgent Russia, Norway has increased its defense budget since 2015. Although Norwegian defense budget of 2015 was significantly lower than the previous years, the country is expected to make a recourse from budgetary cutbacks and is anticipated to make robust allocations to defense. However although the country's political environment is usually in support of increasing its defense budget, Norway as a major gas exporting country has been significantly impacted by the drop in oil & gas prices worldwide. As much of Norway's wealth is directly derived from oil & gas exports, the decline in export revenue has forced Norway to adopt a cost-efficiency drive across its military services. As a part of the cost-efficiency drive, Norway has embarked upon a massive military reorganization exercise to enhance cost-efficiencies within its military organization structure, in order to yield almost US\$300 million in savings. The country plans to divert accrued savings towards funding defense procurement programs and as such the country is expected to continue investing in improving its defense posture with respect to Russia.

3.1.8. Political & Strategic Alliances

Norway is among the original few founding members of the NATO military alliance in 1949 and “Article 5” of the NATO treaty, which emphasizes the concept of collective defense, ensures that Norwegian sovereignty remains absolute and is not challenged in the foreseeable future. As “Article 5” of the NATO agreement explicitly declares that an attack on any of the member countries would be deemed an attack against the entire alliance, as a member of NATO Norway reserves the right to invoke “Article 5”, when its under attack by any foreign power. As such, being part of an international security alliance such as NATO makes up for the small size of Norwegian defense spending and its military forces, which are unable to counter any direct aggression on their own.

Norway apart from Denmark, Sweden, Finland, Iceland, are also part of the Nordic Defence Cooperation (NORDEF) alliance, an alliance to promote collaboration between Nordic countries. The primary aim of the NORDEF alliance is to fortify the defense capabilities of all individual member countries. The NORDEF charter allows members countries to cooperate on a bilateral level as well as among all five countries. In addition, it is well within the ambit of the NORDEF charter to cooperate with non-Nordic countries in specific areas where it may add value and yield additional benefits.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.2. Defense Market Size Historical and Forecast

3.2.1. Norwegian defense budget will grow at a CAGR of 4.85% over 2018–2022

In terms of local currency, the Norwegian defense budget is expected to reach NOK 64.5 billion by 2022

The Norwegian defense budget stands at NOK50.9 billion in 2017 and registered a CAGR of 3.99% during 2013–2017. Defense expenditure is forecast to increase at a CAGR of 4.85%, to value NOK64.5 billion in 2022.

In terms of US dollars, Norwegian defense expenditure is expected to value US\$34.8 billion cumulatively during 2018–2022

Norwegian defense expenditure is valued at US\$6 billion in 2017, and registered a CAGR of -5.13% during the historic period. The decline in defense budget is primarily due to the decline in exchange rates, owing to drastic drop in global energy prices. Moreover, Norwegian government is also prioritizing homeland security over defense. Norway's membership of NATO assures the country's security against any external aggression and as such the country and the country instead is expected to focus on improving its policing capabilities in the Arctic region. Over the forecast period, Norwegian defense expenditure is expected to further increase from US\$6.3 billion in 2018 to US\$7.6 billion by 2022, reflecting a CAGR of 4.85%.

The following table shows Norway's defense expenditure during 2013–2022:

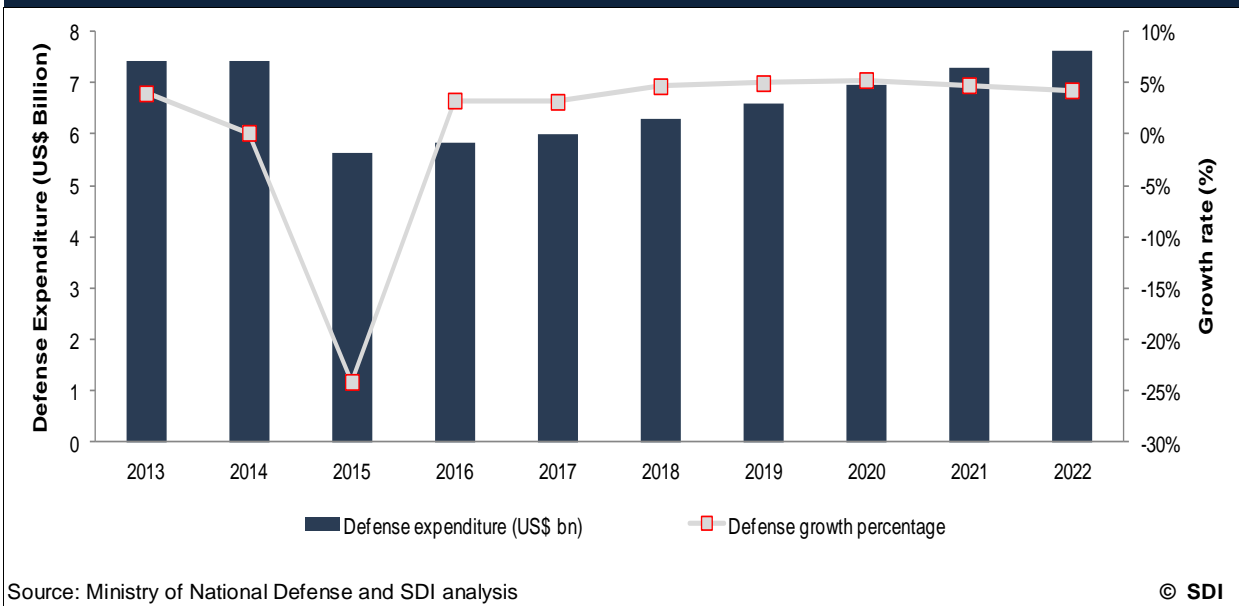
Table 6: Norwegian Defense Expenditure (NOK billion & US\$ billion), 2013–2022				
Year	Defense expenditure (NOK Bn)	Growth Rate (%)	Defense expenditure (US\$ Bn)	Growth Rate (%)
2013	43.6	5.0%	7.4	4.0%
2014	46.7	7.1%	7.4	0.2%
2015	45.3	-2.9%	5.6	-24.1%
2016	48.9	7.8%	5.8	3.3%
2017	50.9	4.2%	6.0	3.2%
2018	53.3	4.7%	6.3	4.7%
2019	56.0	5.0%	6.6	5.0%
2020	59.0	5.3%	7.0	5.3%
2021	61.8	4.8%	7.3	4.8%
2022	64.5	4.3%	7.6	4.3%
2013–2017	CAGR (%)NOK	3.99%	CAGR (%) US\$	-5.13%
2018–2022	CAGR (%)NOK	4.85%	CAGR (%) US\$	4.85%
Source: Ministry of Defense, Norway and SDI analysis				© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 1: Norwegian Defense Expenditure (NOK Billion), 2013–2022



Figure 2: Norwegian Defense Expenditure (US\$ Billion), 2013–2022



3.2.2. Modernizing the armed forces, participating in international peacekeeping operations, and an interest in the Arctic region are the main factors driving the Norwegian defense industry

The Norwegian defense budget is currently driven by efforts to modernize its armed forces, active participation in peacekeeping missions, and protecting its interests in the Arctic region:

Modernization of the armed forces: With the objective of modernizing the nation's armed forces, the Norwegian MoD passed a long-term defense plan in 2010, which was again revised in 2012. The program outlines the procurement of new and advanced military hardware, additional funding for the home guard, advanced training for the armed forces and home guard, and a special allocation for cyber security. The country's military modernization initiatives include:

- The government awarded a contract for the procurement of 48 F-35A Lightning II aircraft under a US\$10billion contract with an option to increase the number to 52
- The Norwegian Defence Logistics Organisation (NDLO) contracted Iveco Defense Vehicles for a tranche of 60 light armored vehicles and this procurement is expected to increase the total fleet to 170 units
- The country plans to upgrade and manufacture 146 CV90 armored combat vehicles, which will significantly enhance the army's operational capabilities. The program is expected to be completed in 2017, after adding 41 new CV90 armored fighting vehicles (AFVs) and upgrading 103 current CV90s
- The country entered into a contract with Agusta Westland for 16 AW101 helicopters
- The country intends to build a new class of submarine that will replace the existing Ula-class submarines

International interest in the Arctic region: With world-wide research suggesting the presence of large reserves of untapped natural resources in the Arctic, the region has gained strategic importance recently, and has become the contention of a cold war. According to a US Geological Survey, the Arctic territory is rich in energy resources and is estimated to be endowed with 90 billion barrels of oil and 1,670 trillion cubic feet of natural gas, which make up 10% of the world's petroleum resources. The other potential deposits include gold and platinum hidden beneath ice, and the Arctic nations, which include five countries: Canada, Norway, Russia, and the US, are increasing efforts to claim sovereignty over the region. The melting polar caps in the disputed ice region have opened northern sea routes for shipping that stretch to both the northern Atlantic and Pacific oceans, which are of strategic trade importance to world-wide nations. Russia is enhancing its military forces to ensure security by forming new military units and infrastructure in the Arctic and protect the country's national interest in the region. Moreover, the country sent 10 warships and nuclear-powered icebreakers along the Northern Sea Route and will deploy two Arctic brigades of troops by 2015. The US military has deployed 22,000 troops and 5,000 guardsmen and reservists in Alaska, as well as military capabilities that include C-130s and nuclear submarines. In response to these, Norway allocated special funds in 2013 for "high north" military activities, including creating a special defense unit for the Arctic region. Therefore, the country will continue to strengthen its military presence to capture the economic opportunities available in the region.

International peacekeeping operations: As a permanent member of the UN Security Council and as one of the founding members of NATO, Norway is an active participant in international peacekeeping operations and is a prime contributor to the UN-led international operations in Afghanistan and Iraq. In the past, the country has participated in numerous peacekeeping missions across the Balkans, the Middle East, Kashmir, Korea, the Congo, Angola, El Salvador, Somalia, the former Yugoslavia, Guatemala, Sierra Leone, and East Timor. In 2014, Norway contributed military personnel to UN international peacekeeping missions, including MINUSTAH (Stabilization Mission in Haiti), MONUSCO (Stabilization Mission in the Democratic Republic of the Congo), UNAMA (Mission in Afghanistan), UNMIK (Interim Administration Mission in Kosovo), UNMIL (Mission in Liberia), UNMISS (Mission in the Republic of South Sudan), and UNTSO (Truce Supervision Organization). Furthermore, Norway joined Finland, Sweden, and other NATO partners in providing air surveillance patrolling in Iceland in early 2014, and has six F-16 fighter jets currently deployed to fulfill Iceland's peacetime preparedness needs. The government is also extending NOK6 million to support the African-led International Support Mission to the Central African Republic (MISCA). The Norwegian government's commitment to providing peace building support in various countries is expected to result in increased defense expenditure.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.2.3. Defense expenditure as a percentage of GDP is expected to average 1.2% during the forecast period

In 2017, Norwegian defense expenditure as a percentage of GDP stands at 1.5%, and is expected to reach 1.6% at the end of 2022. However, on an average basis, defense expenditure as a percentage of GDP was 1.5% over 2013–2017, and is anticipated to stay same at 1.5% over the forecast period.

The following table and chart show Norwegian GDP growth vs. defense expenditure growth, and defense expenditure as a percentage of GDP during 2013–2022:

Table 7: Norwegian GDP Growth vs. Defense Expenditure as a Percentage of GDP, 2013–2022

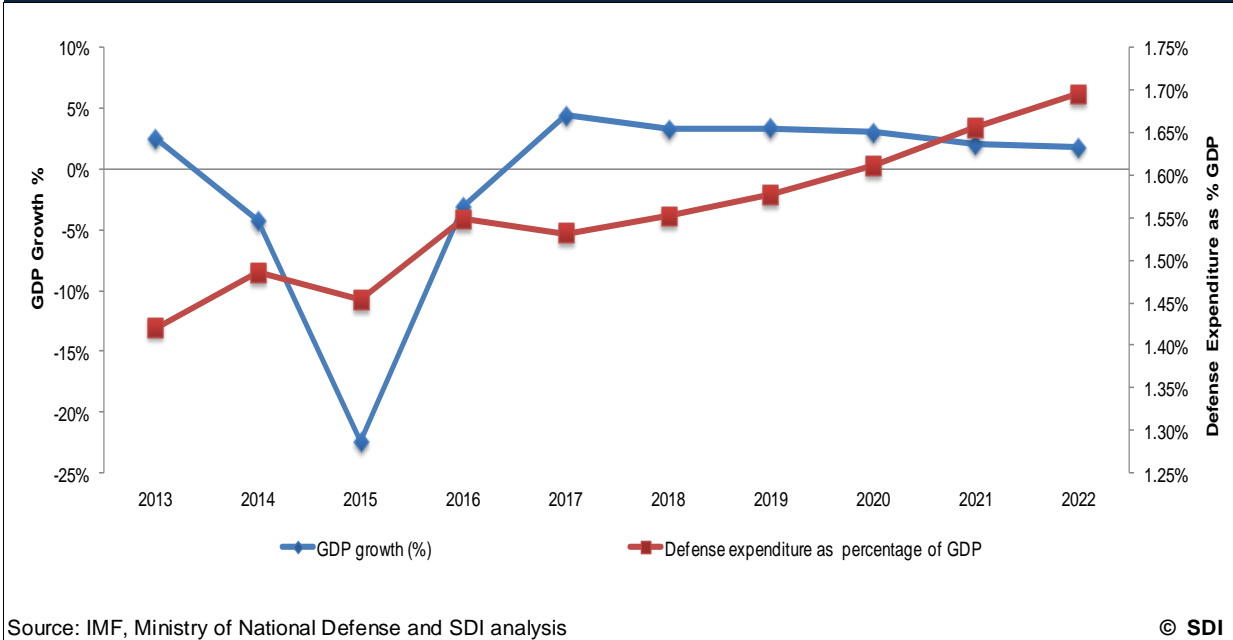
Year	GDP growth (%)	Defense expenditure as percentage of GDP
2013	2.6%	1.42%
2014	-4.3%	1.49%
2015	-22.4%	1.45%
2016	-3.1%	1.55%
2017	4.4%	1.53%
2018	3.3%	1.55%
2019	3.4%	1.58%
2020	3.0%	1.61%
2021	2.0%	1.66%
2022	1.8%	1.70%

Source: IMF, Ministry of National Defense and SDI analysis

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 3: Norwegian GDP Growth vs. Defense Expenditure as Percentage of GDP, 2013–2022



3.3. Analysis of Defense Budget Allocation

3.3.1. Capital expenditure allocation is expected to increase over the forecast period

The Norwegian MoD allocated an average of 27.5% of capital expenditure between 2013 and 2017, which is expected to continue to grow at a significantly higher rate and average 32% during the forecast period. Capital expenditure is driven by the number of procurements and modernization programs formulated by the Norwegian armed forces, and increasing material and research and development (R&D) expenses. Its military modernization programs include the acquisition of F-35 aircraft, AW101 helicopters, CV90 armored fighting vehicles (AFVs), Leopard 2A6 tanks, cyber security, a joint strike missile (JSM) system for the F-35 JSF, and the submarine replacement program. Norwegian revenue expenditure is expected to be driven by an increase in training expenditure and the number of army personnel, continued contributions to international peace and stability, and enhancement of home guard training and coast guard capabilities.

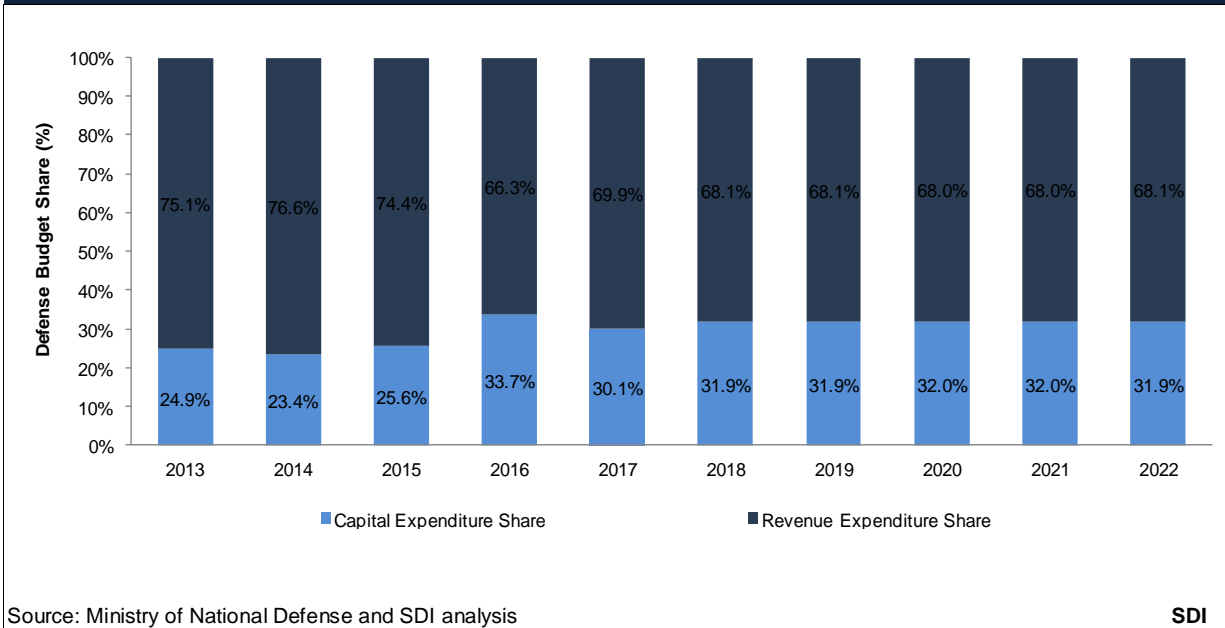
The following table and chart display the defense budget share of capital and revenue expenditure during 2011–2015:

Year	Capital Expenditure Share	Revenue Expenditure Share
2013	24.9%	75.1%
2014	23.4%	76.6%
2015	25.6%	74.4%
2016	33.7%	66.3%
2017	30.1%	69.9%
2018	31.9%	68.1%
2019	31.9%	68.1%
2020	32.0%	68.0%
2021	32.0%	68.0%
2022	31.9%	68.1%

Source: IMF, Ministry of National Defense and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 4: Norwegian Defense Budget Split Between Capital and Revenue Expenditure (%), 2013–2022



3.3.2. Capital expenditure to increase at a CAGR of 4.87% over 2018–2022

In terms of local currency, Norwegian capital expenditure is projected to reach NOK20.6 billion by 2022

In terms of local currency, the budget allocation for capital expenditure increased from NOK10.9 billion in 2013 to NOK15.3 billion in 2017, and registered a CAGR of 9.06%. However, during the forecast period, the capital spending is expected to stabilize register a CAGR of 4.87%, to value NOK20.6 billion in 2022.

In terms of US dollars, Norwegian capital expenditure is expected to value US\$11.1 billion cumulatively during 2018–2022

The country's budget allocation towards the procurement of defense equipment decreased at a CAGR of -0.51% between 2013 and 2017, to value US\$1.8 billion in 2017. This is mainly due to fall in exchange rates, triggered by slump in oil prices worldwide. Over the forecast period, the capital budget is expected to increase at a CAGR of 4.87% to reach US\$2.4 billion in 2022. Norway pursuing a long term plan to reorganize and restructure its military and the country plans to enhance cost efficiencies as a part of its long term investment plan. As a part of restructuring effort Norway plans to transform its military forces in to more compact yet effectively equipped force with upgraded strike capability, capable of prolonged operations on frontlines with Russia. The country cost-efficiency initiative is a vital component of a much larger multiple branch capital spending plan, that intends to yield significant savings to fund a higher level of combat readiness, modern capabilities and fire power with Norwegian defense structure as well as military organization. The country plans to invest about US\$300 million, which would be yielded form cost-efficiency drive to assuage perennial under funding issues with the Norwegian military forces, inclusive of Army, Air Force and Navy between the periods 2017-2020. To affect cost savings, the Norwegian government plans to close 11 military bases across the country and divert resources to fund capital acquisitions for military forces.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

The table and figure below show the Norwegian defense budget allocation for capital expenditure during 2013–2022:

Table 9: Norwegian Defense Capital Expenditure (NOK Billion & US\$ Million), 2013–2022

Year	Capital expenditure (NOK Bn)	Growth Rate (%)	Capital expenditure (US\$ Bn)	Growth Rate (%)
2013	10.9	7.6%	1.8	6.5%
2014	10.9	0.8%	1.7	-5.8%
2015	11.6	6.0%	1.4	-17.2%
2016	16.5	42.3%	2.0	36.3%
2017	15.3	-6.9%	1.8	-7.9%
2018	17.0	11.0%	2.0	11.0%
2019	17.9	4.9%	2.1	4.9%
2020	18.9	5.6%	2.2	5.6%
2021	19.8	4.8%	2.3	4.8%
2022	20.6	4.1%	2.4	4.1%
2013–2017	CAGR (%) NOK	9.06%	CAGR (%) US\$	-0.51%
2018–2022	CAGR (%) NOK	4.87%	CAGR (%) US\$	4.87%
Source: Ministry of National Defense and SDI analysis				SDI

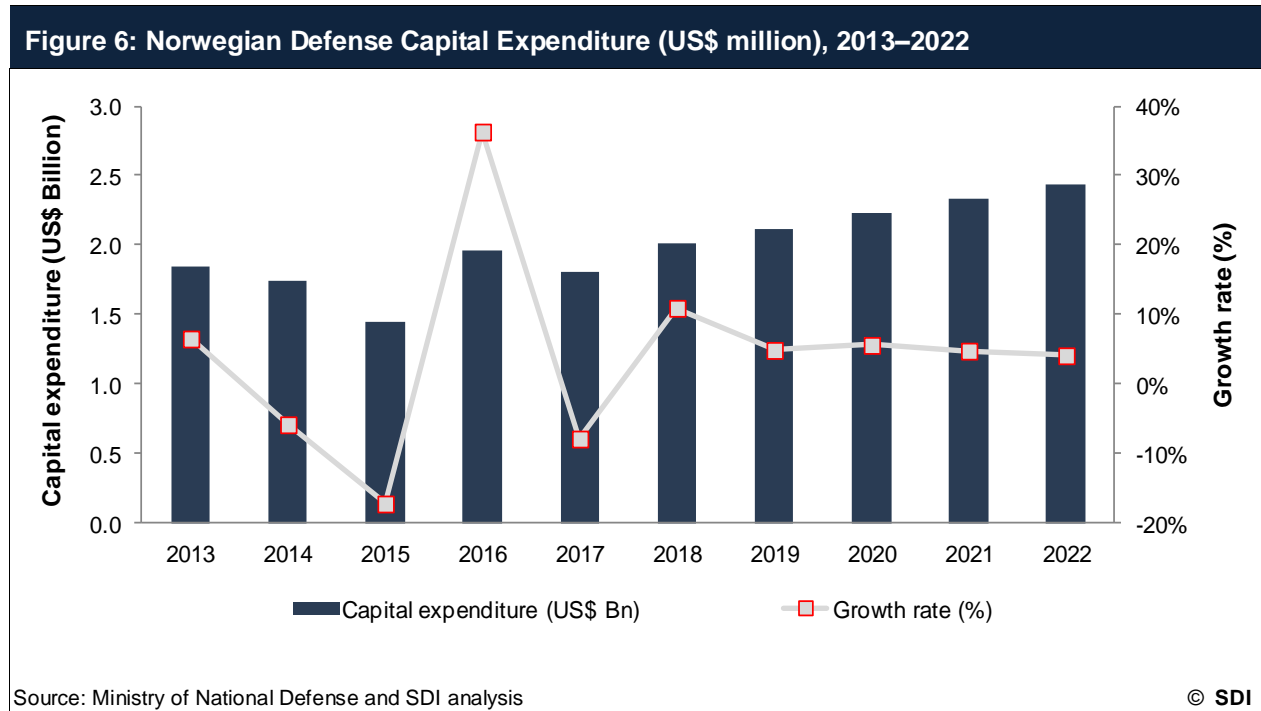
The following table and chart show Norwegian defense capital expenditure in local currency units (LCU) billion over the forecast period:

Figure 5: Norwegian Defense Capital Expenditure (NOK Billion), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

The following table and chart show Norwegian defense capital expenditure in US\$ million over the forecast period:



3.3.3. Expenditure on the 'other' segment expected to be the largest during forecast period

The 'others' segment, which includes Norwegian Forces Abroad, Common Institutions, and expenses under the Headquarters Command, Common Management, and Command Structure, accounted for the largest percentage share; and this trend is expected to continue over the forecast period. The "Others" excluding tri-services of the military – (Army, Navy and Air Force) accounted for the largest percentage share— an average of 67.6% — and this is expected to decline slightly over the forecast period. Over 2013–2017, the army received an average allocation of 12%, whereas the air force and navy received 12.2% and 8.3% respectively. However over the forecast period Average allocations for the Army are anticipated to be about 12.2%, while Air Force and Navy are expected to account for 20.5% and 11.5% respectively.

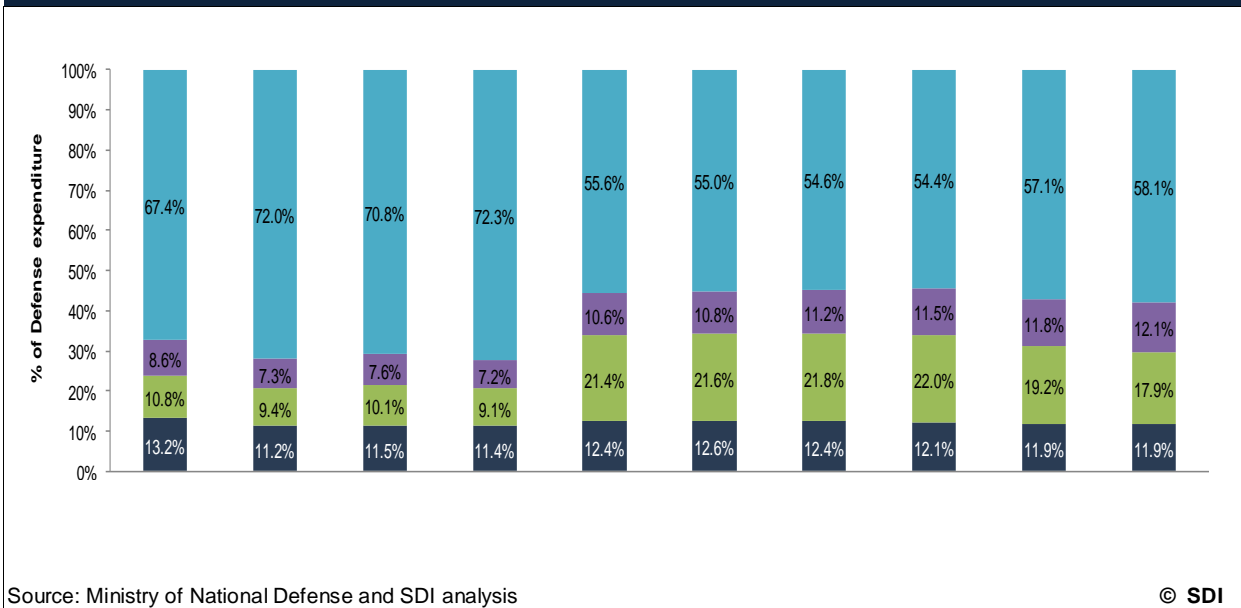
The following table and figure show a breakdown of Norwegian defense expenditure during 2013–2022:

Table 10: Norwegian Defense Expenditure Breakdown (%), 2013–2022				
Year	Army	Air Force	Navy	Others
2013	13.2%	10.8%	8.6%	67.4%
2014	11.2%	9.4%	7.3%	72.0%
2015	11.5%	10.1%	7.6%	70.8%
2016	11.4%	9.1%	7.2%	72.3%
2017	12.4%	21.4%	10.6%	55.6%
2018	12.6%	21.6%	10.8%	55.0%
2019	12.4%	21.8%	11.2%	54.6%
2020	12.1%	22.0%	11.5%	54.4%
2021	11.9%	19.2%	11.8%	57.1%
2022	11.9%	17.9%	12.1%	58.1%

Source: Norwegian Ministry of National Defense and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 7: Norwegian Defense Expenditure Breakdown (%), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.3.4. Army expenditure to grow at a CAGR of 3.49% over the forecast period to reach US\$908.8 Million in 2022

In terms of local currency, army expenditure is expected to reach NOK7.7 billion by 2022

In terms of local currency, defense budget expenditure for the army witnessed an increasing trend, growing from NOK5.8 billion in 2013 to NOK6.3 billion in 2017, and registered a CAGR of 2.24%. However the trend is expected to continue and army expenditure is expected to increase over forecast period, from NOK6.7 billion in 2018 to NOK7.7 billion in 2022, reflecting a CAGR of 3.49% over the time period.

In terms of US dollars, army expenditure is forecast to value US\$4.2 billion cumulatively during 2018–2022

The Norwegian MoD has allocated US\$743.7 million for army expenditure in 2017, which is expected to reach US\$908.8 million by 2022, at an estimated CAGR of 3.49%. The army's main programs include the procurement of CV90 infantry fighting vehicles (IFVs), light armored vehicles, additional recruitment of professional soldiers, and participation in international UN peacekeeping operations. The MoD has awarded a contract worth an estimated US\$750 million to BAE Systems Hagglands for the upgrade and manufacture of CV90 infantry fighting vehicles (IFVs) for the army. Furthermore, in December 2013, the army formed a special unit, called HRS Nord (Rapid Reaction Force North), consisting of 700 professional and national service personnel, with plans to be in operation by 2017. The infantry will be equipped with CV90 Infantry Fighting Vehicles, mortar variants, and upgraded Leopard 2 main battle tanks. Furthermore, the team will possess its own intelligence and reconnaissance teams, artillery and armored combat engineer components, and drone detachment. Additionally, the army's expenditure will focus on battle simulators, material for the army's tactical training center, and fire-control simulator systems.

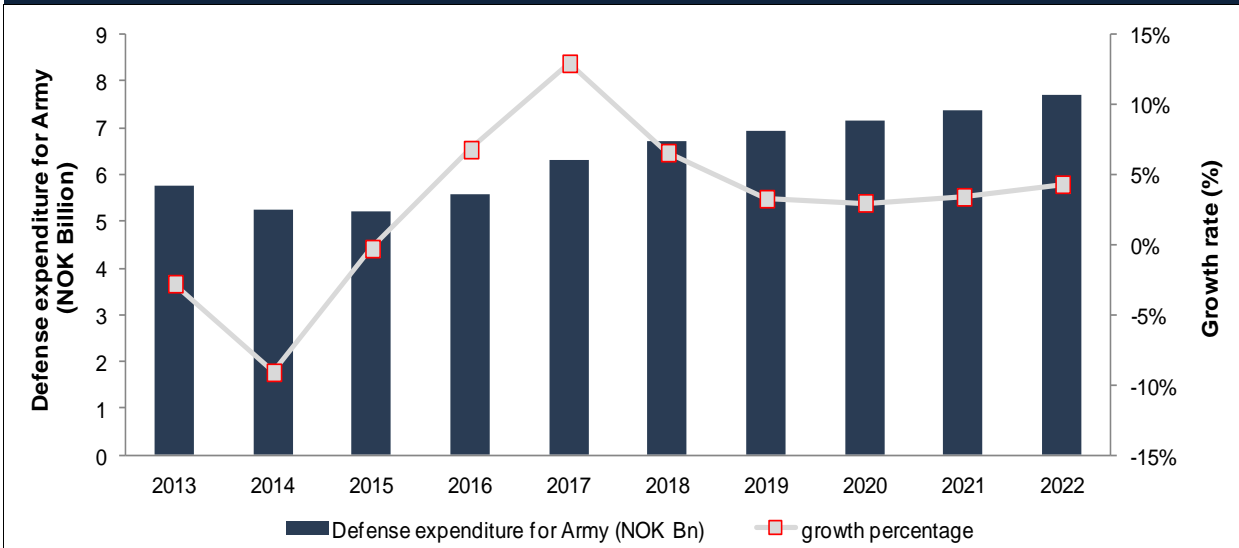
The following table shows the army expenditure allocation of Norway during 2013–2022:

Table 11: Norwegian Defense Expenditure for Army (NOK Billion & US\$ Million), 2013–2022				
Year	Army Expenditure (NOK Bn)	Growth Rate (%)	Army Expenditure (US\$ Mn)	Growth Rate (%)
2013	5.8	-2.8%	982.3	-3.7%
2014	5.2	-9.1%	834.9	-15.0%
2015	5.2	-0.3%	650.3	-22.1%
2016	5.6	6.8%	665.1	2.3%
2017	6.3	12.9%	743.7	11.8%
2018	6.7	6.6%	792.4	6.6%
2019	6.9	3.3%	818.3	3.3%
2020	7.1	3.0%	842.6	3.0%
2021	7.4	3.4%	871.3	3.4%
2022	7.7	4.3%	908.8	4.3%
2013–2017	CAGR (%) NOK	2.24%	CAGR (%) US\$	-6.72%
2018–2022	CAGR (%) NOK	3.49%	CAGR (%) US\$	3.49%

Source: Ministry of National Defense and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

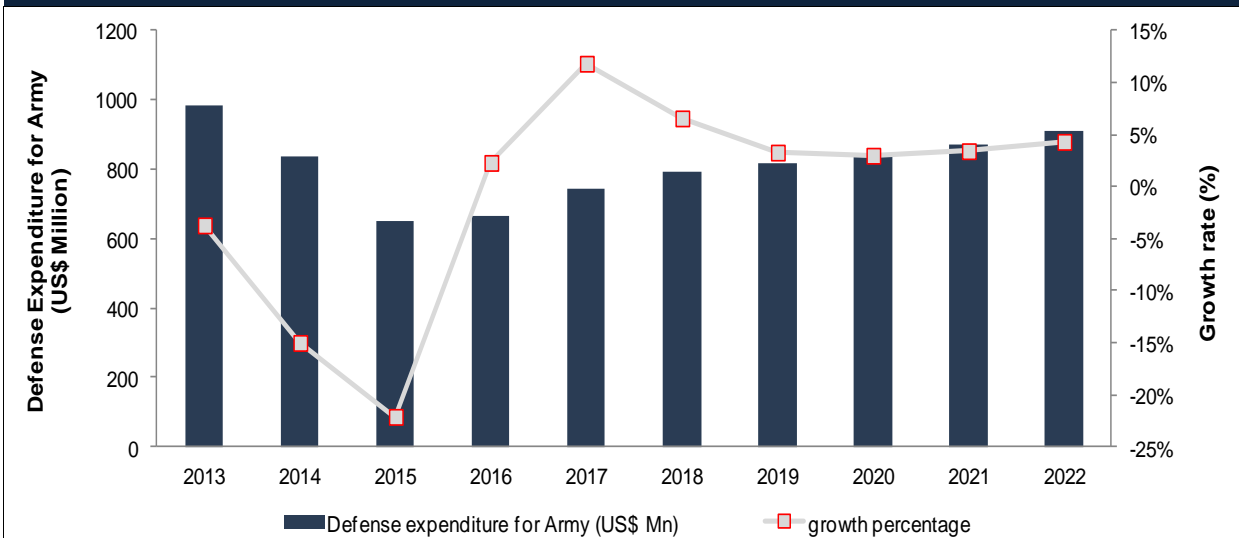
Figure 8: Norwegian Defense Expenditure for Army (NOK Billion), 2013–2022



Source: Ministry of National Defense and SDI analysis

© SDI

Figure 9: Norwegian Defense Expenditure for Army (US\$ Million), 2013–2022



Source: Norwegian Ministry of National Defense and SDI analysis

© SDI

3.3.5. Air force expenditure to grow at a CAGR of 0.02% over the forecast period

In terms of local currency, air force expenditure is expected to reach NOK11.5 billion by 2022

In terms of local currency, defense budget expenditure for the Air Force witnessed an increasing trend, growing from NOK4.7 billion in 2013 to NOK10.9 billion in 2017, and registered a CAGR of 23.49%. However the trend is expected to stabilize and air force expenditure is expected to moderate and steadily increase over 2018-2020 and then decrease over next two years, from NOK11.5 billion in 2018 to NOK 13 billion in 2020, then decrease again to NOK11.5 billion in 2022, reflecting a CAGR of 0.02% over the time period. Norway plans to phase out its aged F-16 fleet and start procuring F-35 Lightning II aircraft from 2020. However since most of the Norwegian orders are likely to be placed by 2020, the country is unlikely to continue spending heavily on its air force. Additionally other sectors such as navy and army are likely to receive attention as the country would have already attended to its air force requirements.

In terms of US dollars, air force expenditure is forecast to value US\$7.1 billion cumulatively during 2018–2022

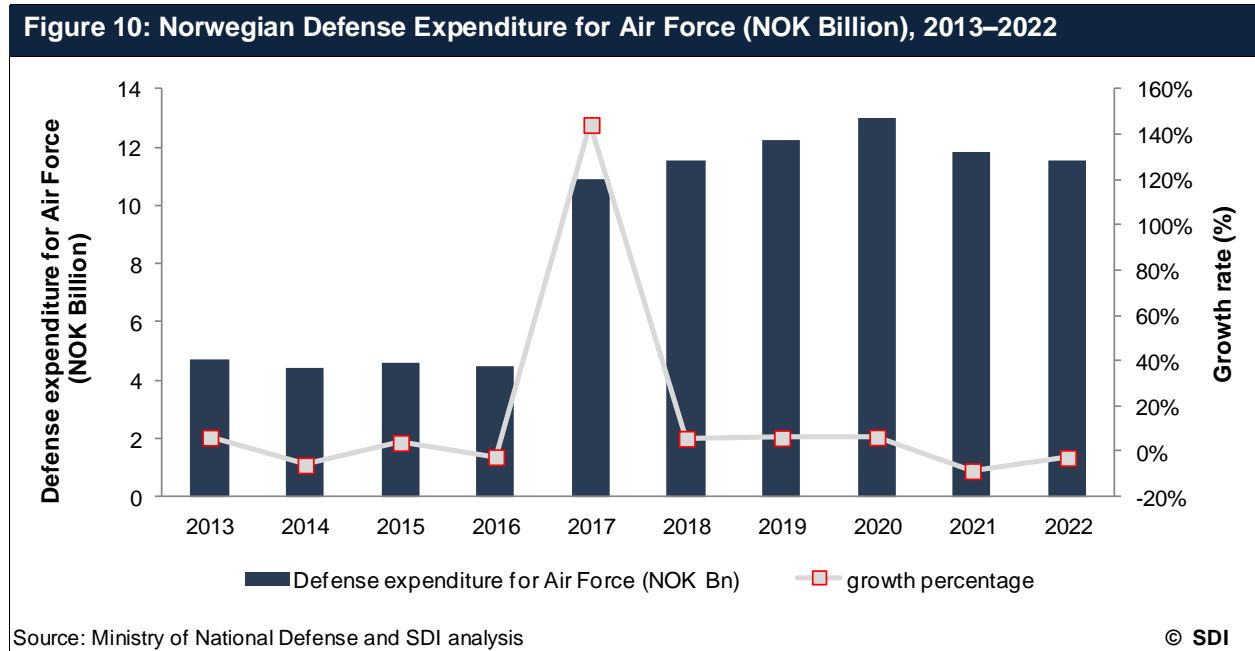
Norwegian Air Force expenditure stands at US\$1.3 billion in 2017; and is expected to reach US\$1.4 billion by 2022, reflecting a CAGR of 0.02% over the forecast period. The drastic increase in 2017 allocations for air force, can be attributed to the procurement plans for F-35 fighter planes that are to be executed during the forecast period. As per the revised long-term defense plan, the Norwegian MoD is has a requirement for 48 F-35 fighter planes and four training aircraft, and the program is expected to run throughout the forecast period, providing an impetus to the air force defense expenditure. However, Norway has placed a firm order for 28 jets which are expected to be delivered by 2020 and the country is likely to procure additional jets in batches over the forecast period. Furthermore, in December 2013, Norway requested a potential foreign sale of technical support for the C-130J Super Hercules aircraft from the US Defense Security Cooperation Agency (DSCA) under a US\$107 million contract. Additionally, in February 2014, the Royal Norwegian Air Force requested the purchase of 36 Raytheon AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAMs) from the DSCA under a US\$80 million contract.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

The following table and chart show the Norwegian expenditure budget for the air force during 2013–2022:

Year	Air Force Expenditure (NOK Bn)	Growth Rate (%)	Air Force Expenditure (US\$ Bn)	Growth Rate (%)
2013	4.7	6.2%	0.80	5.2%
2014	4.4	-6.0%	0.70	-12.2%
2015	4.6	3.8%	0.57	-18.9%
2016	4.5	-2.4%	0.53	-6.5%
2017	10.9	144.3%	1.29	141.9%
2018	11.5	5.7%	1.36	5.7%
2019	12.2	6.0%	1.44	6.0%
2020	13.0	6.3%	1.53	6.3%
2021	11.9	-8.6%	1.40	-8.6%
2022	11.5	-2.8%	1.36	-2.8%
2013–2017	CAGR (%) NOK	23.49%	CAGR (%) US\$	12.66%
2018–2022	CAGR (%) NOK	0.02%	CAGR (%) US\$	0.02%

Source: Ministry of National Defense and SDI analysis © SDI



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 11: Norwegian Defense Expenditure for Air Force (US\$ Billion), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.3.6. Naval expenditure is expected to reach US\$920.8 million by 2022

In terms of local currency, navy expenditure is expected to reach NOK7.8 billion by 2022

In terms of local currency, defense budget expenditure for the navy witnessed an increasing trend, growing from NOK3.7 billion in 2013 to NOK5.4 billion in 2017, and registered a CAGR of 9.65%. However the trend is expected to stabilize and navy expenditure is expected to moderate and steadily increase over forecast period, from NOK5.8 billion in 2018 to NOK7.8 billion in 2022, reflecting a CAGR of 7.87% over the time period.

In terms of US dollars, navy expenditure is forecast to value US\$4 billion cumulatively during 2018–2022

Norwegian Navy expenditure values US\$637.4 million in 2017 and registered a CAGR of 0.03% during 2013–2017. The budget is expected to grow over the forecast period, at a CAGR of 7.87%, to reach US\$920.8 million in 2022. The Norwegian naval budget will be driven by the procurement of patrol vessels for securing the northern part of the country; in addition, the upgrade of mine countermeasure vessels and Ula-class submarines is expected to continue over the forecast period and drive naval defense expenditure during the forecast period. Moreover, in November 2016, Norway evinced intent to procure 5 P-8A Poseidon Maritime Patrol Aircraft's (MPA) in order to counter ever increasing instances of Russian submarines intruding into its territorial waters. In November 2016, the Norwegian Defense Material Agency (NDMA) awarded a contract worth US\$36.7 million to Kongsberg Defence Systems for modernizing combat management systems on its Fridtjof Nansen-class frigates.

The following table and chart show the Norwegian expenditure budget for the navy between 2013 and 2022:

Year	Navy Expenditure (NOK Bn)	Growth Rate (%)	Navy Expenditure (US\$ Mn)	Growth Rate (%)
2013	3.7	5.3%	636.5	4.3%
2014	3.4	-8.3%	546.0	-14.2%
2015	3.5	0.7%	429.7	-21.3%
2016	3.5	1.7%	418.5	-2.6%
2017	5.4	53.8%	637.4	52.3%
2018	5.8	6.7%	680.0	6.7%
2019	6.3	8.9%	740.5	8.9%
2020	6.8	8.1%	800.6	8.1%
2021	7.3	7.5%	860.9	7.5%
2022	7.8	7.0%	920.8	7.0%
2013–2017	CAGR (%) NOK	9.65%	CAGR (%) US\$	0.03%
2018–2022	CAGR (%) NOK	7.87%	CAGR (%) US\$	7.87%

Source: Ministry of National Defense and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 12: Norwegian Defense Expenditure for Navy (NOK billion), 2013–2022

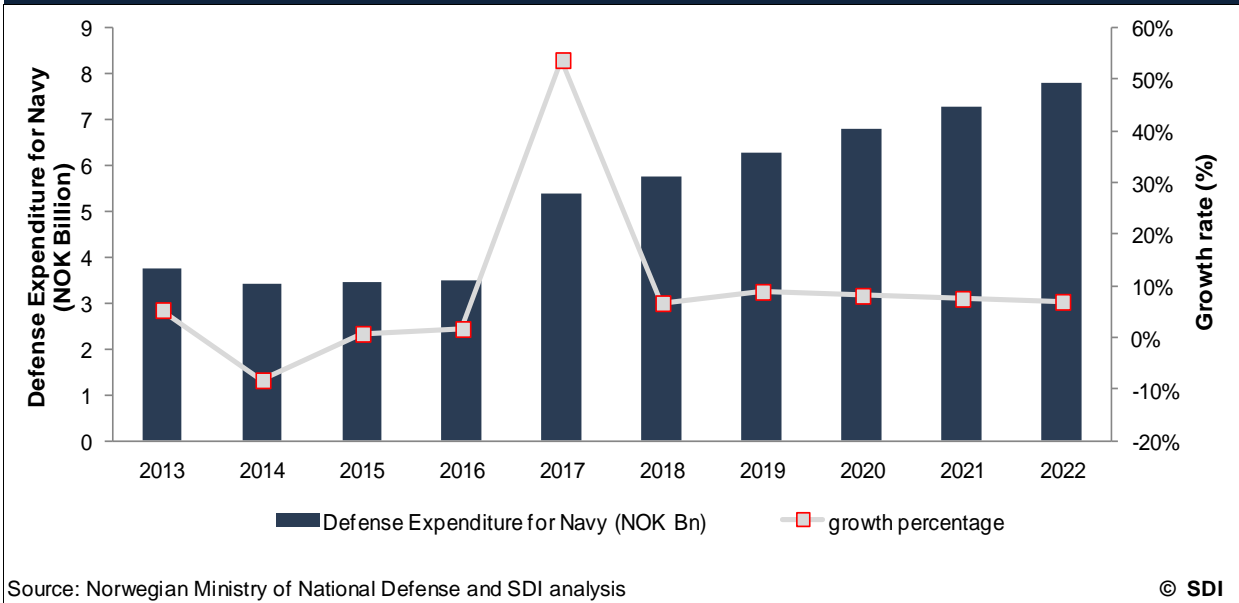
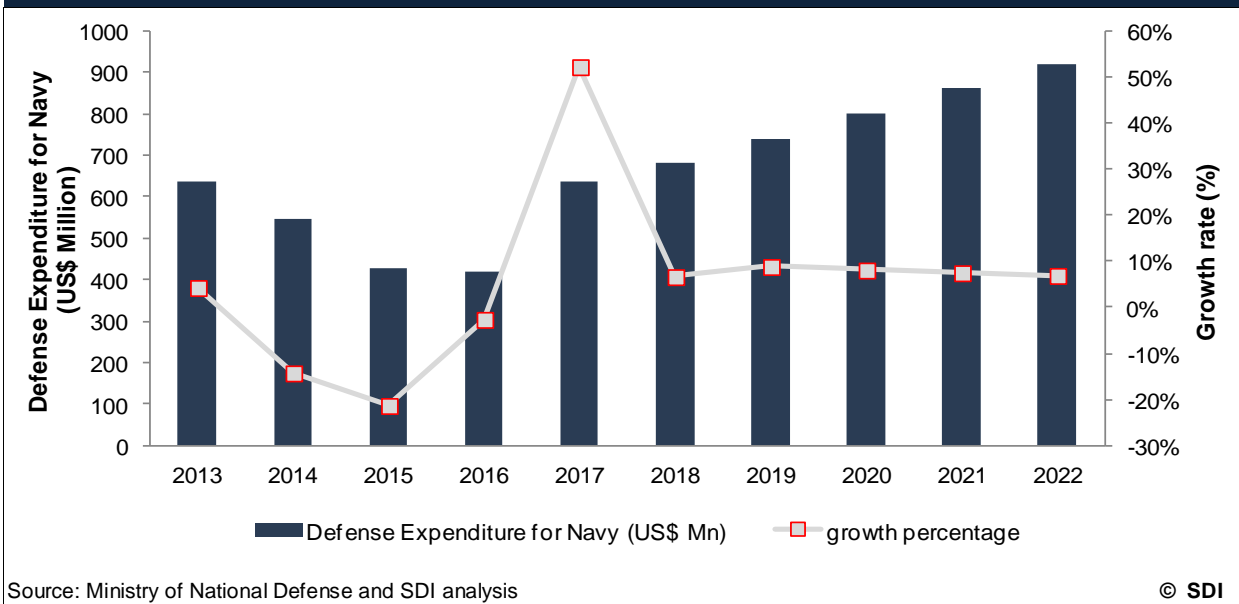


Figure 13: Norwegian Defense Expenditure for Navy (US\$ billion), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.3.7. 'Other' expenditure is expected to increase at a CAGR of 6.28% over the forecast period

In terms of local currency, other's expenditure is expected to reach NOK37.4 billion by 2022

In terms of local currency, defense budget expenditure for the navy witnessed a decreasing trend, declining from NOK29.4 billion in 2013 to NOK28.3 billion in 2017, and registered a CAGR of -0.89%. However the trend is expected to reverse and other's segment expenditure is expected to progressively increase over forecast period, from NOK29.3 billion in 2018 to NOK37.4 billion in 2022, reflecting a CAGR of 6.28% over the time period.

In terms of US dollars, other's expenditure is forecast to value US\$19.4 billion cumulatively during 2018–2022

'Other' expenditure, which comprises expenses under the Norwegian Forces Abroad, Common Institutions, Headquarters Command, and Common Management and Structure, is expected to increase over the forecast period, from US\$3.5 billion in 2018 to US\$4.4 billion in 2022, reflecting a CAGR of 6.28%. This growth can be attributed to the increased expenditure on other functions such as the procurement of military equipment, modernization, training and development, and the recruitment of military personnel.

The following table and chart show the Norwegian expenditure budget for the 'other' category during 2013–2022:

Year	Other Expenditure (NOK Bn)	Growth Rate (%)	Other Expenditure (US\$ Bn)	Growth Rate (%)
2013	29.4	6.5%	5.0	5.4%
2014	33.6	14.4%	5.4	6.9%
2015	32.1	-4.5%	4.0	-25.4%
2016	35.3	10.1%	4.2	5.5%
2017	28.3	-19.8%	3.3	-20.6%
2018	29.3	3.5%	3.5	3.5%
2019	30.6	4.3%	3.6	4.3%
2020	32.1	4.9%	3.8	4.9%
2021	35.3	10.0%	4.2	10.0%
2022	37.4	6.1%	4.4	6.1%
2013–2017	CAGR (%) NOK	-0.89%	CAGR (%) US\$	-9.58%
2018–2022	CAGR (%) NOK	6.28%	CAGR (%) US\$	6.28%

Source: Ministry of National Defense and SDI analysis © SDI

*'Other' expenditure, comprises of expenses under the Norwegian Forces Abroad, Common Institutions, Headquarters Command, and Common Management and Structure

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 14: Norwegian Defense Expenditure for Other Categories (NOK billion), 2013–2022

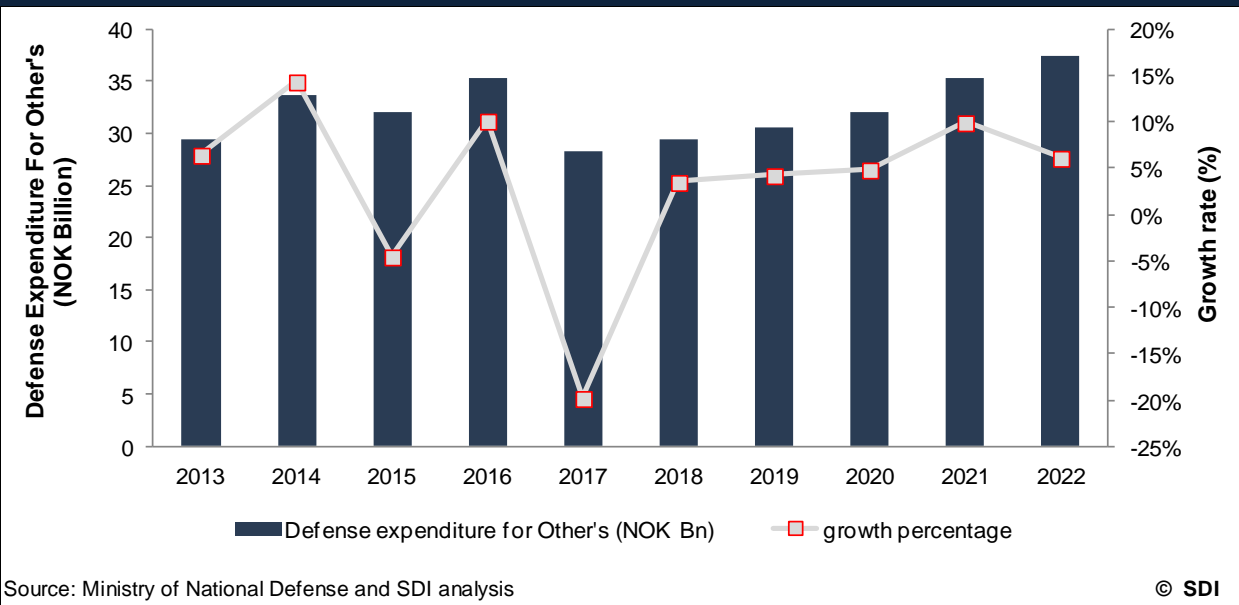
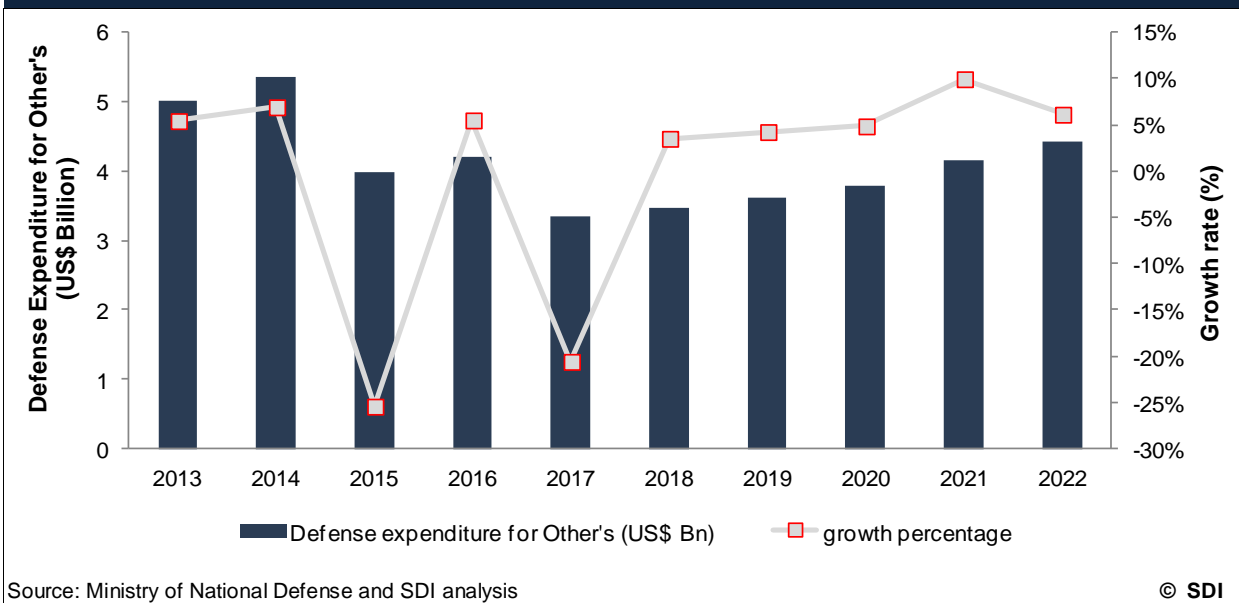


Figure 15: Norwegian Defense Expenditure for Other Categories (US\$ billion), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.3.8. Per capita defense expenditure set to decrease over the forecast period

Norway's per capita defense expenditure decreased from US\$1,456.8 in 2013 to US\$1,127 in 2017, and is expected to increase from US\$1,164.7 in 2018 to US\$1,346.5 by 2022. The country's defense budget is expected to increase at a CAGR of 4.85% over the forecast period, to US\$7.6 billion by 2022. The population, however, is expected to increase at a lower CAGR of 1.12%, to stand at 5.7 million by 2022, resulting in an increase in per capita defense expenditure over the forecast period.

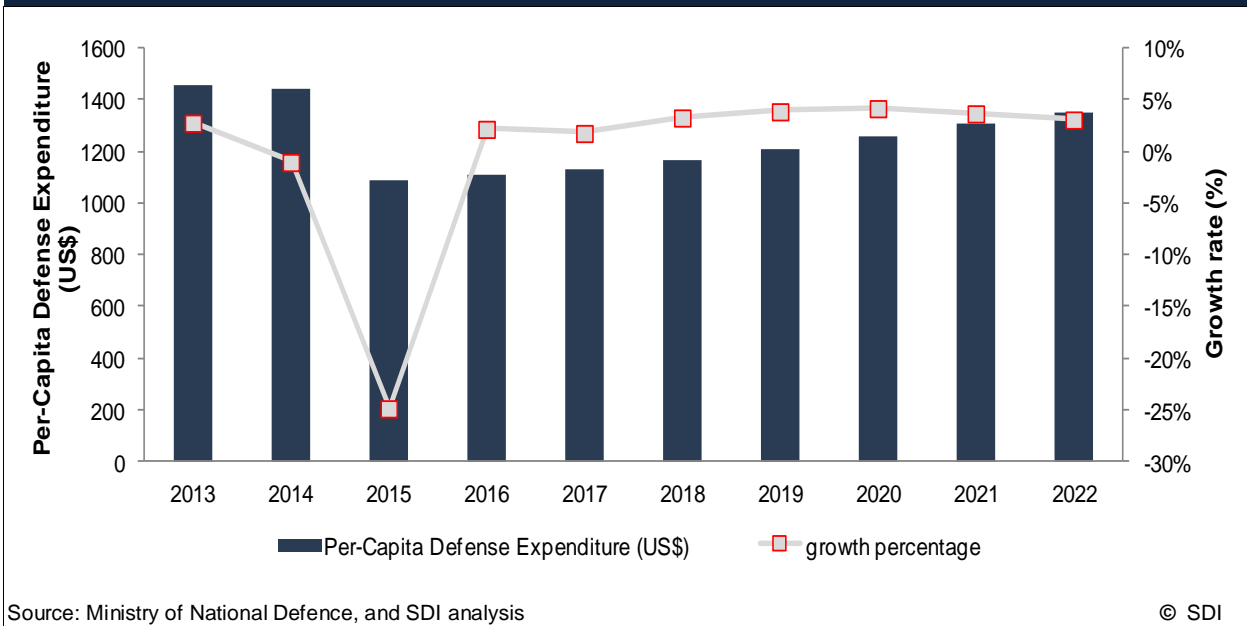
The following table and chart show Norwegian per capita defense expenditure during 2013–2022:

Year	Per-capita Defense Expenditure (US\$)	Growth Percentage
2013	1,456.8	2.8%
2014	1,442.1	-1.0%
2015	1,084.0	-24.8%
2016	1,107.4	2.2%
2017	1,127.0	1.8%
2018	1,164.7	3.3%
2019	1,209.8	3.9%
2020	1,260.1	4.2%
2021	1,306.1	3.7%
2022	1,346.5	3.1%

Source: Ministry of National Defence, and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 16: Norwegian Per Capita Defense Expenditure (US\$), 2013–2022



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.4. Homeland Security Market Size and Forecast

3.4.1. Norwegian homeland security expenditure is expected to grow at a CAGR of 19.28% over the forecast period

In terms of local currency, homeland security expenditure is expected to reach NOK17.9 billion by 2022

In terms of local currency, the homeland security budget values NOK60.9 billion in 2017 and registered a CAGR of 17.85% during the historic period. Moreover, it is projected to value NOK142.7 billion by 2022, registering a CAGR of 19.28% during 2018–2022.

In terms of US dollars, homeland security expenditure is forecast to value US\$67.6 billion cumulatively during 2017–2022

The Royal Norwegian Ministry of Justice is responsible for internal security and the maintenance of law and order in the country. Norway's homeland security (HLS) expenditure registered growth of 7.51% over 2013–2017 and is expected to grow at a CAGR of 19.28% during the forecast period. This can be attributed to the revised training and development plans of the Norwegian home guard, as formulated in the long-term defense plan 2012. Moreover, the government has undertaken the Norwegian All-Weather Search and Rescue Helicopter (NAWSARH) program to replace the existing fleet of Sea King helicopters. Under the program, Norway has a contract for 16 AW101 helicopters for US\$1.6 billion scheduled to be delivered during 2017–2020. Furthermore, the increase in HLS expenditure is due to the growing threat from radical and terrorist organizations, such as Al-Qaeda, as a result of Norway's ongoing operations in Afghanistan and Iraq.

The table below shows Norwegian homeland security expenditure during 2013-2022:

Table 16: Norwegian Homeland Security Expenditure (NOK Billion & US\$ Billion), 2013–2022

Year	Homeland expenditure (NOK Bn)	Growth Rate (%)	Homeland expenditure (US\$ bn)	Growth Rate (%)
2013	31.6	12.5%	5.4	11.4%
2014	33.3	5.5%	5.3	-1.4%
2015	33.3	-0.1%	4.1	-21.9%
2016	41.5	24.7%	4.9	19.5%
2017	60.9	46.7%	7.2	45.3%
2018	70.5	15.7%	8.3	15.7%
2019	82.8	17.5%	9.8	17.5%
2020	98.0	18.3%	11.6	18.3%
2021	118.1	20.5%	13.9	20.5%
2022	142.7	20.8%	16.8	20.8%
2013–2017	CAGR (%)NOK	17.85%	CAGR (%) US\$	7.51%
2018–2022	CAGR (%)NOK	19.28%	CAGR (%) US\$	19.28%

Source: Ministry of Defence, Denmark and SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 17: Norwegian Homeland Security Expenditure (NOK billion), 2013–2022

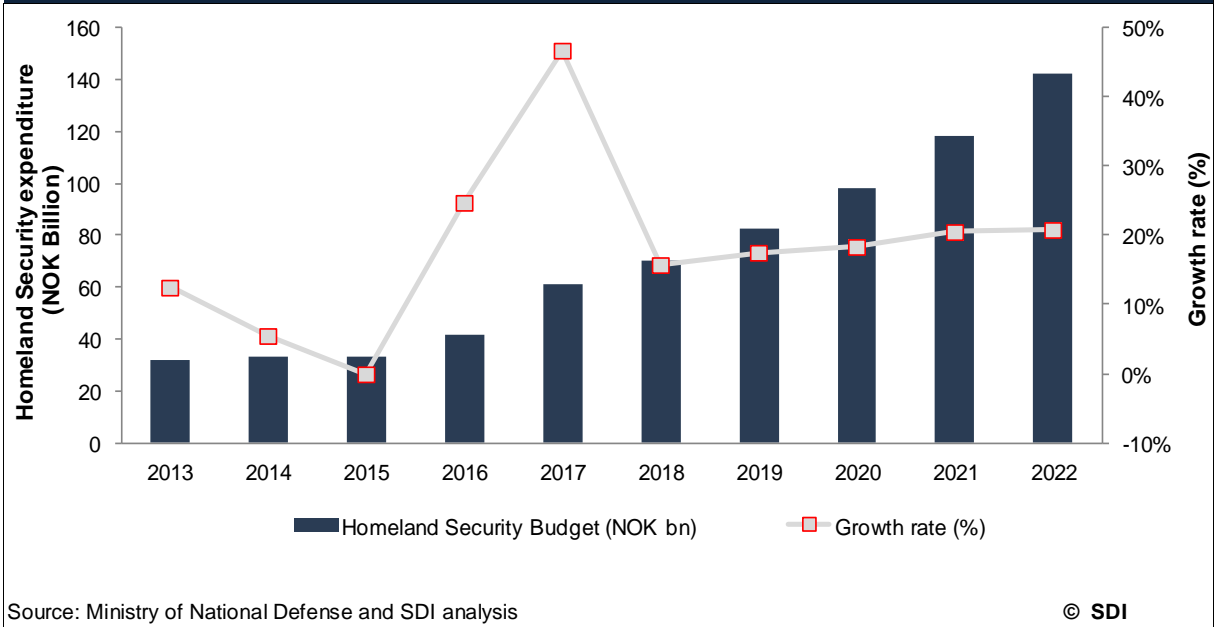
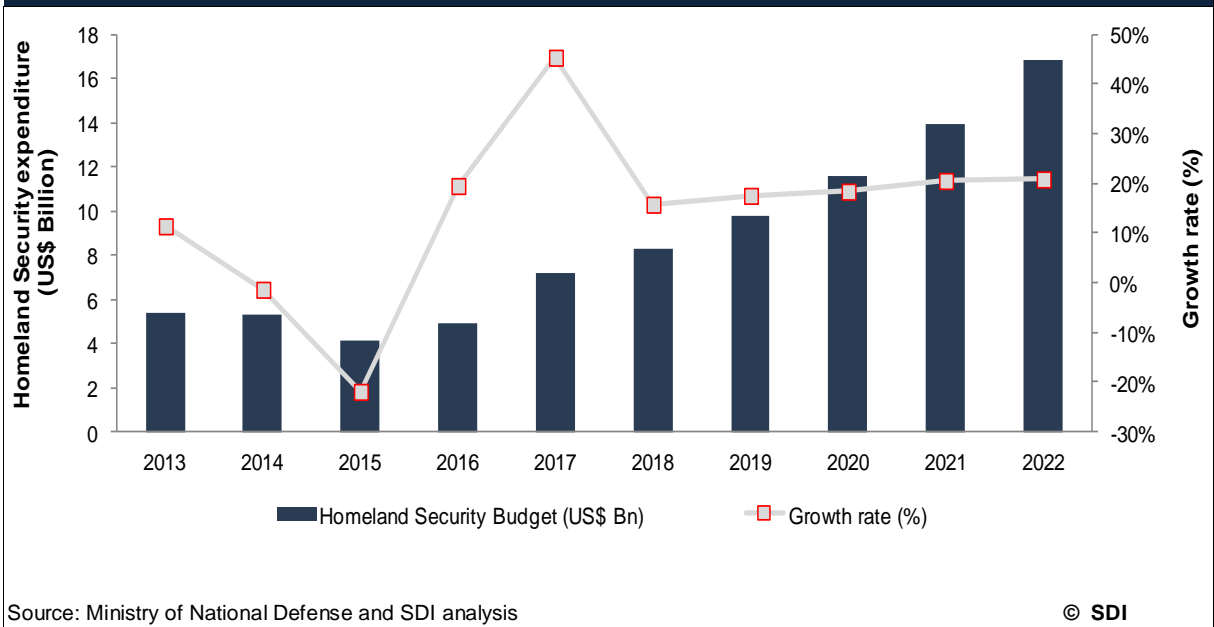


Figure 18: Norwegian Homeland Security Expenditure (US\$ billion), 2013–2022



3.4.2. Counter-terrorism and enhanced cyber security are expected to drive homeland security expenditure

Norwegian homeland security (HLS) expenditure is expected to grow over the forecast period as a result of increased terrorism threats and the government’s significant focus on cyber security. Furthermore, the Norwegian government is expected to prioritize the training and development of the home guard, as well as the purchase of new equipment. In addition, the Norwegian MoD is expected to include other key measures such as proposing a significant increase in the funding for the National Security Authority and the procurement of helicopters for the home guard.

Terrorism threats: Terrorism has posed a major threat to Norway’s internal security; especially after the two sequential attacks on July 22 2011, which claimed the lives of approximately 77 people. This pushed the government to accelerate emergency preparedness, which has become the primary objective of the Norwegian homeland security department. In order to curb terrorism, the government has enhanced its counter-terrorism infrastructure, resulting in an increase in HLS expenditure. Since 2014, the Intelligence Service (NIS) fears a higher level of terrorist attacks within the country, owing to the involvement of Norwegian citizens in the jihadist war in Syria over the past two years. Norway’s Police Security Service (PST) expects more terrorist attacks in the country in 2015 due to the increasing presence of Norwegian nationals in the conflicts in Iraq and Syria. The nationals, who have been provided with training and ideological indoctrination from groups tied to Al–Qaeda, are expected to return to Norway and plan attacks against targets in Europe. The government is expected to place additional security at airports, train stations, and border crossings as well as procure counter-terrorism equipment.

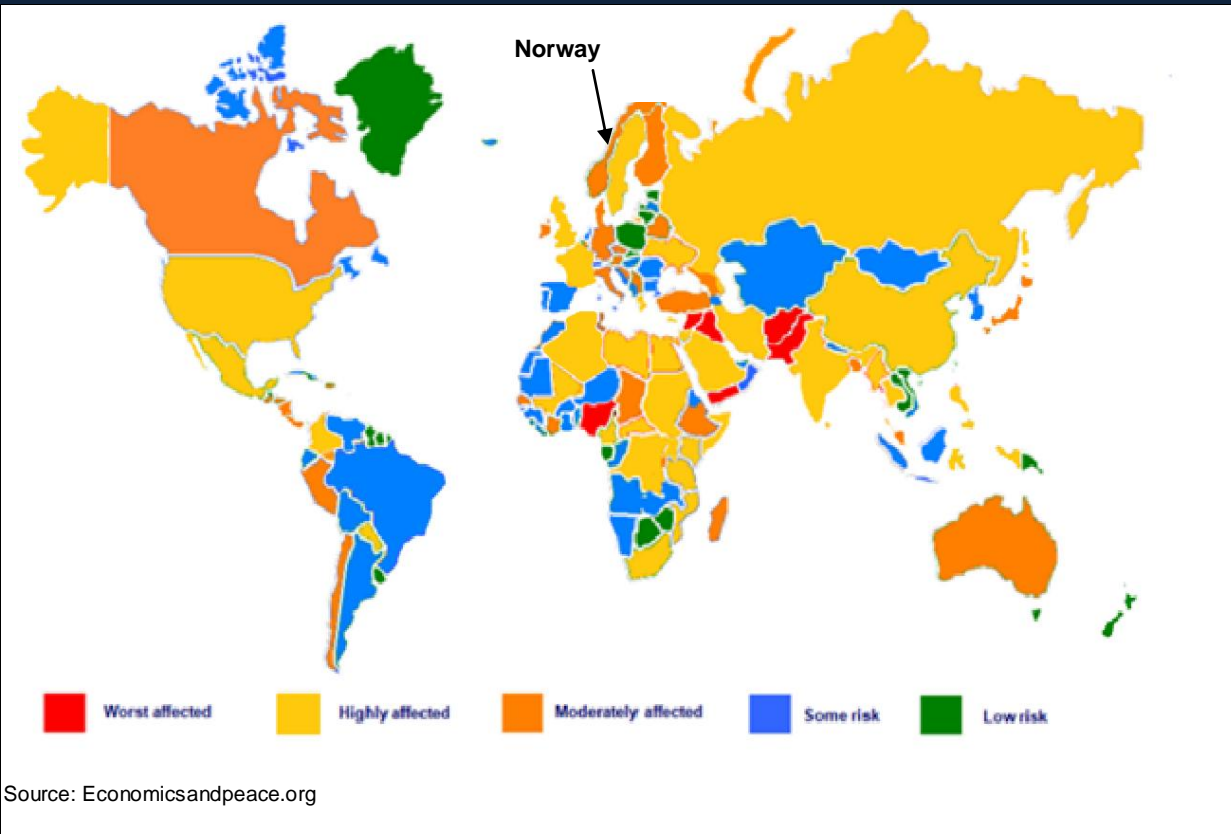
Increased focus on Cyber Security: With information and communications technology (ICT) becoming an important aspect of a country’s economy — integrating different sectors — the risk of the country encountering cyber-attacks has increased over the past few years. The protection of network infrastructures has become critical for the country to function normally and efficiently. To strengthen cyber security measures, the Norwegian government has drafted a new National Cyber Defense Strategy (NCDS). The initiative is under the Ministry of Defense’s (MoD’s) jurisdiction with an objective to create a common situational understanding of the cyber threat, secure information and communication systems, and fortify the ability to detect, investigate, and combat incidents. The Norwegian Armed Forces established the Norwegian Cyber Defence in September 2012, with 1500 employees, and the unit will be responsible for counter-cyber warfare in the country. With sectors such as defense, oil and gas, energy, government, and hi-tech industry being targeted by cyber criminals in past years, cyber security stands as one of the government’s main priorities over the next few years.

3.4.3. Norway is at a “moderately affected” by terrorism

According to the Terrorism Index, Norway falls under the “moderate risk” category, with a global rank of 75. Sweden, its neighbor, falls under the “highly affected” category, offering a high-threatening environment with increasing threat of terrorist activity.

The following figure shows a heat map based on the Terrorism Index, which displays the threat level faced by countries worldwide:

Figure 19: Terrorism Heat Map, 2017



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.4.4. Norway faces moderate level of threat from foreign terrorist organizations

Iraq, Afghanistan, Nigeria, Pakistan, and Syria continue to top the list of worst affected countries by acts of terrorism, as per the Terrorism Index. Based on the index score, Norway has a ranking of 75, which indicates moderate terrorist threat levels when compared to countries across the world.

The terrorism index is calculated on the basis of the following factors:

- The number of terror attacks that the country has faced
- The total number of people victimized
- The number of foreign terrorist organizations operating in the country

The table below shows the Terrorism Index score of the top 50 most terror-prone countries in the world:

Rank	Country	Index Score
1	Iraq	10.0
2	Afghanistan	9.4
3	Nigeria	9.3
4	Pakistan	8.6
5	Syria	8.6
6	Yemen	8.1
7	Somalia	7.5
8	India	7.5
9	Egypt	7.3
10	Libya	7.3
11	Ukraine	7.1
12	Philippines	7.1
13	Cameroon	7.0
14	Turkey	6.7
15	Thailand	6.7
16	Niger	6.7
17	Democratic Republic of the Congo	6.6
18	Sudan	6.6
19	Kenya	6.6
20	Central African Republic	6.5
21	South Sudan	6.5
22	Bangladesh	6.5
23	China	6.1
24	Lebanon	6.1
25	Mali	6.0
26	Colombia	6.0
27	Chad	5.8

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 17: Terrorism Index, 2017

Rank	Country	Index Score
28	Palestine	5.7
29	France	5.6
30	Russia	5.4
31	Burundi	5.4
32	Saudi Arabia	5.4
33	Israel	5.2
34	United Kingdom	5.1
35	Tunisia	5.0
36	United States	4.9
37	Kuwait	4.4
38	Indonesia	4.4
39	Nepal	4.4
40	Uganda	4.3
41	Germany	4.3
42	Algeria	4.3
43	Greece	4.2
44	Bahrain	4.2
45	Myanmar	4.2
46	Sweden	4.0
47	Iran	3.9
48	Paraguay	3.8
49	Tanzania	3.8
50	Mexico	3.7
73	Norway	2.1

Index score classification: >8 - Worst affected, between 8 and 4 - Highly affected, between 4 and 2 - Moderately affected, between 2 and 0 - Some risk, and <0 - Low risk

Source: Economicsandpeace.org

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

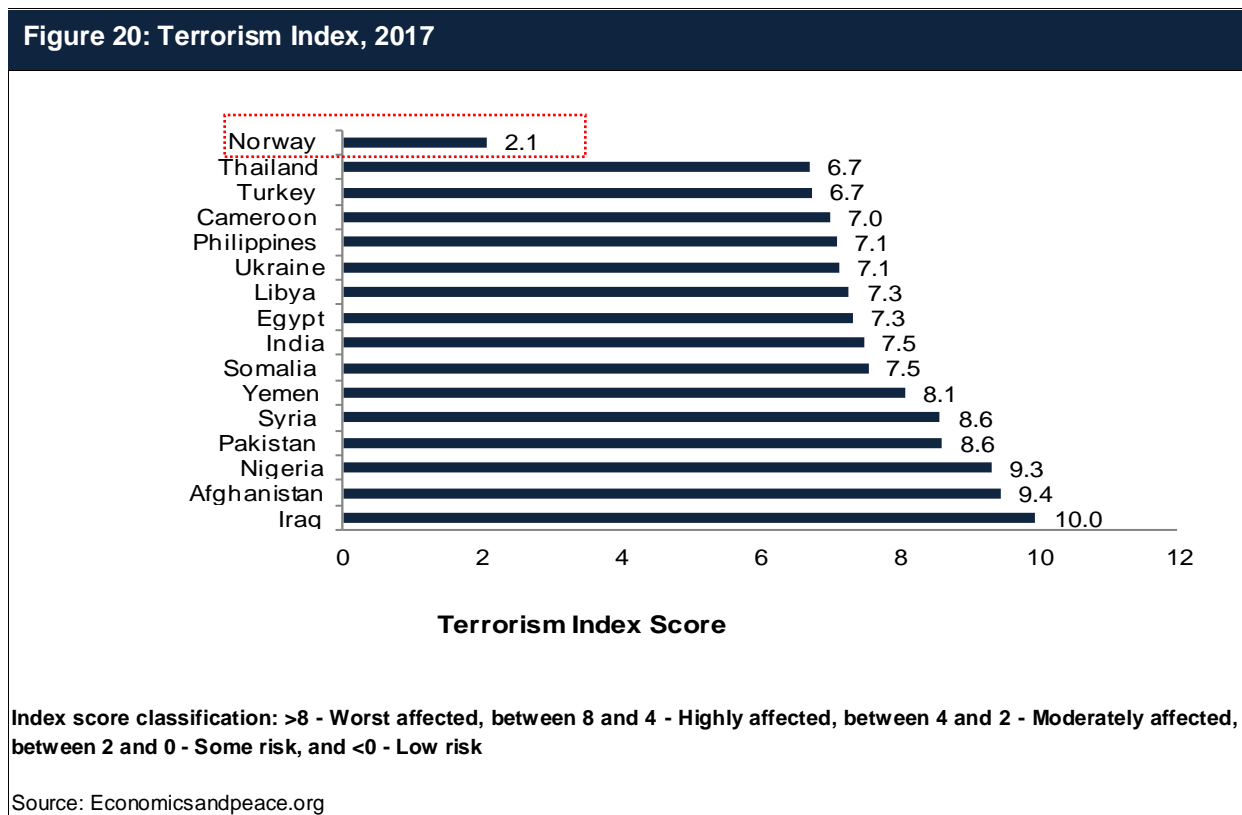
3.4.5. Norway has a terrorism index score of “2.1”

The terrorism index is calculated on the basis of the following factors:

- The number of terrorist attacks the country has faced
- The total number of people victimized
- The number of foreign terrorist organizations operating in the country

While the top fifteen countries display an average of 5.2 on the terrorism index score, the Norwegian score is estimated to be zero, indicating minimal or no terror activity.

The following figure displays the terrorism index score of the top 15 countries in the SDI Terrorism Index:



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.5. Benchmarking with Key Global Markets

3.5.1. Norwegian defense budget expenditure expected to increase over the forecast period

Norway's defense budget is relatively small compared to those of other European countries such as UK, France, Germany and even Poland and is expected to remain so over the forecast period. However, it is larger than that of Denmark and Finland. The Norwegian defense budget is expected to increase as a result of continuing military modernization and procurement plans. Consequently, Norway's projected defense expenditure over the forecast period is expected to be one of the highest in the Scandinavian region.

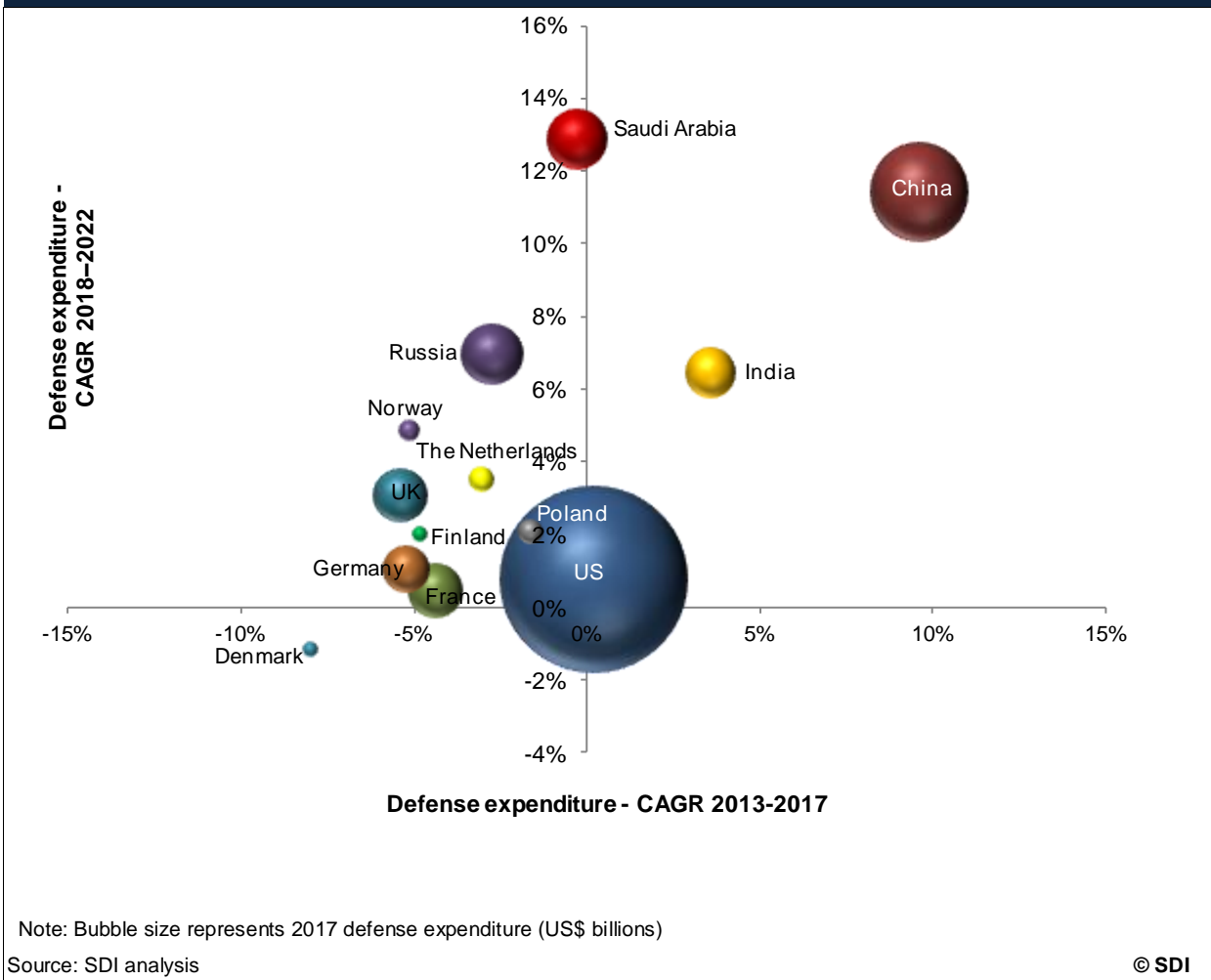
The figure below benchmarks the growth of the Norwegian defense budget with key global markets:

Country	CAGR 2013–2017	CAGR 2018–2022	Budget in 2017 (US\$ Billions)
US	0.22%	0.73%	583
China	9.65%	11.40%	159
Saudi Arabia	-0.26%	12.84%	57
UK	-5.35%	3.07%	47
Russia	-2.71%	6.94%	59
France	-4.36%	0.41%	47
India	3.63%	6.43%	40
Germany	-5.19%	1.00%	35
The Netherlands	-3.03%	3.51%	9
Poland	-1.60%	2.06%	9
Finland	-4.80%	1.96%	3
Denmark	-7.96%	-1.20%	3
Norway	-5.13%	4.85%	6

Source: SDI analysis © SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 21: Benchmarking with Key Markets – 2013–2017 vs. 2018–2022

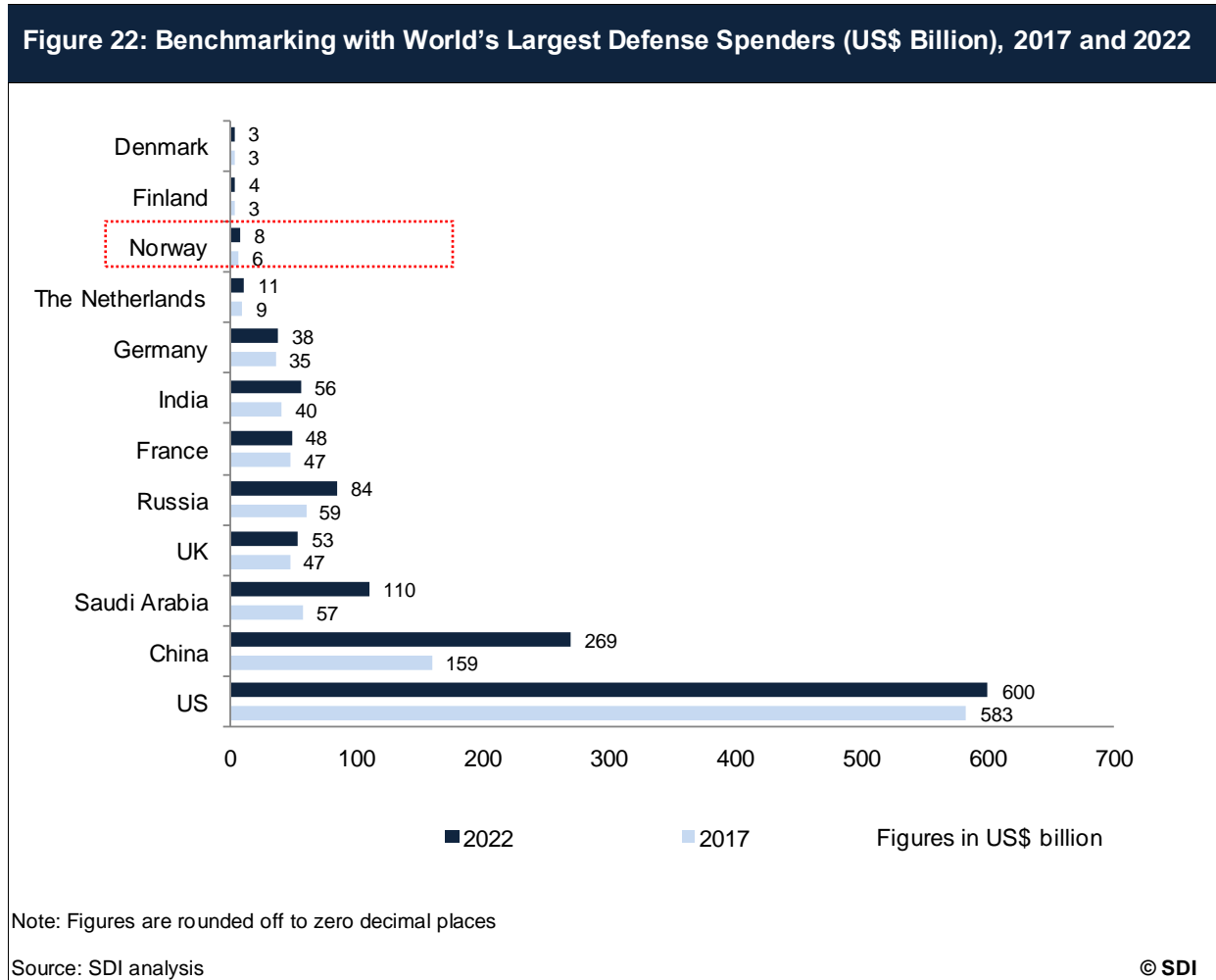


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.5.2. Norway has the one of the fastest-growing defense industries in Europe

The US and China dominate the global defense industry in terms of expenditure, while Norway's defense expenditure remains comparatively low; Norwegian defense expenditure is expected to grow at a robust CAGR of 4.85% during the forecast period, to reach US\$7.6 billion in 2022.

The following figure shows the top defense-spending countries in 2017 and those expected in 2022:

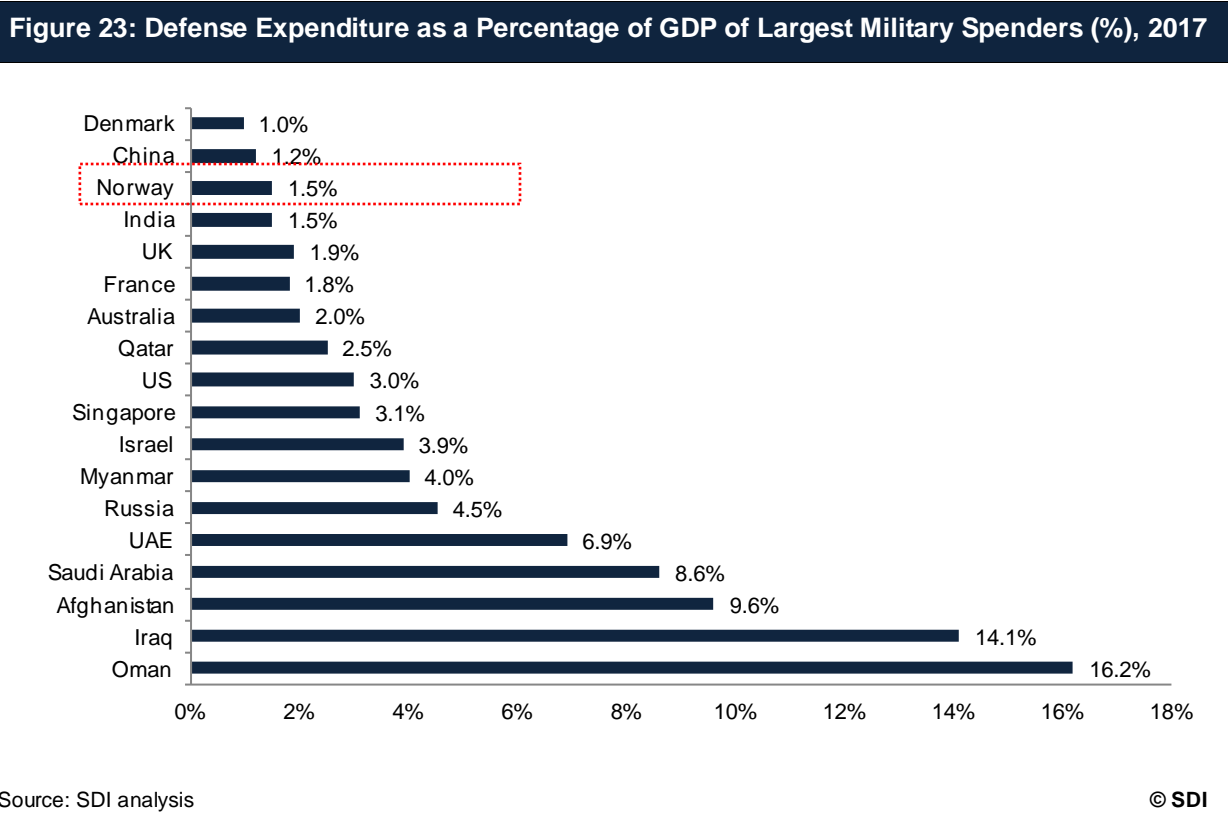


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.5.3. Norwegian defense budget as a percentage of GDP is expected to grow over the forecast period

In 2017, the country allocated 1.5% of its GDP to the defense sector. The Norwegian defense budget as a percentage of GDP is expected to marginally increase over the forecast period, to reach 1.6% of GDP in 2022; this increase can be attributed to robust growth expected in the defense budget during the forecast period.

The figure below benchmarks Norwegian defense expenditure as a percentage of GDP against the world's largest defense spenders.



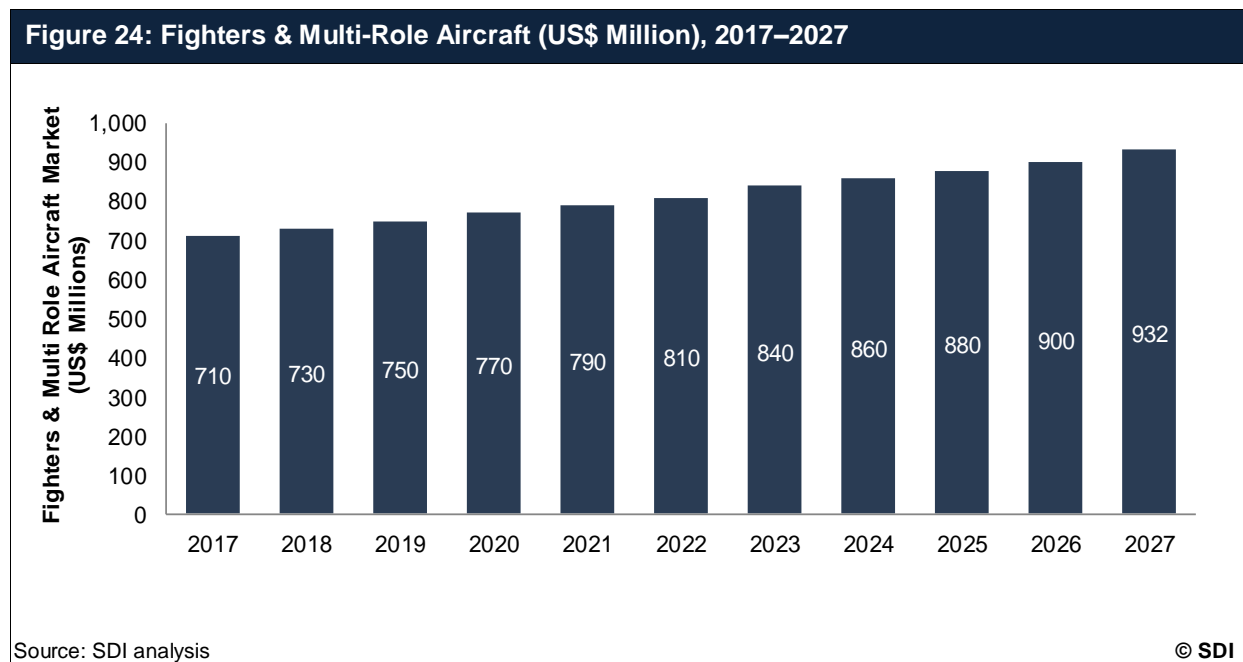
Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.6. Market Opportunities: Key Trends and Growth Stimulators

3.6.1. Fighters and Multi-role aircraft

Norwegian Air Force expenditure will be driven by the procurement of F-35 multi-role aircraft to replace the existing fleet of Lockheed’s F-16 fighter aircraft. In 2014, the government awarded a contract, worth US\$10 billion, to Lockheed Martin for 48 F-35A Lightning II aircraft, with an option to increase the number to 52. The prime objective of the F-35 program is to fortify the Norwegian Air Force’s capabilities in the northern part of the country, where it shares a border with Russia. The contract also includes the beginning phase of Joint Strike Missile (JSM) development and equipping the F-35s with missiles. The government has approved the acquisition of 16 F-35 jets between 2015 and 2018; with two fighters utilized for the training of Norwegian personnel in the US in 2015. In addition, six more aircraft are expected to be delivered in 2019. The remaining deliveries are anticipated to continue until 2027; therefore, the fighters and multi-role aircraft market is expected to be robust throughout the forecast period, with expenditure expected to grow from US\$710 million in 2017 to US\$932.3 million in 2027.

The chart below shows the Fighters & Multi-Role Aircraft market size in Norway (US\$ million) during 2017–2027:

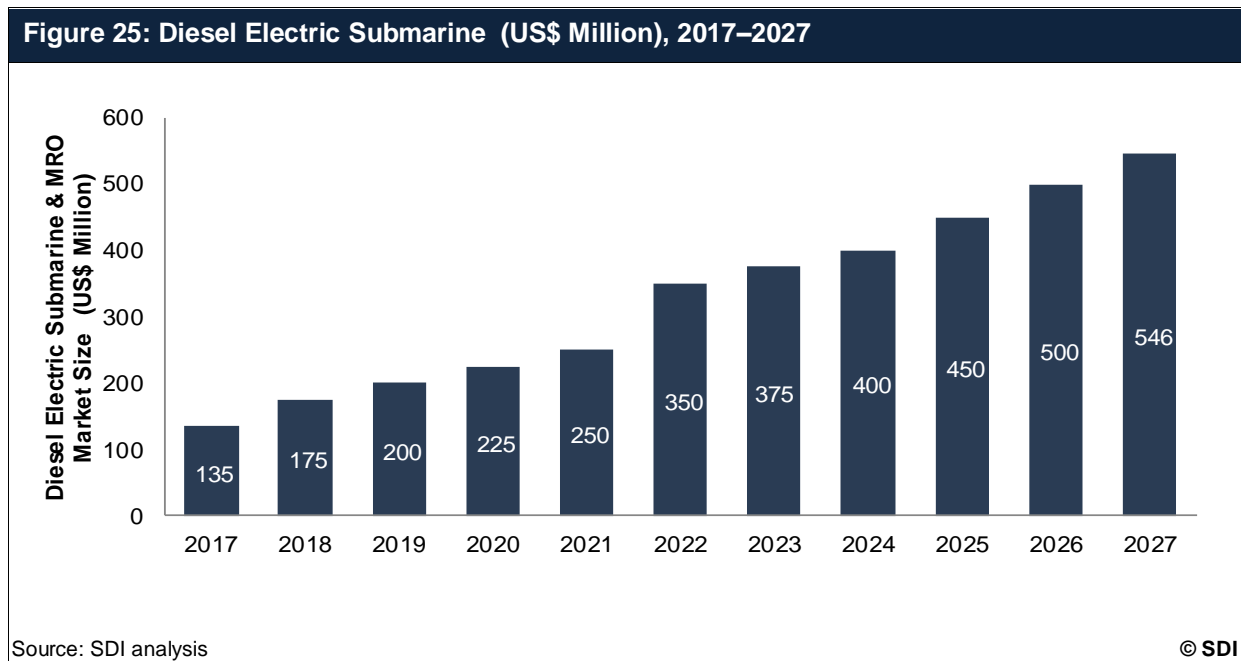


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.6.2. Diesel Electric Submarine & MRO

The Royal Norwegian Navy (RNoN) currently operates six Ula-class diesel electric submarines, which were commissioned between 1989 and 1992 and are anticipated to reach the end of service by 2020. Rejecting the option of extending the life of the existing fleet, the Norwegian MoD announced plans to build a new class of submarine. While the Ula-class submarine will continue to be operational for the next five years, The Ula class submarines are expected to undergo major refit and modernization to extend their service life. The government’s future submarine project is expected to enter a definition phase to review the options for new submarine procurement and is expected to receive formal approval in 2017. Norway intends to collaborate with an international partner for this project to increase economies of scale and optimize manufacturing costs and plans to finalize contract by 2018. Deliveries of the new submarines are expected to commence from mid-2020s and is expected to be completed by 2030. However in order to maintain its sub-surface combat capability, Norway is anticipated to continue investing in submarine MRO to ensure high availability; with the government expected to cumulatively spend US\$3.6 billion on submarine maintenance and procurement by 2027.

The chart below shows the Diesel Electric Submarine market size in Norway (US\$ million) during 2017–2027:

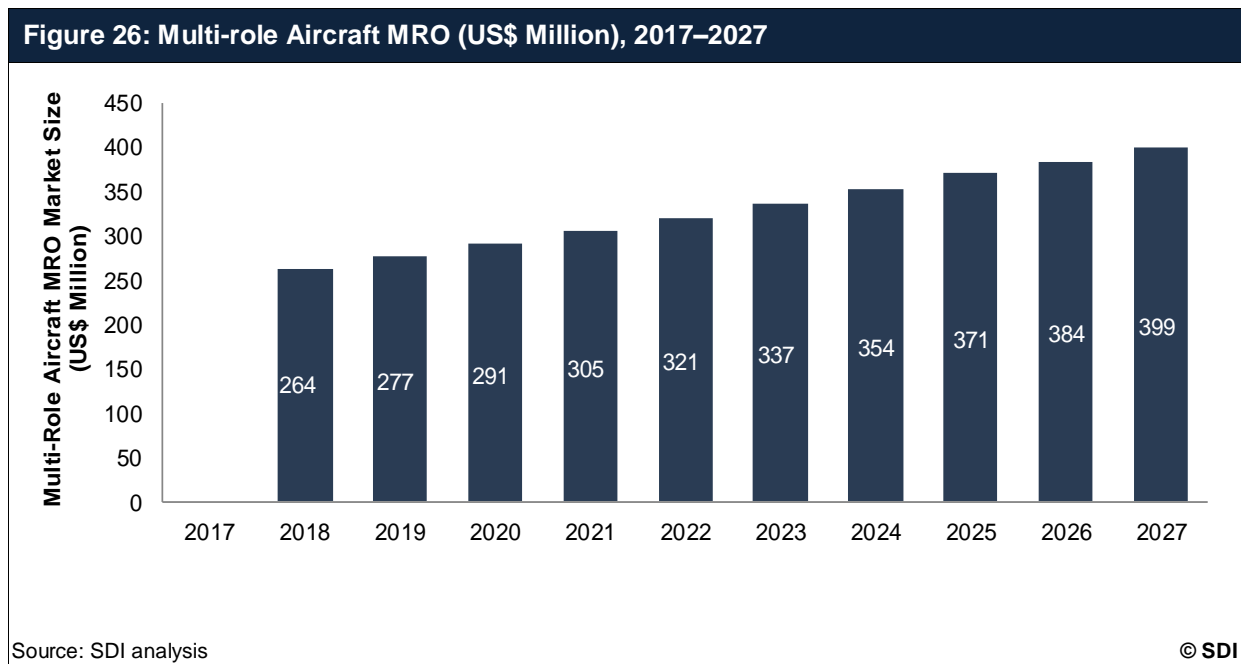


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.6.3. Multi-role Aircraft MRO

With increased procurement of fighter and multi-role aircraft, Norway is also expected to invest a substantial amount for the maintenance, repair, and overhaul (MRO) of the newly acquired jets, in order to extend their service life. Furthermore, the need to upgrade the aging military fleet will also drive the market during the forecast period. Until the new F-35 jets arrive, the Royal Norwegian Air Force (RNoAF) intends to enhance the operational capabilities of its current fleet of F-16 fighters by retrofitting them with new wings in order to maintain operational availability until F-35 comes online. The value of this contract is estimated to be US\$25 million and is expected to complete by 2019. For the upgrade of C-130J aircraft, the Norwegian Ministry of Defence (MoD) has approached the US Department of Defense (DoD) for a US\$107 million sale of technical, engineering, and software support services, under a foreign military sale (FMS) program. Under this program, Norway plans to update the Portable Flight Planning System (PFPS) and Joint Mission Planning System (JMPS). In this regard, Lockheed Martin Aeronautics has received a contract to execute C-130J long-term sustainment support (LTS) services, which includes return and repair support, spares, and engineering services. The cumulative expenditure on multi-role aircraft MRO is estimated to value US\$3.3 billion during the period 2015–2025.

The chart below shows the multi-role aircraft MRO market size in Norway (US\$ million) during 2017–2027:

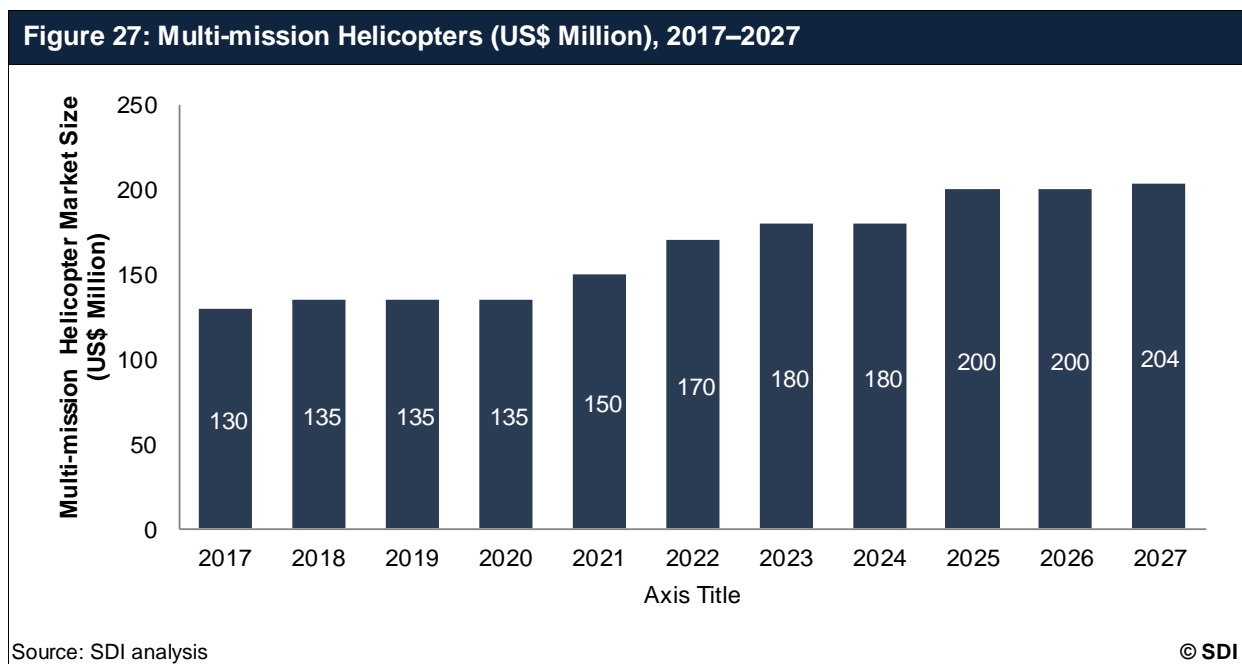


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

3.6.4. Multi-mission Helicopters

The need to replace the aging existing fleet of Westland-built Mk43B Sea King helicopters has propelled the Norwegian government to pursue the procurement of new and advanced helicopters. In this regard, the country entered into a contract with AgustaWestland for 16 AW101 helicopters as part of the Norwegian All Weather Search and Rescue Helicopter (NAWSARH) program. The program includes an option for six additional aircraft and 15 years of technical support, spares, and training services, with an option to extend this for another five years. The value of the contract is estimated to be US\$1.6 billion, including logistics support and training. The AW101s are installed with an advanced SAR equipment package, including a 4-axis digital Automatic Flight Control System (AFCS), AESA surveillance radar system, a surveillance turret and a searchlight. Deliveries are expected to start in 2017 and continue until 2020. The other contenders to bid for the contract were Eurocopter’s EC725, NH Industries’ NH90, and Sikorsky’s S-92. Furthermore, Norway is keen to acquire 10 more NH-90 helicopters over the forecast period, in addition to the 14 helicopters already contracted. The cumulative market for multi-mission helicopters in Norway is estimated to be US\$1.8 billion during the forecast period.

The chart below shows the multi-mission helicopters’ market size in Norway (US\$ million) during 2017–2027:



4. Defense Procurement Market Dynamics

Overall, Norwegian defense imports were lower than exports between 2012 and 2016, and Norway ranked among the top 20 countries with the highest volume of defense exports during the period 2012–2016 and the country managed to export over US\$904 million worth defense equipment throughout the period as compared to US\$518 million in defense imports. Compared to other European countries, the Norwegian economy was relatively unaffected by the global financial crisis due to its strong oil revenues. Spain, the US, and France are the main suppliers of defense equipment to Norway.

The figures in this section are based on trend indicator values (TIV) expressed in US\$ million at constant (1990) prices. Although figures are expressed in US\$, TIVs do not represent the financial value of goods transferred; rather, TIVs are an indication of the volume of arms transferred.

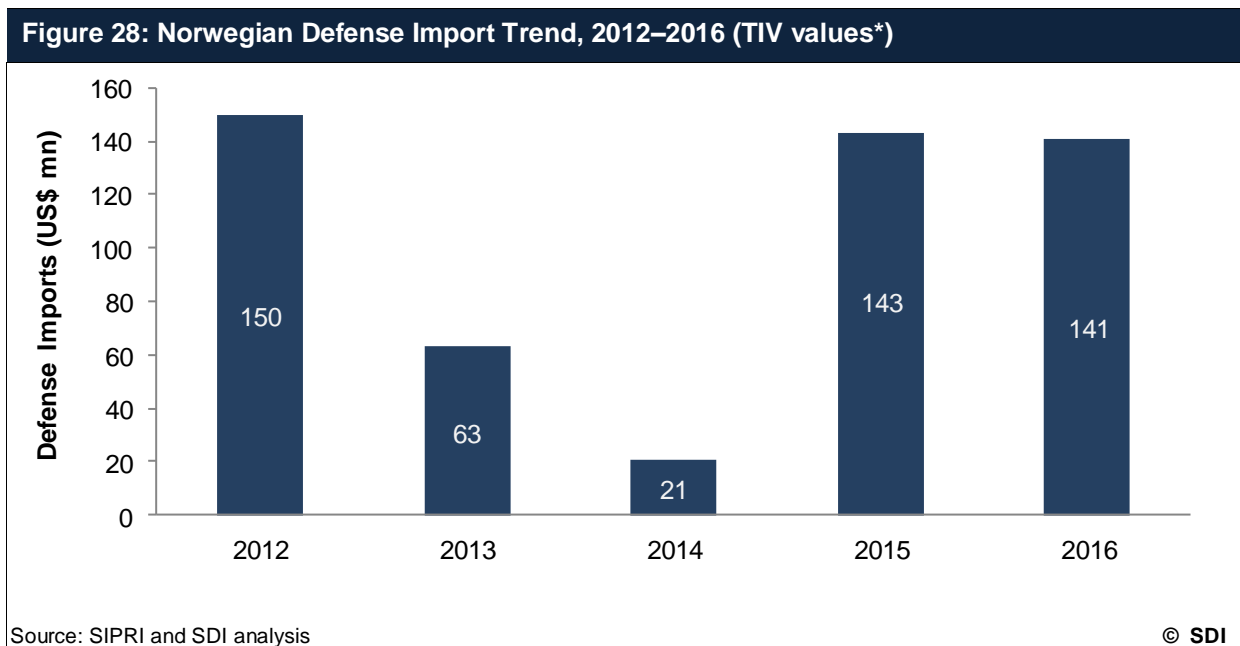
Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

4.1. Import Market Dynamics

4.1.1. Norwegian defense imports are expected to increase over the forecast period

Overall, Norwegian defense imports decreased during 2012–2016; the country’s average defense imports stood at US\$518 million for the period 2012–2016. Although the country’s defense imports peaked in 2012, they declined significantly over the next successive two years. However defense imported recovered in 2015 amounting to US\$143 million, only to marginally decline to US\$141 million in 2016. Imports are expected to grow over the forecast period as a result of the government’s revised modernization and procurement plans, which includes the procurement of F-35 fighter aircraft, submarines, NH-90 maritime helicopters, and naval strike missiles. European countries, such as Spain, France, Italy, and the UK, and the US are the main suppliers to the Norwegian defense industry, and are expected to remain so throughout the forecast period.

The figure below shows the value of Norwegian arms imports during 2012–2016:



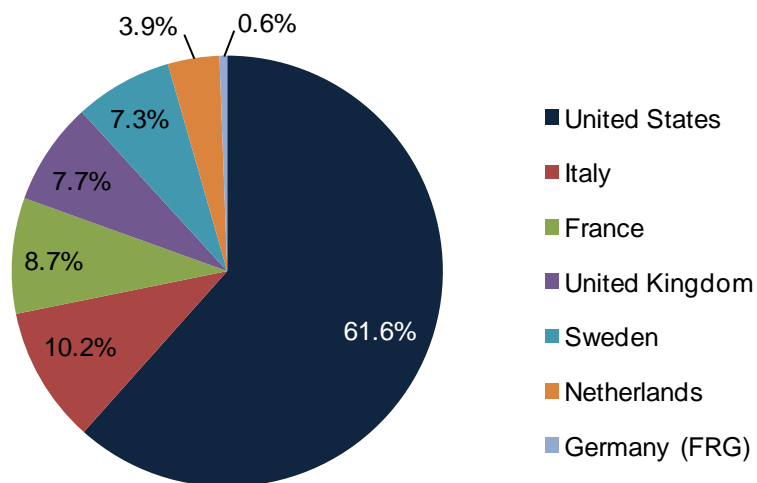
*Please note, the following figures are based on trend indicator values (TIV) expressed in US\$ million at constant (1990) prices. Although figures are expressed in US dollars, TIVs do not represent the financial value of goods transferred; instead, TIVs are an indication of the volume of arms transferred.

4.1.2. Spain and the US are the largest arms suppliers to Norway

During 2012–2016, The United States emerged as the predominant arms supplier to Norway, with a share of 61.6%, followed by the Italy, with a 10.2% share, and France, with an 8.7% share. United Kingdom and Sweden also accounted for 7.7% and 7.3% shares respectively. Compared to these suppliers Netherlands and Germany were minor defense suppliers to Norway accounting for 3.9% and just 0.6% share respectively. Over the forecast period, defense imports from the US are expected to increase as a result of the procurement of F-35 fighter aircraft.

The following figure shows Norwegian defense import trends during 2012–2016:

Figure 29: Norwegian Defense Import by Country, 2012–2016 (TIV values)



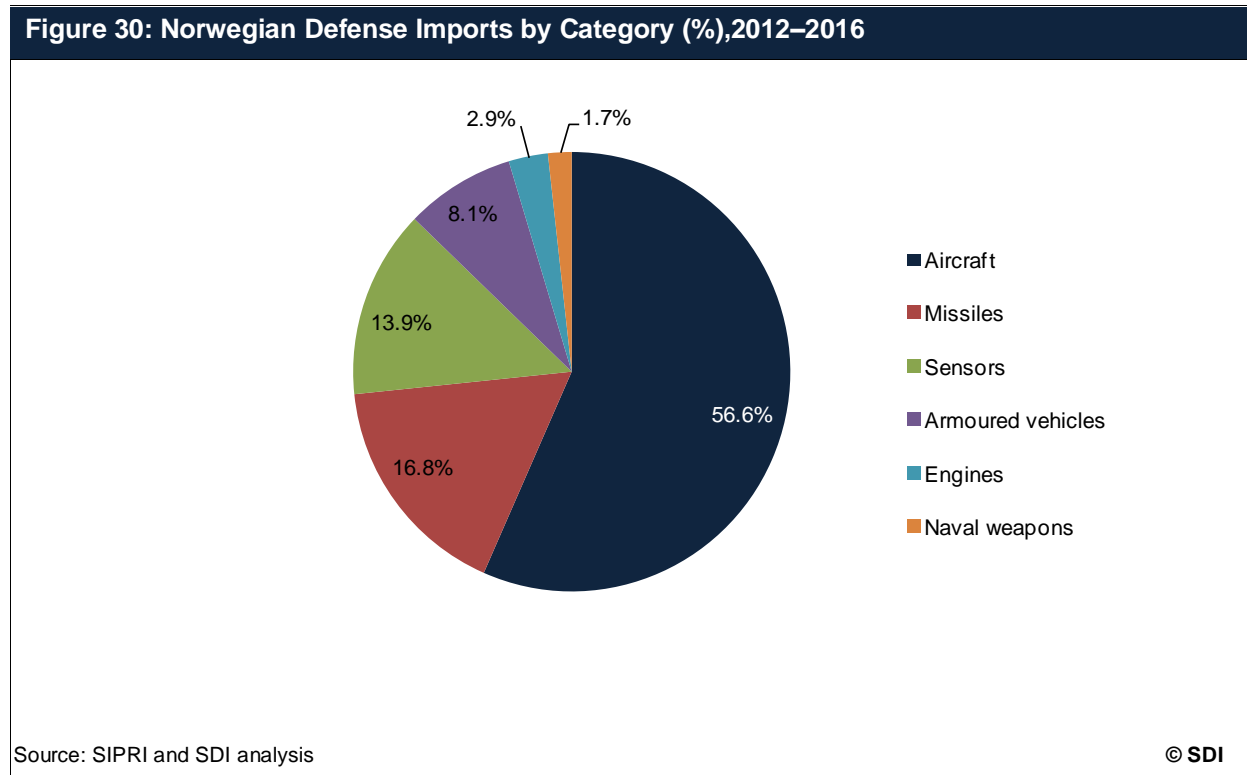
Source: SIPRI and SDI analysis

© SDI

4.1.3. Ships accounted for the largest percentage share of overall defense imports

During 2012–2016, Norway imported a significant number of aircraft’s to enhance the security of its airspace, which is shared by Russia. Aircraft accounted for 56.6% of overall defense during 2012–2016. Missiles, sensors and armored vehicles accounted for 16.8%, 13.9%, and 8.1% respectively. During the period, the percentage share of aircraft was largest due to the continued procurement of F-35 fighter planes, and the percentage share of missile systems is also expected to rise as a result of procurement programs that are to be executed during the forecast period.

The following figure displays Norwegian defense imports by category during 2012–2016:



4.2. Export Market Dynamics

4.2.1. Norway was among the top 20 countries with the highest volume of defense exports

Norwegian defense exports remained relatively stable over 2012–2015, with a decline in 2014; however, Norwegian defense exports recovered in 2015 and the country managed to export US\$241 million worth of defense equipment to other countries, which declined to US\$152 million in 2016. The majority of defense exports were directed towards the US and other NATO countries. Norway’s main trade partners outside the NATO agreement are Austria, Sweden, Finland, and Switzerland in Europe, and Thailand, Singapore, and South Africa outside of Europe. During the forecast period, a focus on the enhancement of its domestic defense industry through collaborations with foreign OEMs will result in a further increase in exports from Norway.

The figure below shows the value of Norwegian defense exports during 2012–2016:

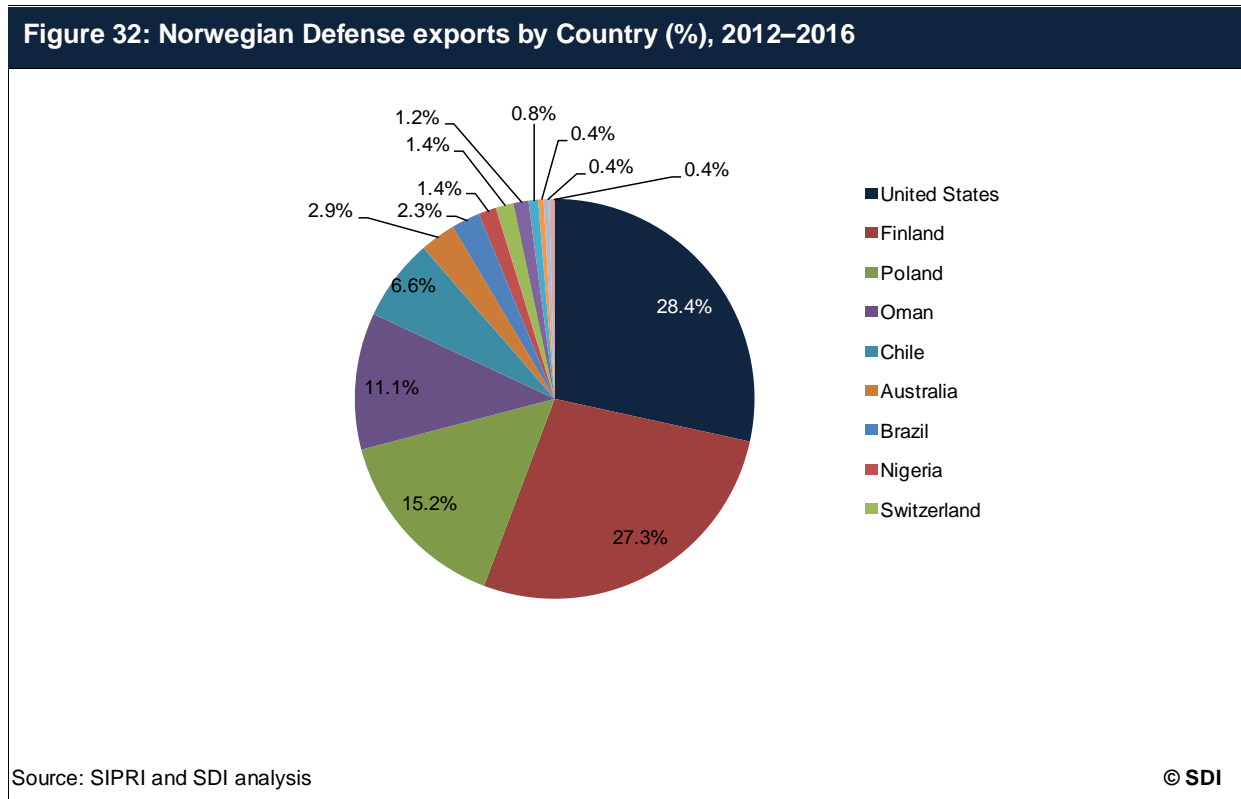


Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

4.2.2. Exports to European countries are expected to increase over the forecast period

During 2012–2016, the US was the largest consumer of Norwegian defense goods, accounting for a 28.4% share of total defense exports; which included tanks, weapons, and ammunition. Finland with share of 27.3% was the second largest export market, while Poland with share of 15.2% was third largest market for Norwegian defense equipment. According to new export guidelines released in December 2012, Norway is expected to supply most of its military equipment only to European countries and a small number of other allied countries such as the US, Australia, and Brazil.

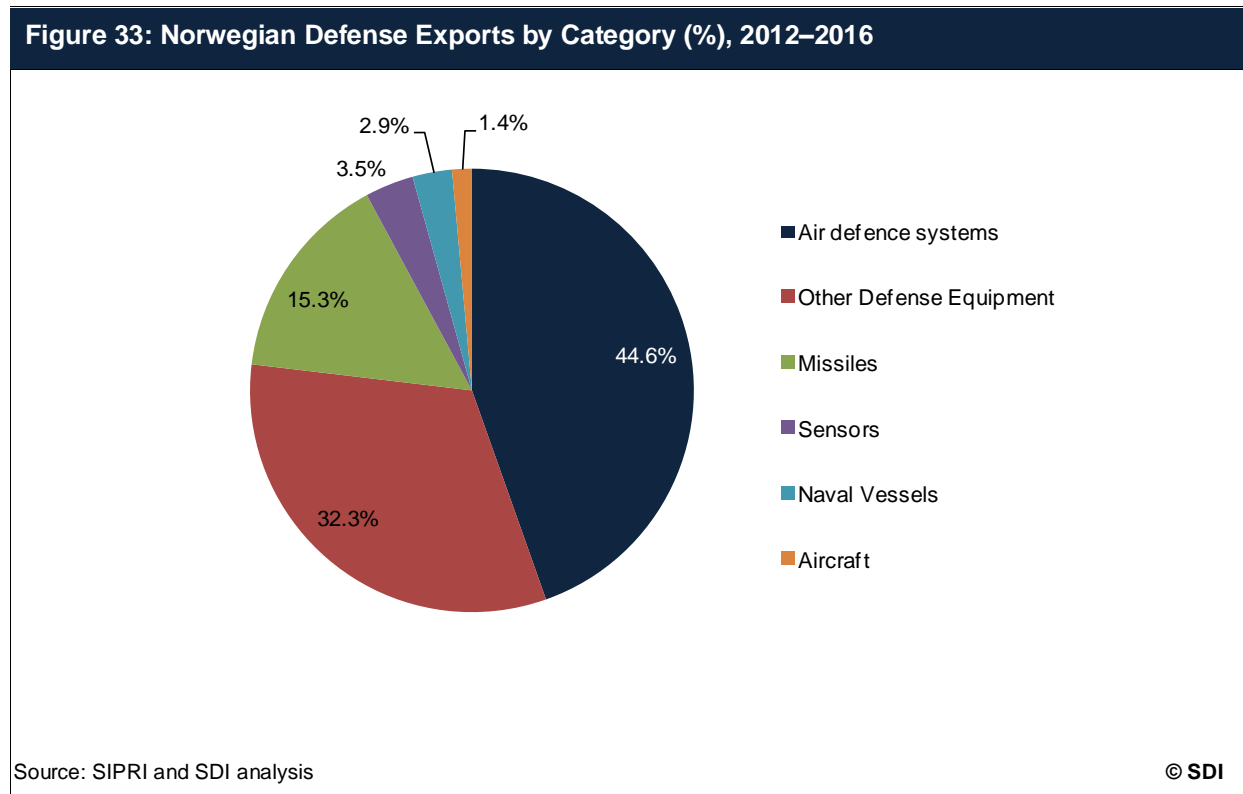
The figure below shows Norwegian defense exports by country during 2012–2016:



4.2.3. The air defense systems category accounted for the majority of Norway’s defense exports during 2012–2016

The air defense systems category dominated Norway’s defense exports over 2012–2016, accounting for a share of 44.6% of total exports, which was followed by other defense equipment category with 32.3%, missiles with 15.3%, sensors, naval vessels and aircraft with 3.5%, 2.9% and 1.4% respectively. The ‘other’ category mainly comprises weapon parts, mines, and rockets; the country currently has more than five defense companies providing missile defense systems and, consequently, the demand for missile defense systems is expected to continue over the forecast period.

The figure below shows Norwegian defense exports by category during 2012–2016:

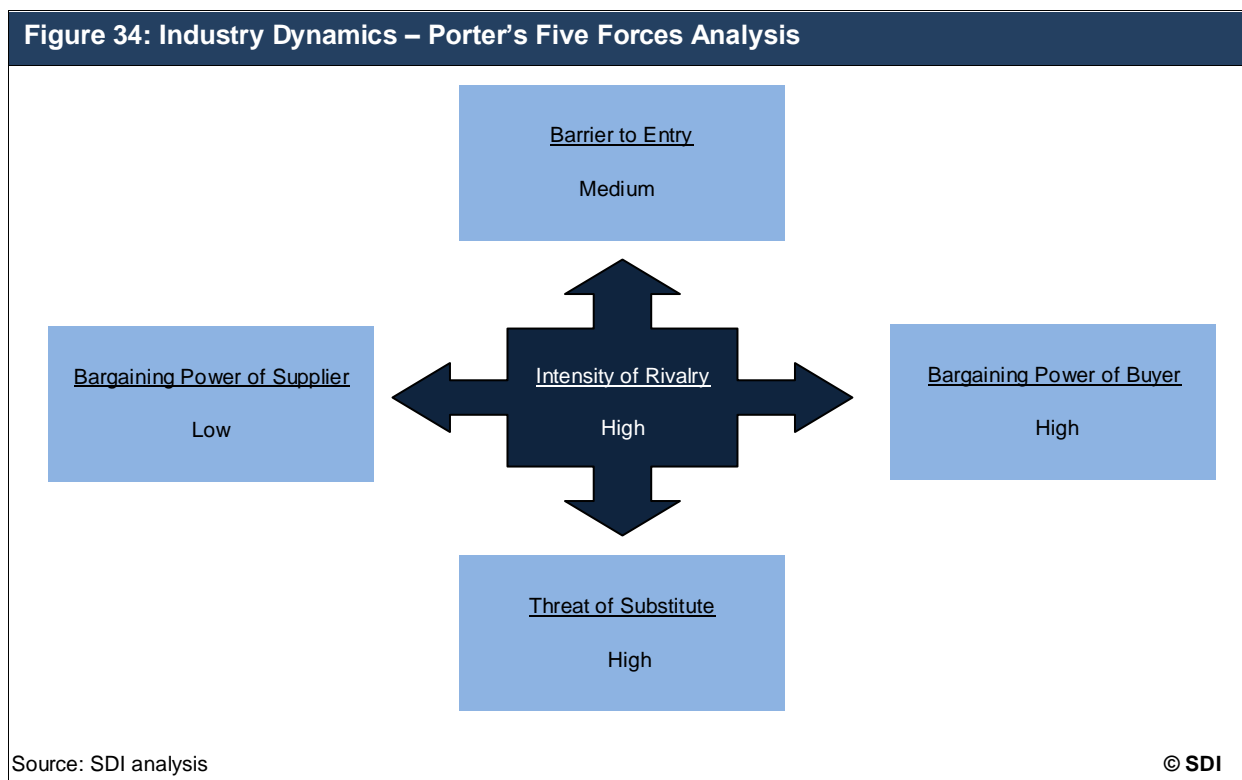


5. Industry Dynamics

5.1. Five Forces Analysis

The Norwegian defense industry is dominated by a large number of small-scale defense firms that cater to low-sophisticated defense procurements made by the country's MoD. Suppliers possess low negotiation power, as defense firms are offering similar products. Furthermore, although Norway's investment policies encourage foreign direct investment (FDI), the presence of substantial defense offsets is an area of concern for foreign OEMs that are considering entering the country. Finally, Norway has amicable relations with all major arms supplying countries, such as the US, the UK, Spain, Germany, and France, allowing it to select from multiple sources of defense equipment and intensifying the rivalry and threat of substitution within the Norwegian defense industry.

The following sections provide a Porter's five forces analysis of the Norwegian defense industry.



5.1.1. Bargaining power of Supplier: Low

The bargaining power of suppliers in the Norwegian defense industry is low due to the large number of manufacturers and supplying countries, and a comparatively low defense budget across European nations. Moreover, the domestic defense industry is well-developed and consists of over 100 firms offering similar products in the same categories, which further reduces supplier bargaining power. Finally, Norway has the option of procuring equipment off-the-shelf from foreign defense companies, and has amicable relations with countries such as the US, the UK, Spain, Germany, and France, which further reduces supplier bargaining power.

5.1.2. Bargaining power of Buyer: High

The Norwegian government has formulated strict policies for defense exports, which limits the reach of domestic players and encourages them to cater to the needs of the Norwegian MoD. The presence of a single buyer and a large number of suppliers results in high buyer bargaining power in the Norwegian defense industry.

5.1.3. Barrier to entry: Medium

The Norwegian offset policy mandates that foreign suppliers must invest 100% of the contract value back into its economy; however, if an OEM fails to fulfill its offset obligation, it is required to pay at least 10% of the outstanding value as a penalty. Additionally, although the government treats foreign and direct investment equally under the law, regulations, standards, and practices within the industry often favor Norwegian, Scandinavian, and EEA investors. The government may also screen investments to ensure that they are in the public interest, which further increases the barriers to entry for foreign investors.

5.1.4. Intensity of rivalry: High

There is a high intensity of rivalry within the Norwegian defense industry due to the presence of a large number of foreign and domestic companies offering similar equipment categories. Furthermore, with Norway in the midst of a military modernization program, the number of investors keen to enter the market has increased significantly, which raises the overall level of the intensity of rivalry.

5.1.5. Threat of Substitution: High

The Norwegian defense industry is characterized by a high threat of substitution; this is mostly due to the absence of large scale defense equipment suppliers in the country. In addition, Norway has amicable relations with the world's major arms supplying countries, and has access to defense equipment from a variety of suppliers, resulting in an increase in the overall threat of substitution.

6. Market Entry Strategy

6.1. Budgeting Process

Every new cycle of formulating a national budget in Norway, usually starts with a circular letter from the ministry of finance to different line ministries, which is dispatched in the month of December. The letter intends to prepare for budget conference, which is organized in the month of March. The circular letter requests all the line ministries involved in the exercise to draft proposals for expenditure spanning the next four years based on static policy as well as propose new policies. The ministries involved in the overall budget exercise respond send all their suggestions and proposals on their baseline projections spanning the next four years in the month of January and suggestions regarding new policy initiatives are usually sent in February.

Table 19: Norwegian Budget Formation Timetable:

Sl.NO	Step	Month	Comments
1	1	December	The Budgetary process starts with the Norwegian ministry of Finance dispatching a circular letter to all line ministries involved, asking them to prepare projections on expenditure for the next four years base on static policy framework. The circular also asks all the ministries involved to make proposals on new policies.
2	2	January	In January Ministry of Finance accepts baseline expenditure projections made by different line ministries.
3	3	February	The Norwegian Ministry of Finance accepts all the new proposals made with respect to new policies.
4	4	March	The first budget conference is organized in order to finalize ceilings for all the new policy programs as well as ministries.
5	5	August	The second budget conference is convened in order to finalize final allocation for various ministries in addition to proposed new policy initiatives and tax policies.
6	6	October	Budget is formally presented in the Norwegian Parliament.

Source: SDI Research analysis

© SDI

6.2. Procurement Policy & Process

The Norwegian Defence Materiel Agency (DMA or Forsvarsmateriell), is the nodal agency that manages all defense procurements for the Norwegian defense forces. The Norwegian DMA , is a civilian agency that operates as a division of the Ministry of Defense (MoD) and is responsible for supervising procurement of defense related materials and services and is intended to adopt certain specific functions related to material management, as well as manage its investments in defense materials that were previously handled by Norwegian Defense Logistics Organization (NDLO)

6.3. Market Regulation

6.3.1. The Norwegian defense industry is largely driven by government regulation and offset policy

The Norwegian defense industry is largely regulated by the government’s offset policy, where offsets are mandatory for all transactions exceeding NOK50 million. If a supplier is registered in Norway but significant parts of the delivery are produced overseas, the company is still required to sign an offset agreement; additionally, the supplier must carry out industrial co-operation equal to a minimum of 100% of the value of the basis of calculation. A binding Industrial Co-operation Agreement is mandatory between the parties before any acquisition/procurement contract is concluded.

As the country’s offset policy aims to enhance the capabilities of the domestic defense industry, Norway prefers defense-related offsets, with the effective period of the offset agreement typically being 10 years. Finally, if an offset agreement is signed and not complied with, the investor is obliged to pay a final compensation stated in the industrial co-operation agreement, with the minimum penalty being 10% of the outstanding amount. To qualify as offsets, projects should fall under one of the following three categories:

- Category I: Strategic projects, i.e. projects that are considered to be of strategic importance to the armed forces or national security
- Category II: Non-strategic, defense-related projects
- Category III: Security-related projects and dual use projects

At least 50% of the criteria must be fulfilled within Category I and a maximum of 25% of the criteria maybe fulfilled by use of Category III.

In order to encourage foreign companies to invest in areas of special economic significance, the Norwegian government also implements offset multipliers, with the total offset value being the product of the nominal value and the multiplier. Multipliers range from one to five based on the parameters below, and if the domestic partner is classified as a small- or medium-sized business (SME) a multiplier of 1.3 or 1.5 is applied in addition:

Table 20: Offset Multiplier Categories	
Multiplier range	Type of offset obligation
1	Acquisition of products
1–2	Assistance related to market development and market access
1–2.5	Transfer of technology and expertise to Norwegian partner
1–5	Technology co-operation, investments
Source: European Defense Agency and SDI analysis © SDI	

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

6.3.2. The Norwegian government supports FDI

Norway supports FDI and encourages companies to invest in the country in order to balance the budget deficit. Due to the government's FDI policy, many foreign defense firms, such as Thales and SAAB, have established wholly-owned subsidiaries in Norway; however, despite treating foreign and domestic investments equally under the law, regulations, standards, and practices within the industry often favor Norwegian, Scandinavian, and EEA investors, and the government frequently screens investments in order to ensure that they are in the public interest. Regulations and bureaucracy in Norway are generally transparent and efficient. Furthermore, as oil and gas trading is the country's key investment area, most of the FDI is directed towards ancillary services such as oil and gas insurance, the hydrocarbons sector, and onshore infrastructure. The Norwegian defense industry constitutes a small percentage share in overall FDI.

6.4. Market Entry Route

6.4.1. Entry through joint development programs

In order to develop its domestic defense capabilities, the Norwegian government encourages domestic defense firms to partner with foreign OEMs in order to co-develop military goods. Moreover, to cater to the international defense industry, Norway needs to enhance its domestic defense industry in order to build a competent defense industry capable of competing with the world’s major arms suppliers. A recent example of such programs is the US\$200 million deal between Norway and Sweden to procure the BAE-supplied 155/52 light mobile artillery system; this program was initiated by Sweden’s FMV defense procurement agency and later joined by the Norwegian defense industry.

The following table provides a list of foreign defense OEMs and their entry strategies:

Table 21: Market Entry Strategies by Key Foreign Companies			
Company name	Country of origin	Year	Entry strategy and strategic objective
Hisdesat	Spain	2010	Entry Strategy: Hisdesat, a satellite communications (SATCOM) company based in Spain, entered the Norwegian defense industry by signing a memorandum of understanding with the Norwegian government for the joint development and operation of a military communication satellite. Strategic Objective: To venture into the largely unexplored satellite communications market in Norway.
Thales Australia	Australia	2010	Entry Strategy: Thales Australia ventured into the country by signing a letter of intent (LOI) to collaborate with Nammo, a domestic defense company, in the production of aircraft ammunition. Strategic Objective: This will provide the two companies with an opportunity to capitalize on each other’s expertise in the field of aircraft ammunition.
BAE Systems	UK	2009	Entry Strategy: The company formed a strategic alliance with Kongsberg Devotek A/S of Norway. Strategic Objective: The two companies partnered to develop a new system of gears and transmissions for the SpitterskyddadEnhets Platform (SEP) 8x8 armored vehicle.
Source: SDI analysis			© SDI

6.4.2. Foreign Military Sales (FMS) to Norway

FMS is one of the key strategies to enter the Norwegian defense market. The Norwegian government is the sole buyer of the Norwegian defense industry, which leaves few opportunities for domestic companies to tap the foreign market. As the defense equipment of other countries is often cheaper than the equipment produced in Norway, an FMS agreement may be beneficial to the Norwegian government; foreign OEMs also find FMS a lucrative way to enter the market, as it does not involve a technology transfer cost or the cost of creating a manufacturing unit in the already established defense industry in Norway. Historically, Norway has engaged in a number of FMS programs in the field of fighter aircraft, ships, and missile systems.

Companies that have previously benefited from FMS to Norway are:

Table 22: FMS deals to Norway		
Year	Companies involved	Product
February 2014	Raytheon Corporation	The Government of Norway has requested a possible sale of 36 AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM) and associated equipment, parts, training and logistical support for an estimated cost of US\$80 million.
December 2013	Lockheed Martin Corporation	Technical, engineering, and software support for C-130J aircraft for an estimated cost of US\$107 million.
August 2012	Lockheed Martin Corp., of Marietta, Ga.	Modification contract for C-130J production aircraft
June 2012	US Government	Sale of two C-130 jets worth of US\$300 million, including parts and logistics support
Source: SDI analysis		© SDI

6.4.3. Collaborations provide market entry opportunities

Norway is a part of NORDEFECO (Nordic Defence Cooperation), which is collaboration between Nordic countries, established in 2009, with the objective of strengthening the member countries' defense capabilities and operational capacity. The Nordic military forces are focusing on joint military procurement and training programs that will provide them with operational gains aside from sharing of resources. The regular cross-border training will contribute to maintaining and developing joint capabilities, which will assist in the rapid deployment of forces to be used for the NATO Response Force and EU Battle Groups. Furthermore, the members aim to increase interoperability and create a pool of resources to facilitate air and sea surveillance in the Nordic region. Together, the countries are anticipated to spend US\$180 million to operate their air transport capabilities and the assets are to be owned by Sweden, Finland, Norway, and Norway. Furthermore, the partners will work towards capacity building, to contribute to international missions by 2020, and will increase efforts to develop rapid deployment capabilities along the Arctic. Moreover, member countries have planned strategic solutions which include enhanced regional security, heightened common equipment procurements, and the establishment of joint operating units. The Nordic partners have recently witnessed converging military needs including explosive devices, long-range precision weapons, air surveillance, ground air defenses, and future mechanized battalion system. Therefore, the joint procurement strategy will enable the partner countries to procure defense equipment at competitive prices, and allows access to larger established manufacturers.

6.5. Key Challenges

6.5.1. The Norwegian government prefers Scandinavian and European countries for defense trade

The Norwegian defense industry favors Scandinavian and European countries for defense trade, as it is a member of the European Defense Agency, which limits the scope for foreign companies to enter the Norwegian defense industry. Furthermore, the country follows a strict offset policy, according to which, offsets are mandatory for all transactions exceeding NOK50 million, and investors are required to reinvest 100% of the value of the contract into the Norwegian economy. Moreover, if an investor is unable to meet the offset obligation, a penalty of a minimum of 10% of the outstanding amount is issued. Finally, the relatively high cost of labor in the country may be an additional deterrent for potential investors.

6.5.2. The Norwegian export policy poses a challenge for domestic defense companies

The Norwegian government has adopted a new set of rules for defense exports after the Iraq war massacre in 2012; these rules further tighten Norway's export policy, which affects the country's budget deficit and for bids Norwegian exports to nations involved in warfare. In addition, new laws also ban exports to countries that are not part of the NATO agreement. The following factors are listed in new laws adopted by the Norwegian defense industry, which determine where weapons can be exported:

- Attitudes to international human rights instruments, and respect for humanitarian law; respect for civil and political rights
- Reports by competent organizations of serious violations of human rights, including the use of torture or other inhuman and degrading treatment or punishment in the receiving state, or the arbitrary deprivation of liberty
- The risk that the exported items could be used for the violation of basic human rights, e.g., using military equipment to crack down on peaceful demonstrations
- The risk of the unwanted diversion of material from the approved recipient, including whether the military equipment or technology is intended for national security purposes
- Issues related to freedom of expression, including freedom of the press and of assembly
- The degree of regulatory monitoring, through such means as censorship and the setting of conditions of citizens' use of social media and the internet

7. Competitive Landscape and Strategic Insights

7.1. Competitive Landscape Overview

Although the Norwegian defense industry is smaller than those of major European arms supplying countries, such as Germany, France, and Italy, it is well-developed in certain areas. The country's core competencies lies in missile technology, weapon sensor systems, ammunition, military explosives, information and communication technologies, system integration, underwater technology, and sensors and simulation technology.

Over the forecast period, the capabilities of the Norwegian defense industry are expected to increase, as the Norwegian government continues to encourage joint development and R&D collaboration with foreign defense firms.

7.2. Key Public Sector Companies

7.2.1. Kongsberg Defense Systems: Overview

Kongsberg Defense and Aerospace AS, a defense contractor company, was established in 1997 and functions as a subsidiary of Kongsberg Gruppen ASA. The company is based in Kongsberg, Norway, and is a global company that supplies high technology systems and solutions for the oil and gas, marine, defense, and aerospace industries.

Kongsberg Defense and Aerospace AS specializes in the design, improvement, production, and maintenance of products and systems for the defense and aerospace industries in Norway, as well as investing considerable amounts in its R&D activities. The company's product portfolio comprises command and control systems, surveillance, weapon guidance, space activities, communication solutions, and missiles; the company also builds composites and engineering products for aircraft and helicopters.

7.2.2. Kongsberg Defense Systems: Major Products and Services

Table 23: Kongsberg Defense Systems – Major Products & Services

Products
<p>Aero structures</p> <ul style="list-style-type: none"> • Mechanical production • Helicopter maintenance and overhaul <p>Air defense systems</p> <ul style="list-style-type: none"> • Advanced medium range air-to-air missile (AMRAAM) • FDC-VSHORAD (FDC-V) • HAWK XXI <p>Army command and control information systems</p> <ul style="list-style-type: none"> • Blue force protector • ComBatt • KES - Kongsberg exploitation system • ODIN fire control system <p>Defense communications</p> <ul style="list-style-type: none"> • Command and control • Encryption • EriTac tactical systems • Power • Switches and access • TacLAN • Terminals and field telephones • Transmission and radio link • Multi-role radio <p>Missile systems</p> <ul style="list-style-type: none"> • Penguin anti-ship missile • Naval strike missile – NSM • Joint strike missile • 2,75" precision guided rocket • Laser range finder <p>Naval systems</p> <ul style="list-style-type: none"> • Submarine systems • Surface vessel systems • MCM systems • Ship self-protection systems • Tactical bridge systems • Underwater surveillance and protection • Mission planning systems • Sea protector • TOPAS sub-bottom profiler

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 23: Kongsberg Defense Systems – Major Products & Services

Products
<ul style="list-style-type: none"> • Simulation and training • BaSE–Battlespace synthetic environment • CBT – Computer-based training • Connect communication system • Customer logistics support • IML – Interactive maintenance library • Mobile combat trainer • PROTECTOR combat vehicle training system • PROTECTOR training system
<p>Space technology and systems</p> <ul style="list-style-type: none"> • Attachment and release mechanisms • Deployment and pointing mechanisms • Electro-optical equipment
<p>Source: Annual Report, Company Website, Primary and Secondary Research</p>

© SDI

7.2.3. Kongsberg Defense Systems: Recent Announcements and Strategic Initiatives

December 2016: Kongsberg Defence & Aerospace AS signs MRO pact with Leonardo for undertaking MRO activities for dynamic components for AW101 and NH-90 Helicopters.

December 2016: Joint Strike Missile (JSM) successfully concludes long range flight test.

November 2016: Kongsberg secures NOK 313 million contract for modernizing Fridtjof Nansen class frigates.

October 2016: Kongsberg secures NOK 220 million contract for modernizing ULA class frigates.

August 2016: Raytheon secures Kongsberg contract for manufacturing launchers for Naval Strike Missile (NSM) at its Tuscon, Arizona facility.

July 2016: Kongsberg Norspace AS secures Airbus Defence and Space contract, worth NOK 250-300 million for delivering Post and Pre L-Band processors for starting two Inmarsat-6 satellites.

May 2016: Kongsberg Defence & Aerospace AS, finalizes pact with Polish Armaments Group (PAG) to explore further business opportunities.

May 2016: US Navy mull integration of Naval Strike Missile (NS) on Littoral Combat Ship.

April 2016: Kongsberg finalizes two contracts with Airbus Defence and Space worth €23.6 million, for supplying Solar Array Drive Assembly and KA band Antenna Pointing System for MetOp-Second Generation (MetOp-SG) program.

March 2016: Kongsberg acquires a minority stake of 49.9% in Finnish Patria, for a sum of €272 million.

February 2016: Kongsberg Gallium rebrands itself as Kongsberg Geospatial.

October 2015: Kongsberg Satellite Services (KSAT) finalizes a extended satellite support contract worth NOK 205 million, with European Space Agency (ESA) for Sentinel satellites, a part of Copernicus program.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

May 2015: Kongsberg Defence Systems secures 2 contracts worth NOK135 million to supply Main Landing Gear (MLG) panels for production lots 10 and 11 of F-35 aircraft.

April 2015: Kongsberg inks NOK 168 million worth contract for delivering communications equipment to be incorporated into Norwegian NASAMS air defence system.

April 2015: Kongsberg partners with Raytheon for Naval Strike Missile (NSM) project.

February 2015: Kongsberg Defence Systems, secures Lockheed Martin contract worth NOK 560 million for supplying vertical leading edges and rudders for production lot 9 and 10 of the F-35 fighter.

February 2015: Norway and Australia to jointly develop Joint Strike Missile (JSM).

January 2015: Kongsberg Satellite Services (KSAT) finalizes a NOK 173 million satellite support contract with European Space Agency (ESA) for operationally supporting Sentinel satellites, a part of Copernicus program.

December 2014: Kongsberg Defence & Aerospace secures NOK 1.3 billion contract from Polish Ministry of National Defence, for Naval Strike Missile (NSM) coastal defense system.

September 2014: Kongsberg Norspace secures contract from Airbus Defense and Space to supply two command receivers for SES-10 satellite.

July 2014: Kongsberg secures Norwegian Defence Logistics Organization (NDLO) contract for part II of the Joint Strike Missile (JSM).

June 2014: The company was selected to provide the core maritime surveillance, voice communications, port management, and port community technologies for the Algerian national Vessel Traffic Management and Information System (VTIMS).

February 2014: The company has demonstrated its latest innovation “The Protector MCT-30R”, mounted on Tata Motors WhAP (Wheeled Armoured Platform), during a DefExpo that took place in India.

November 2013: Boeing and Kongsberg Defense Systems jointly completed a successful check of the Joint Strike Missile (JSM) on an F/A-18F Super Hornet at the Boeing St. Louis facility to ensure the weapons fit on the aircraft's external pylons.

June 2012: The Norwegian and US governments agreed to collaborate on the integration of Joint Strike Missiles (JSMs) on the F-35. This opens great opportunities for Kongsberg and other Norwegian industry members.

May 2012: The company showcased its environmental monitoring system for underwater operations at the ‘Expo 2012’, held at South Korea.

May 2012: The company demonstrated Naval Strike Missile, under a contract signed with the Polish Navy.

October 2011: The company announced that it produced the SURION model multi-role helicopter, which is expected to hit the domestic helicopter market by the end of 2011.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

June 2011: The company conducted the first live-fire with the Naval Strike Missile (NSM) against a land target. This demonstration is a milestone in its missile business, extending the portfolio of operational capabilities from the sea-target domain to include precision strikes against land targets.

June 2010: The company announced the launch of a medium caliber remote weapon station at 'Eurosatory 2010'.

February 2009: The company announced successful testing of the Naval Strike Missile (NSM) at the Pt. Mugu artillery range in the US state of California.

7.2.4. Kongsberg Defense Systems: alliances

Table 24: Kongsberg Defense Systems – Alliances			
Alliances	Partner company	Year formed	Strategic objectives and focus area
Partnership	Polish Armaments Group (PAG)	2016	To explore further business opportunities.
Partnership	Leonardo	2016	To undertake MRO maintenance on dynamic components such as gearbox on AW101 and NH-90 Helicopters.
Acquisition	Patria	2016	Kongsberg has acquired a minority stake of 49.9% in Finnish defense company Patria.
Partnership	Raytheon	2015	For co-development of Naval Strike Missile (NSM).
Co-operation Agreement	AgustaWestland	2014	To co-operate on Maintenance, Repair and Overhaul (MRO) of dynamic components (including various gear boxes) for the NH90 helicopter and a range of AgustaWestland helicopters.
Strategic Alliance	Raytheon	2014	The company is a sub-contractor of the NASAMS elements to Raytheon, which has signed a contract with Omani Defence Ministry. Agreed to provide new solutions for the Offensive Anti-Surface Warfare (OASuW) mission.
Framework Agreement	Royal Norwegian Navy	2013	The company signed a long term Framework Agreement for support and maintenance of systems onboard the RNoN's combat vessels and training centers.
Acquisition	Apply Nemo AS	2012	Product focus: For the advanced engineering services, products, and solutions for subsea oil and gas applications.
Collaboration	US	2012	Product focus: for the integration of Joint Strike Missile (JSM) on F-35
Teaming Agreement	Thales Norway and Vinghøg	2012	Product Focus: To supply combat systems for the CV90 infantry fighting vehicle.
Acquisition	NorspaceAS	2011	Strategy: To grow and develop new products and services. The transaction was completed by the end of October.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 24: Kongsberg Defense Systems – Alliances

Alliances	Partner company	Year formed	Strategic objectives and focus area
Agreement	Raytheon Australia Pty Ltd.	2009	Product Focus: To support Raytheon Australia Pty Ltd. in the delivery of a central component for the Hobart-class combat system.
Agreement	Raytheon Air Defense System	2009	Product Focus: A contract to support the Finnish MoD in building the future medium range air defense missile system (MRADMS) requirements. This contract is jointly owned by Kongsberg and Raytheon Air Defense System. Market Focus: Finland Revenue Insight: US\$480 million
Agreement	Lockheed Martin	2008	Product Focus: To manufacture parts in composite and titanium for the new joint strike fighter (JSF - F-35 Lightning II) fighter aircraft.
Agreement	Renault Trucks Defense	2008	Product Focus: To deliver a protector weapons control system to upgrade the French Army's Renault VAB 4x4 armored personnel carriers. Market Focus: France Revenue Insight: US\$90 million
Agreement	US Army	2007	Product Focus: To deliver remote weapon stations (RWS) for the CROWS (Common Remotely Operated Weapon Station) program. Revenue Insight: US\$1.4 billion

Source: Company website and SDI analysis /

© SDI

7.2.5. Kongsberg Defense Systems: recent contract wins

Table 25: Kongsberg Defense Systems – Recent Contract Wins

Date	Contract Value	Client	Description
October 2016	US\$26.6 million (NOK 220 million)	Norwegian Defence Material Agency (NDMA)	To modernize ULA class submarines.
November 2016	US\$ 36.6 million (NOK 313 million)	Norwegian Defence Material Agency (NDMA)	To modernize Active Sonar System and Combat Management System on Norwegian Fridtjof Nansen class frigates to extend service life of platforms.
April 2016	US\$26.9 million (€23.6 million)	Airbus Defense and Space	Supplying Solar Array Drive Assembly and KA band Antenna Pointing System for MetOp-Second Generation (MetOp-SG) program.
December 2014	US\$172.7 million	Polish Ministry of National Defence	To deliver an NSM (Naval Strike Missile) Coastal Defence System
July 2014	US\$37.2 million	Norwegian Defence Logistics Organization (NDLO)	To co-operate on the second phase of the Joint Strike Missile (JSM) Phase III development contract
July 2014	US\$146.2 million	Norwegian Defence Logistics Organization (NDLO)	To complete the development of the Joint Strike Missile (JSM) and prepare it for integration on the F-35 Lightning II Joint Strike Fighter (JSF).
April 2014	US\$21.3 million	Lockheed Martin	To deliver Rudders & Vertical Leading Edges for Production Lot 8 (LRIP 8) for F-35 Joint Strike Fighter

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 25: Kongsberg Defense Systems – Recent Contract Wins

Date	Contract Value	Client	Description
March 2014	US\$6.5 million	Royal Norwegian Navy	To upgrade PROTEUS simulator infrastructure
November 2013	US\$80.52 million	Norway's Defence Logistics Organisation (NDLO)	The company signed a bridging-phase contract leading to phase 3 with Norwegian Defence Logistics Organization (NDLO) for further development of the JSM (Joint Strike Missile).
November 2013	US\$21.75 million	Norway's Defence Logistics Organisation (NDLO)	NDLO has ordered for the supply of Sea Protector remote weapon stations (RWSs) for fleetwide fitting on Royal Norwegian Navy (RNoN) ships.
November 2013	NA	New Zealand Defence Force	A contract for the delivery of Penguin Mk 2 Mod 7 anti-ship missiles and associated equipment.
September 2013	NA	Royal Norwegian Navy	A contract for supply of the MINESNIPER Mk III One Shot Mine Disposal Weapon System to the Royal Norwegian Navy
January 2013	US\$51.4 million	Royal Norwegian Air Force	To deliver NASAMS II air defense systems. The contract also covers the upgrade of existing missile launchers with new electronics and software.
September 2012	NA	Brazilian Navy	For the delivery of Penguin anti-ship missiles and associated equipment.
August 2012	US\$970 million	US Army	For the production, system support, and technical engineering support of the M153 CROWS Remote Weapon Stations (RWS).
June 2012	NOK388 million (US\$65.6 million)	Norwegian Army	To deliver the Integrated Combat Solution for the CV90 armored combat vehicle.
June 2012	US\$29.6 million	Raytheon	For the delivery of communication equipment for the Patriot air and missile defense system.
May 2012	EUR28 million (US\$34.4 million)	Northrop Grumman ISS International Inc.	For the development of software for the NATO AGS (Alliance Ground Surveillance) program.
February 2012	NOK200 million (US\$33.8 million)	Lockheed Martin and Northrop Grumman	For deliveries of Rudders & Vertical Leading Edges, Centre Fuselage Parts, and Air to Air Weapon Pylons for the F-35 Joint Strike Fighter.
January 2012	NOK200 million (US\$33.8 million)	Royal Norwegian Navy	For supply of the MSI-90U Mk 2 Combat Management System (CMS) to the Royal Norwegian Navy's Ula class submarines.
January 2012	US\$33.08 Million	The Norwegian Defence Logistics Organization	To supply the MSI-90U Mk 2 Combat Management System (CMS). This contract strengthens its position as a supplier of complete integrated Navigation, Sonar, and Command & Weapons Control Systems for submarines.
December 2011	N/A	Dutch Defence Materiel Organization (DMO)	To supply Passive Sonar Processing Systems (PSPS) as part of the Sonar Suite Modification Project for the four Walrus-class submarines.
November 2011	US\$61.81 million	Royal Norwegian Air Force	To upgrade the Norwegian Advanced Surface to Air Missile System (NASAMS). This is expected to be complete by the end of 2013.
November 2011	US\$25.79 million	US Army	To deliver protector weapon control systems for Stryker armored personnel carriers.
October 2011	US\$8.4 million	The Royal Australian Navy (RAN)	To support the AWD systems engineer, Raytheon Australia, in delivering the simulator.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 25: Kongsberg Defense Systems – Recent Contract Wins

Date	Contract Value	Client	Description
June 2011	US\$100.77 million	Norwegian Defence Logistics Organization (NDLO)	To enhance the mission capabilities of F-35 joint strike fighters by developing the joint-strike missile (JSM) system.
January 2011	US\$77.08 million	US Army	To supply spare parts for the CROWS II frame and a repair service for the CROWS II frame. This is expected to be complete by the end of 2012.
January 2011	US\$20.4 million	Norwegian Defence Logistics Organization (NDLO)	To deliver the rudders and vertical leading edges to the F-35 Joint Strike Fighter.
August 2010	US\$44 million	Lockheed Martin	Contract to deliver composite and titan components for the aircraft's tailfin rudders, which includes deliveries to 62 carrier version aircraft. This contract is an extension of an existing framework agreement signed in 2008 for an aircraft carrier version of the F-35.
August 2010	US\$16 million	Norwegian (FLO) and Swedish (FMV) Defense Forces	Contract to adapt and deliver an ODIN fire support system for artillery. This contract is an extension of an earlier signed agreement with the Norwegian defense forces.

Source: Company website and SDI analysis

© SDI

7.2.6. Forsvarets Forskningsinstitutt: overview

Forsvarets Forskningsinstitutt (FFI), which is owned by the Norwegian MoD, is a defense research establishment used to conduct R&D activities for the requirements of the country's armed forces. The organization also acts as the chief adviser on defense-related science and technology to the MoD and the Norwegian Armed Forces, as well as collaborating with national and international scientific institutions and industries; FFI is presently working on new communications technologies in new areas of conflict and developing innovative means of protection from biological and chemical weapons.

7.2.7. Forsvarets Forskningsinstitutt: defense products

Table 26: Forsvarets Forskningsinstitutt – Product Focus

Analysis Division
Air and Space Systems Division
Cyber Systems and Electronic Warfare
Land Systems Division
Maritime Systems Division
Protection and Societal Security Division

Source: Company website, annual report and SDI analysis

© SDI

7.2.8. Forsvarets Forskningsinstitutt: recent announcements and strategic initiatives

October 2011: The Norwegian Defence Logistics Organization decided to purchase the NORMANS digitized soldier system based on the concept that it has been designed and tested at the Norwegian Defence Research Establishment (FFI).

June 2008: The company sourced SURPASS, a simulation model developed by TNO for building and simulating maritime scenarios, for the Norwegian Navy's new Nansen-class frigates.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.2.9. Forsvarets Forskningsinstitutt: alliances

Table 27: Forsvarets Forskningsinstitutt – Alliances			
Alliances	Partner company	Year formed	Strategic objectives and focus area
Co-operation Agreement	Kongsberg Spacetec	2012	Product Focus: To develop industrial co-operation between Canada and Norway.
Co-product partnership	Kongsberg Simrad	2005	Product Focus: Development of the Hugin-class UUVs. The company also developed a military version of Hugin for mine reconnaissance system applications for use by the Royal Norwegian Navy. Market Focus: Norway Revenue Insight: N/A
Source: Company website and SDI analysis			© SDI

7.2.10. Forsvarets Forskningsinstitutt: recent contract wins

Table 28: Forsvarets Forskningsinstitutt – Recent Contract Wins			
Date	Contract Value	Client	Description
December 2011	US\$6.2 Million (EUR4.75 Million)	European Defence Agency (EDA)	To improve sonar performance by reducing the effects of self-induced noise and providing tools for developing conformal hydrophone arrays; this involves both simulation and experimental measurements with an unmanned underwater vehicle.
November 2010	Not available	AR-Lab Defence AS	To use augmented reality (AR) technology in military vehicles.
Source: Company website and SDI analysis			© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.2.11. NAMMO AS: overview

NAMMO AS (Nordic Ammunition Group) was established in 1998 as a result of a merger between Celsius AB, Patria Industries Oyj, and Raufoss ASA. The company is jointly owned by the Norwegian Ministry of Trade and Industry, and Patria, a defense company based in Finland, each with a 50% share. The company is based in Raufoss, Norway, and specializes in the development and manufacture of ammunition systems, and missile and space propulsion products. The company has business units spread across Norway, Sweden, Finland, Germany, Switzerland, the US, and Canada, and employs approximately 1,900 people.

NAMMO AS has five main business divisions: the small caliber division supplies niche technology and products, the medium and large caliber division is in charge of various types of combat and training ammunition for army, navy, and air force applications, the missile products division specializes in rocket motor design and production, the demil (demilitarization) division is responsible for handling excess, outdated, and obsolete conventional ammunition, and the NAMMO Talley division is responsible for the development, testing, and manufacture of numerous ranges of propellant-based products.

7.2.12. NAMMO AS: products and services

Table 29: NAMMO AS – Product Focus

Products
120mm
70mm warheads
Ammunition
Ballistic devices
Civilian products
<ul style="list-style-type: none"> • Centerfire rifle • Centerfire pistol • Rimfire cartridges • Shotshells • Other products
Demilitarization Fuzes
<ul style="list-style-type: none"> • Fuzes for 40mm • Fuzes for mortar and artillery • Safety and arming device
Electrical generator
<ul style="list-style-type: none"> • Gas generators
Hand grenades
Pyrotechnics
Rocket motors
<ul style="list-style-type: none"> • Rocket motors and catapults

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 29: NAMMO AS – Product Focus

Products
<ul style="list-style-type: none"> • Evolved sea sparrow missile (ESSM) • Exocet • IRIS-T • Sidewinder • Penguin • Naval strike missile (NSM) • Bamse • Ariane 5
Shoulder-launched munitions systems
Bunker defeat munition (BDM) <ul style="list-style-type: none"> • M72 (European version) • M72 (US version) • Serpent • SMAW ammunition
Stores ejector racks
Testing and services
Source: Company website, annual report and SDI analysis © SDI

7.2.13. NAMMO AS: recent announcements and strategic initiatives

January 2015: Nammo Lapua Oy, a Finnish subsidiary of the Nammo Group, signed a deal with the Finnish aerospace and defense group, Patria Oyj, to acquire the ammunition facility in Sastamala.

November 2014: The company successfully demonstrated the firing of 40mm Airburst Ammunition at Benning/GA, US.

October 2014: The company successfully test fired of a series of large hybrid rocket motors.

June 2014: The company signed a three-year Enabling Agreement with the UK Ministry of Defence for the demilitarization of ammunition.

March 2013: The company announced the testing of nano-satellites in collaboration with Norwegian Defence Research Establishment (FFI), which are to be launched from Norway in 2020.

February 2012: The company established a new subsidiary in Australia for the supply of multipurpose ammunition and the ubiquitous M72 shoulder-fired weapons systems that suit Australian defense requirements.

October 2011: The company announced that it participated at the annual meeting and exposition for the US Army; this meeting enabled it to further expand the products and services it offered.

October 2011: The company announced that it was the main sponsor for the Norwegian women's national ski jumping team. The company has been sponsoring the women's national team for a year, and has now expanded this partnership until the 2014 Winter Olympic Games in Sochi.

September 2011: The company participated in the DSEi exhibition London, conducted between September 13 and 16, 2011.

July 2011: The company announced that it exhibited munitions systems products at the MSPO exhibition in Kielce, Poland.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

May 2010: NAMMOAS, which has been involved in Ariane 5 since 1991, saw the successful launch of the fiftieth Ariane 5 vehicle into orbit; Arianespace used a vehicle to deliver a dual-satellite payload into orbit.

February 2009: NammoTelly, a subsidiary of NAMMO AS, acquired Composite Solutions, which specialized in the design and manufacture of technically challenging composite structures for the commercial, aerospace, and defense markets.

May 2008: NammoRaufossAS, a NAMMO AS group company, signed a sales and purchase agreement to acquire 100% of Micro Technology Heremence SA in Switzerland.

7.2.14. NAMMO AS: alliances

Table 30: NAMMO AS – Alliances			
Alliances	Partner company	Year formed	Strategic objectives and focus area
Agreement	Forbes Rifle LLC	2015	Under the agreement, Forbes Rifle has acquired global manufacturing and marketing license for Carl Gustaf 2000 hunting rifles
Agreement	Finnish Ministry of Defense	2014	The agreement covers security of supply and a long term partnership within the area of ammunition and propellants.
Acquisition	Pocal Industries	2013	Product focus: To enhance the company's business in short range and full range practice mortar ammunition, ignition cartridges, and fuses.
Memorandum of Understanding (MoU)	Dunarit Corp.	2013	Product focus: To enhance the company's demilitarization in Bulgaria.
Agreement	Santa Barbara Sistemas	2012	To take over the Palencia factory for the manufacturing of various ammunitions.
Agreement	Raytheon Missile Systems	2012	Product Focus: To support the development and manufacturing of a redesigned composite TOW (Tube-launched, Optically-tracked, Wire command-link guided) missile case.
Partnership	Cyalume Technologies, Inc.	2011	Product Focus: To deliver better technology and higher value to customers in the ammunition and weapons market.
Partnership	Thales Australia Ltd	2011	Product Focus: To work together in research and development, technology transfer, and component supply for the F-35 fighter program, in particular on the Armor Piercing Explosive (APEX) Norwegian ammunition concept.
Partnership	Raytheon Missile Systems	2011	Product Focus: To qualify an alternate rocket engine for the AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) for the US Air Force.
Letter of Intent (LoI)	Thales Australia Ltd.	2010	Product Focus: To support the construction of next generation aircraft ammunition.
Partnership	Raytheon Company	2010	Product Focus: To meet the requirements for an alternative rocket motor for the AIM-120 advanced medium range air-to-air missile. Revenue Insight: The financing requirements for nonrecurring costs for the qualification program are shared between the US Air Force, the Norwegian MoD, Innovation Norway, Raytheon, and NAMMO Raufoss AS.

Source: Company website and SDI analysis/

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.2.15. NAMMO AS: recent contract wins

Table 31: NAMMO AS – Recent Contract Wins			
Date	Contract Value	Client	Description
January 2015	US\$63 million	U.S. Department of Defense	To supply M72 Light Assault Weapon (LAW) to the US.
November 2014	US\$22.6 million	Norwegian Armed Forces	To provide services and supplies to prepare the integration of the 25 mm APEX next-generation multi-role ammunition for the F-35A
November 2014	US\$368.9 million	Spanish Ministry of Defense	To deliver 12,7mm ammunition to the country's armed forces.
April 2012	NOK500 million (US\$84.5 million)	Norwegian Armed Forces	For the supply of lead-free small arms ammunition. The contract also includes options for a further NOK700 million (US\$118.3 million)
December 2011	US\$50 million	Netherlands Ministry of Defence (MoD)	To enhance the capabilities of the Netherlands Ministry of Defence (MoD), by providing Targeting Practice Reduced Roccochet Risk (TP-RRR) 20mm ammunition for the F-16 fighter aircraft. 20 mm caliber weapons are typically used against large targets such as vehicles, buildings, or aircraft.
October 2011	US\$65 million	US Army	To supply 5.56mm AP M995 and 7.62mm AP M993 in various configurations with US MIL-SPEC Tracers. The contract is expected to be complete by the end of 2015.
August 2011	N/A	Japanese Ministry of Defense (MODJ)	To demilitarize a number of Cluster Munitions on behalf of the Japanese MoD (MoDJ) in a program that includes MLRS M26 system, CBU's, and 155mm Artillery. The contract is expected to conclude in February 2015.
June 2010	N/A	The UK Ministry of Defense (MoD)	Contract for the demilitarization of the Norwegian Armed Forces' stock of over 52,000 155mm extended range bomblet shells (ERBS).
May 2010	US\$24.1 million	The US Army's Joint Munitions and Lethality Contracting Center	Contract to manufacture and deliver 5.56mm M995 and 7.62mm armor piercing cartridges.
April 2009	US\$24 million	European Aeronautic Defense and Space Company (EADS)	NAMMO Raufoss signed a contract with the European Aeronautic Defense and Space Company (EADS) for the supply of 700 rocket motors.
April 2009	US\$97.6 million	The Finnish Army Materiel Command	Contract entered between NAMMO LAPUA OY and The Finnish Army Materiel Command, wherein the former delivered various ammunition products to the land forces during 2009–2012.
February 2009	US\$34.7 million	Department of National Defense, Canada	Contract given on behalf of the Department of National Defense, Canada, Public Works and Government Services, to NAMMO for delivering the M72 A5 light anti-tank weapons system.
August 2008	US\$51.7 million	The US Marine Corps	The US Marine Corps awarded a US\$51.7 million contract to NAMMO Telly for the delivery of a weapons system with regard to the SMAW II program (Shoulder-Launched Multipurpose Assault Weapon II). NAMMO Telly partnered with Raytheon for the development of the program.

Source: Company website and SDI analysis/

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.2.16. Kitron: overview

Kitron, together with its subsidiaries, specializes in the development, industrialization, and manufacture of electronics for the data and telecommunications, defense, marine, and medical equipment industries in Norway, Sweden, and Lithuania. The company operates in two business areas: electronic manufacturing services (EMS), and microelectronics. EMS offers services relating to electronics manufacturing and provides logistics solutions. The microelectronics division develops electronic modules based on thick-film and high-frequency microwave technologies for data and telecommunications products, such as transmission systems, HF microwave modules, fiber networking, data and video projection, and storage; it also delivers sub-units and systems for use in the avionics, missiles, circuit components systems, trainers and simulators, marine, and submarine fields. This division also develops electronic modules for medical products, including ultrasound and cardiac devices, respiratory devices, and Lab/IVD, and for industrial applications such as automation, civil marine, energy, environmental, material warehousing, measurement, process control, and security. The company was founded in 1966 and is based in Lysaker, Norway.

7.2.17. Kitron: products and services

Table 32: Kitron – Product Focus

<ul style="list-style-type: none"> • Military avionics • Military communications • Weapon control systems • Command, control and information systems
<p>Source: Company website, annual report and SDI analysis © SDI</p>

7.2.18. Kitron: recent announcements and strategic initiatives

December 2012: The company announced that it had received orders worth NOK50 million from Kongsberg for the delivery of electronics modules used in Kongsberg's weapon control system Remote Weapon Station (RWS).

November 2011: Kitron AB's unit in Karlskoga, Sweden carried out a major restructuring program during 2010 and 2011 with the purpose of adjusting its operations in relation to cost and manning. Lower orders within the defense segment led to the need for an additional restructuring of the Karlskoga unit.

September 2011: The company announced that the merger with Kitron Microelectronics AB, based in Jonkoping, Sweden, is at the final stage and will be complete by the end of 2011. The merger enhances the efficiency and streamlining processes in Sweden to meet the needs of the customers.

May 2010: Kitron ASA announced that its KitronAS unit agreed to sell its development department, based in Oslo, to some of its employees and SimproAS.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.2.19. Kitron: alliances

Table 33: Kitron – Alliances			
Alliances	Partner company	Year formed	Strategic objectives and focus area
Agreement	Speed Identity AB	2014	The three-year agreement is for the production and related services for its biometric identification systems
Agreement	Sensys Traffic AB	2014	The two-year agreement covers manufacturing of automatic speed surveillance and traffic light systems
Agreement	Kongsberg Defence & Aerospace AS	2012	Product focus: For the delivery of electronics module systems that are used in Kongsberg's weapon control system.
Partnership	Rheinmetall Defence Electronics GmbH	2012	Product Focus: To enter the German defense and aerospace market.
Agreement	Kongsberg	2011	Product Focus: To manufacture and supply electronics for the NSM (Naval Strike Missile) system.

Source: Company website and SDI analysis/ © SDI

7.2.20. Kitron: recent contract win

Table 34: Kitron - Recent Contract Wins			
Date	Contract value	Client	Description
February 2017	US\$41.7 million (NOK 250 million)	Rheinmetall MAN Military Vehicles	The contract agreement encompasses manufacture and supply of measuring instruments, electronics and control devices at its Kaunas plant in Lithuania.
November 2014	US\$3.3 million (NOK 25 million)	N/A	For the production and delivery of orders.
November 2014	NOK 41 million (US\$5.4 million)	Aidon RF	For the delivery of communication modules for projects
October 2014	NOK 51 million (US\$6.8 million)	Kongsberg Gruppen	To deliver electronic modules that are part of Kongsberg's weapon control system Remote Weapon Station (RWS).
August 2014	NA	Kongsberg Protech Systems	To deliver orders related to electronic modules that are part of Kongsberg Protech's Remote Weapon Station.
March 2014	NA	Kongsberg Defence & Aerospace	To supply military communications equipment
February 2013	NOK100 million (US\$17.2 million)	HMS Industrial Networks	For the delivery of electronics Manufacturing Services (EMS) for HMS' Anybus and netbiter products.
September 2012	NOK70 million (US\$12 million)	Kongsberg	For the delivery of radio equipment for use in vehicles and in the soldier-level communication environment.
June 2012	NOK37 million (US\$6.3 million)	Kongsberg Defence & Aerospace	For the delivery of military communication equipment from the fourth quarter of 2012 and during 2013.
January 2012	NOK250 million (US\$42.3 million)	N/A	The company received two orders for the supply of new F-35s as part of an international "Best Value" competition.
May 2011	US\$3.9 million	Lockheed Martin	To produce and supply the Integrated Backplane Assembly (IBA) for deliveries to the F-35 Low Rate Initial Production program. The contract is expected to be complete by 2013.

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 34: Kitron - Recent Contract Wins

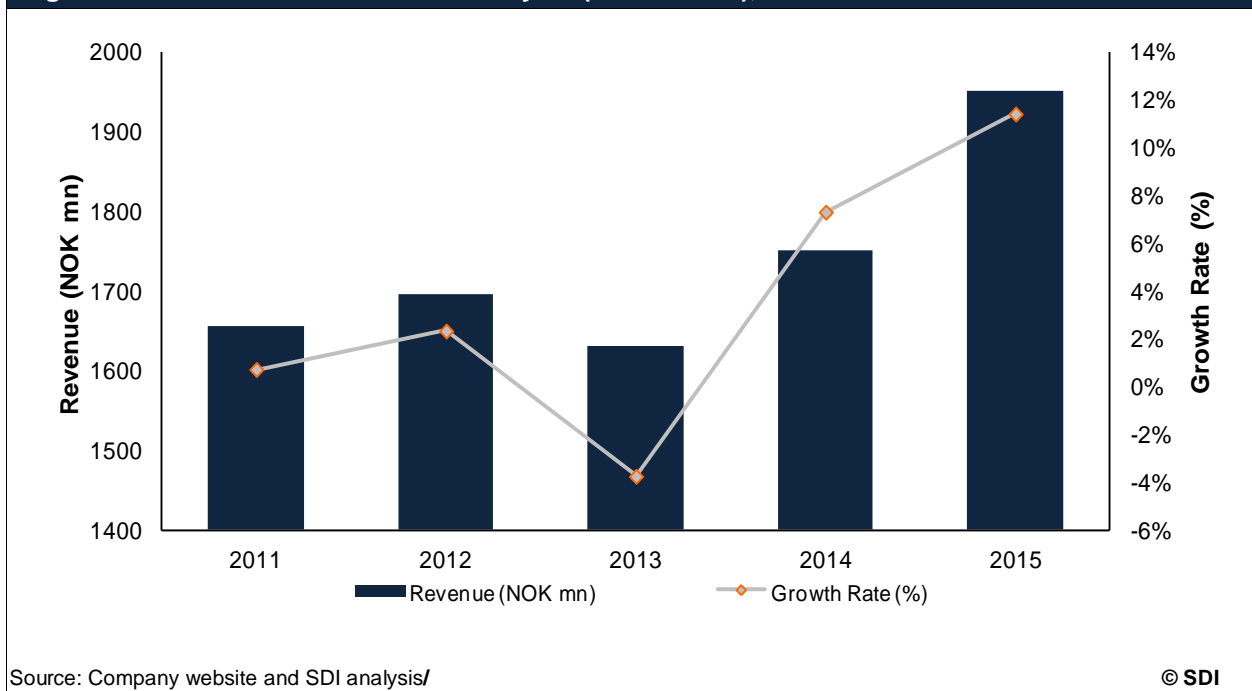
Date	Contract value	Client	Description
February 2017	US\$41.7 million (NOK 250 million)	Rheinmetall MAN Military Vehicles	The contract agreement encompasses manufacture and supply of measuring instruments, electronics and control devices at its Kaunas plant in Lithuania.
February 2010	US\$3.44 million	Kongsberg Group	Kitron received orders from the Kongsberg Group for delivery in the first half of 2010. The products form part of the Kongsberg Group's weapon control system, Protector.
January 2010	US\$4.87 million	Kongsberg Group	Kitron received new orders from Kongsberg Defense and Aerospace for complex communication equipment, for delivery during 2010 and the first half of 2011.

Source: Company website and SDI analysis/

© SDI

7.2.21. Kitron: financial analysis

Figure 35: Kitron – Revenue Trend Analysis (NOK Million), 2011–2015



Source: Company website and SDI analysis/

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Figure 36: Kitron – Operating Profit Trend Analysis (NOK Million), 2011–2015

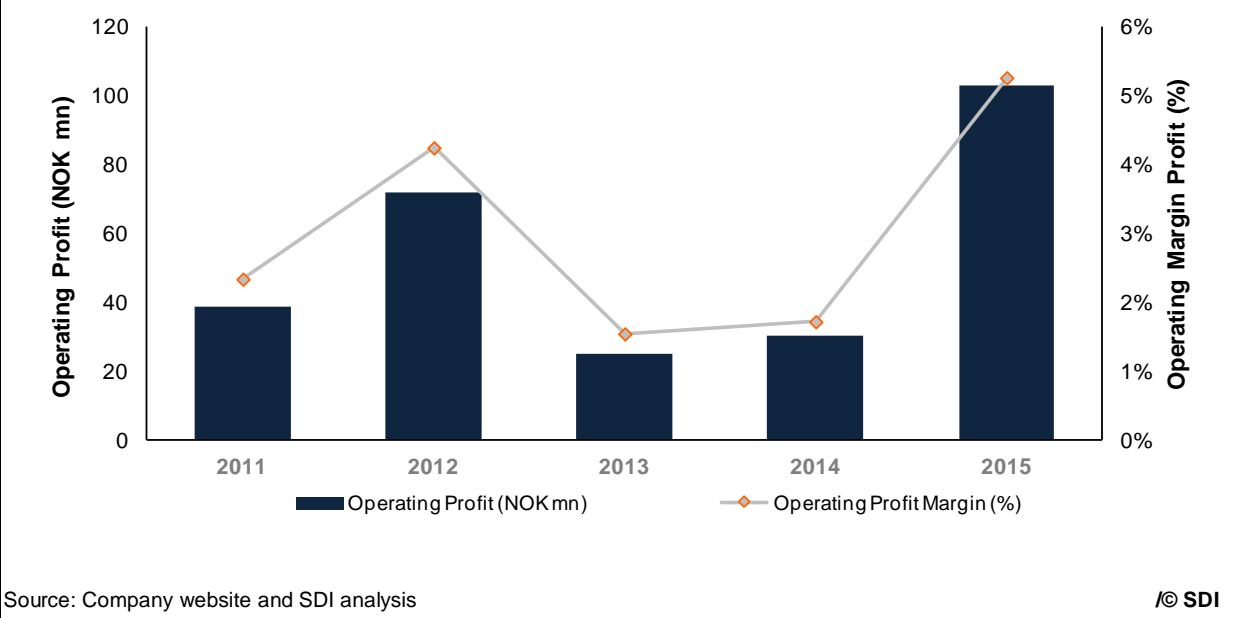
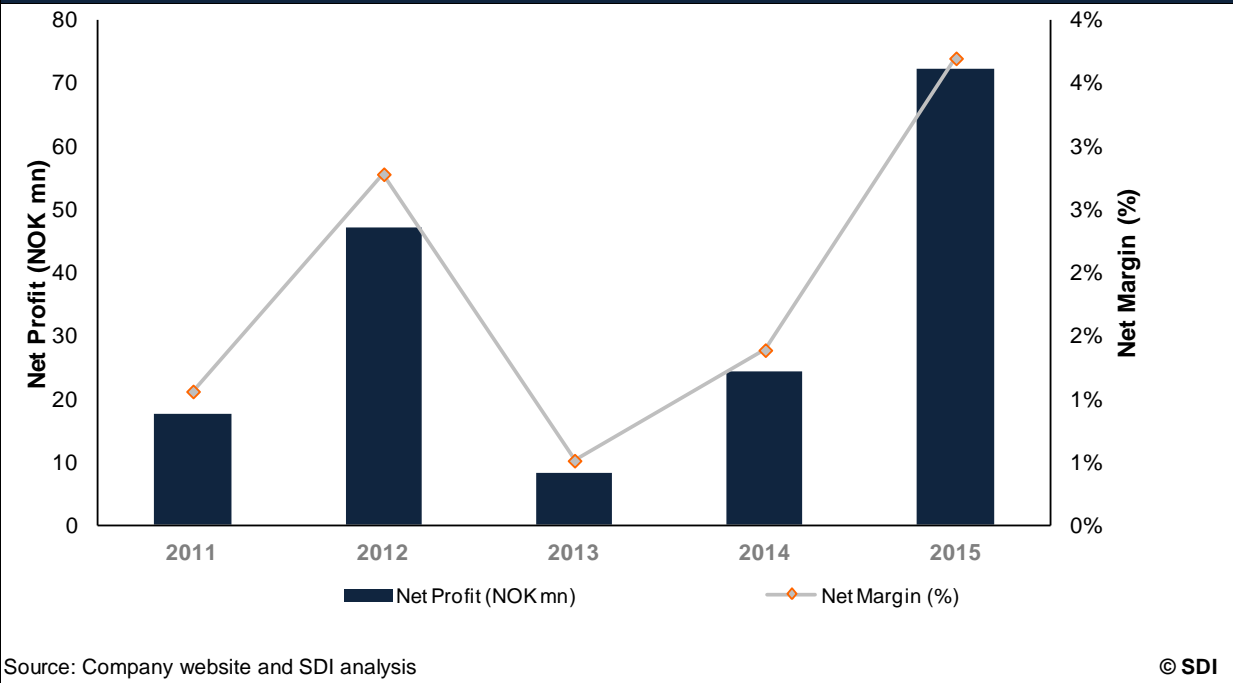


Figure 37: Kitron – Net Profit Trend Analysis (NOK Million), 2011–2015



7.3. Key Private Sector Companies

7.3.1. Thales Norway AS: overview

Thales Norway AS specializes in the design, development, manufacture, and supply of military IT telecommunication applications and security solutions to defense companies based in Norway. The company was established in 1997 and is situated in Oslo. Thales Norway AS is a privately operated company and operates as a subsidiary of Thales Holding Norway AS. Customers are spread across 32 countries, including NATO countries, with almost half of its business created through exports.

The company supplied various infrastructure systems and security solutions to its clients between 2010 and 2014. These systems and security solutions include products such as voice communication systems for air traffic management, ECustodian, an electronic key management system, for crypto custodians, soldier systems, maritime sensors, night vision equipment, and XOmail, which is a vital product for military message handling and information exchange, and ground transportation solutions.

7.3.2. Thales Norway AS: products and services

Table 35: Thales Norway AS – product focus

Products
<p>Information assurance</p> <ul style="list-style-type: none"> • Cryptel-IP • ECustodian • TSF101-Trusted Security Filter <p>Communication systems</p> <ul style="list-style-type: none"> • Vehicle communications and integration • Military voice-over IP systems • Protected core networks • Routers and QoS • Soldier systems <p>Secure messaging</p> <ul style="list-style-type: none"> • XOmail <p>Programs</p> <ul style="list-style-type: none"> • Satellite communications (SATCOM) • Air command and control system (ACCS) • Norwegian ground infrastructure (NORGIL) <p>Surveillance</p> <ul style="list-style-type: none"> • Maritime sensors • Night vision equipment <p>Training and simulation</p> <p>Integrated logistics support</p> <ul style="list-style-type: none"> • Testing, verification, and validation <p>Implementation support</p> <ul style="list-style-type: none"> • Training and documentation • Configuration management

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

<ul style="list-style-type: none"> • Service management • Systems engineering
Source: Company website, annual report and SDI analysis © SDI

7.3.3. Thales Norway AS: recent announcements and strategic initiatives

August 2014: The company selected Aqeri to supply ruggedized equipment that will be included in the future system offerings.

January 2014: The company announced that it will use Blueway as the launch customer for its training center in Norway.

September 2013: The company announced that it is opening a Helicopter Training Centre near Stavanger's airport Sola in 2015.

January 2012: The company announced that it integrated with the Infoblox DNS platform to enable the simple and secure deployment of Domain Name System Security Extensions (DNSSEC); this joint solution addresses common DNSSEC deployment challenges and enables service providers, government departments, financial institutions, and other organizations to secure their online identities more easily and protect critical services against cyber threats.

7.3.4. Thales Norway AS: alliances

Table 36: Thales Norway AS – Alliances			
Alliances	Partner company	Year formed	Strategic objectives and focus area
Agreement	Comm Systems	2013	An agreement with Thales Norway in the frame of a contract for the procurement of an advanced Air Command and Control System Voice Communication System to serve the requirements of the three Baltic States (Lithuania, Estonia and Latvia).
Partnership	Kongsberg and Vinghøg	2012	Product Focus: To supply combat systems for military vehicles
Partnership	Teleplan	2010	Product Focus: Thales Norway AS entered into a partnership with Teleplan to develop and industrialize the NORMANS C2 soldier system as per the specifications of the Norwegian Defense Research Establishment (FFI) and the Telemark Battalion (TmBn).
Partnership	Aqeri	2008	Product Focus: Thales Norway AS entered into a partnership with Aqeri, a company based in Sweden, to deliver a ruggedized version of Thales Norway's own product, Radio Gateway.
Partnership	SAAB	2007	Product Focus: To develop communication systems for Gripen fighters, capable in the areas of satellite communications and broadband technology.
Source: Company website and SDI analysis/			© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.3.5. Thales Norway AS: recent contract wins

Table 37: Thales Norway AS – Recent Contract Wins

Date	Contract Value	Client	Description
February 2013	NA	Norwegian Armed Forces	Thales and Vinghøg AS signed a contract for the delivery of 44 Squire battlefield surveillance radars to the Norwegian Armed Forces.
July 2012	N/A	BAE Systems, Sweden	To deliver communication, security, and soldier integration solutions for the CV90 upgrade program.
June 2012	N/A	DCNS	To deliver satellite communications system for the six Norwegian SKJOLD Class vessels.
March 2012	NA	Kongsberg	To deliver communication, safety, and soldier-integration solutions for the defense CV 90 upgrade.
Oct 2011	N/A	The Norwegian Ministry of Defence (MoD)	To provide the Norwegian Modular Arctic Network Soldier (NORMANS) digitized soldier system for increased effectiveness and safety while conducting operations.
July 2011	US\$25 Million	The Swedish Defence Material Administration - Forsvarets Materielverk (FMV)	To enhance the capabilities of the Swedish Defence Material Administration by procuring command, control and communications systems (C3 systems) intended for supporting ground facilities within helicopter units.
Apr 2010	N/A	The Swedish Defense Material Administration (FMV)	Thales Norway AS received a contract from The Swedish Defense Material Administration (FMV) to deliver an innovative command and control (C2) system for helicopter units to the Swedish Armed Forces. The company would also be responsible for the system design and integration of the units within the Swedish Armed Forces.
Apr 2010	N/A	ThalesRaytheonSystems	Thales Norway AS and CS Communication and Systems received a contract from ThalesRaytheonSystemsto provide voice communications systems as part of the NATO air command and control (ACCS) program.
Mar 2010	N/A	Norwegian Defense Procurement Division (NDPD)	Norwegian Defense Procurement Division (NDPD) entered into a contract with Thales Norway AS for the further development of XOmail, to provide sheltered information exchange services for all the defense branches in Norway. The aim is to satisfy the requirement for a secure information exchange service from the headquarters level to dismounted soldiers or vehicles at the battlefield level.
Feb 2010	N/A	The Swedish Defense Material Administration (FMV)	Thales Norway AS entered a contract to partner the Swedish Armed Forces in the implementation of an IP-based communication infrastructure, mainly to provide integrated voice and IP services in vehicle platforms.
Jan 2009	N/A	Norwegian Defense Procurement Division (NDPD)	Thales Norway AS announced that it would deliver a new satellite communications system for five Norwegian Nansen class frigates to enable them to communicate with other national and allied force elements over safe and secure high bandwidth satellite links.
July 2009	N/A	Norwegian Armed Forces	Thales Norway AS began the development of a NORMANS C4I system for company trials headed by the Norwegian Defense Research Establishment. The company would also deliver systems and support for troop trials with the subcontractor, Teleplan Globe AS.

Source: Company website and SDI analysis/

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.3.6. UmoeMandal: overview

UmoeMandal is a wholly-owned subsidiary of Kvarner; which was originally established in 1989 as KvarnerBatservice, a composite vessel yard. UmoeMandal now develops and manufactures all-composite material naval vessels, most often utilizing an air cushion principle. The company is especially known for its expertise in the use of fiber reinforced plastic (FRP) technology in naval applications, and undertakes the design of naval and commercial vessels in FRP. It also develops advanced composite structures for military applications and produces a range of special products in its market area, including radar stealth air intakes and carbon fiber composite centrifugal fans. Through its subsidiary, UmoeRyving, which was established in 2003, the company also undertakes the design and production of FRP composite blades for wind turbines.

7.3.7. UmoeMandal: products and services

Table 38: Umoe Mandal – Product Focus	
Products	Services
Naval Vessels Oksoy Skjold Hauk LCS SSC T-Craft Lift fans and volutes for surface effect ships and hovercrafts Stealth gun shields for 76mm and 57mm guns Flush stealth hatches and louvers Mast structures FRP composite blades Military applications System designing Air cushion vehicles Surface Effect Ships (SESS) Hovercrafts	High speed naval ships in composites with air cushion technologies Fast ferries in composites with extremely low fuel consumption and emissions Special commercial or unconventional ships Composite structures and components for naval and offshore markets Gas turbine propulsion systems Composite patch repair of ships and platforms Ship systems engineering Hull structures Propulsion systems Auxiliary and special systems Outfitting Cargo handling systems Crew and passenger facilities Electrical systems Conceptual ship design Detailed design Production design Composite component design Production follow up Technology transfer Test and verification Project management Integrated logistics support
Source: Company website, annual report and SDI analysis	
© SDI	

7.3.8. Umoe Mandal: recent announcements and strategic initiatives

September 2011: The company resumed the Norwegian MoD’s US\$352 million Missile Torpedo Boat (MTB) program after reaching an agreement with the MoD regarding late delivery penalties.

March 2008: UmoeMandal won an ONR award for the second phase of its T-Craft. UmoeMandal was awarded both Phase I and II efforts to develop the T-Craft design for the Office of Naval Research (ONR).

7.3.9. Umoe Mandal: alliances

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

Table 39: Umoe Mandal – Alliances

Alliance	Partner company/organization	Year formed	Strategic objectives and focus area
Collaboration	ARMARIS Kongsberg Defence & Aerospace	2005	Product Focus: Delivery of the Skjold-class boats for the Royal Norwegian Navy. Market Focus: Norway
Source: Company website and SDI analysis/			© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.3.10. Eidsvoll Electronics AS: overview

Eidsvoll Electronics AS (Eidel), a privately held company with its headquarter in Oslo, supplies telemetry products for aerospace, military, and industrial applications. Established in 1966, Eidel provides standard products and custom designs of remote controls and management equipment for the major communication systems of the armed forces; the company also provides secure communications related to encryption, and tactical data links for defense purposes.

7.3.11. Eidsvoll Electronics AS: products and services

Table 40: Eidsvoll Electronics AS – Product Focus

Products	
<ul style="list-style-type: none"> • Radio control system • Remote crypto distribution system • System engineering • Sensors • Transmitters • Radio management system • Missile telemetry • Encoder systems • PCM decoder systems 	
Source: Company website, annual report and SDI analysis © SDI	

7.3.12. Eidsvoll Electronics AS: recent announcements and strategic initiatives

April 2011: The company's Remote Crypto Distribution System (RCDS) received NATO certification; the RCDS is approved for distributing keys for the Link-16 Multifunctional Information Distribution System (MIDS).

January 2009: A successful test of NSM was completed in California, and Eidel supplied high speed data acquisition systems to verify the testing.

7.3.13. Eidsvoll Electronics AS: alliances

Table 41: Eidsvoll Electronics - Alliances

Alliance	Partner company/organization	Year formed	Strategic objectives and focus area
Sale collaboration	AllianTech	2009	Product Focus: Eidsvoll formed an alliance with AllianTech, to promote their products. Market Focus: France
Sale collaboration	RODIAN Communications AS	2008	Product Focus: To market the Remote Crypto Distribution System and Radio Control System on behalf of Eidel.
Source: Company website and SDI analysis/			© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

7.3.14. Eidsvoll Electronics AS: recent contract wins

Table 42: Eidsvoll - Recent Contract Wins			
Date	Contract value	Client	Description
February 2012	NOK23 million	Kongsberg Defence & Aerospace (KDA)	The company signed a development contract with Kongsberg Defence & Aerospace (KDA) on a telemetry system for KDA's JSM (Joint Strike Missile) program.
June 2008	N/A	RODIAN Communications AS	RODIAN Communications announced the signing of a worldwide agency agreement with Eidel to market the Remote Crypto Distribution System and Radio Control System on Eidel's behalf.

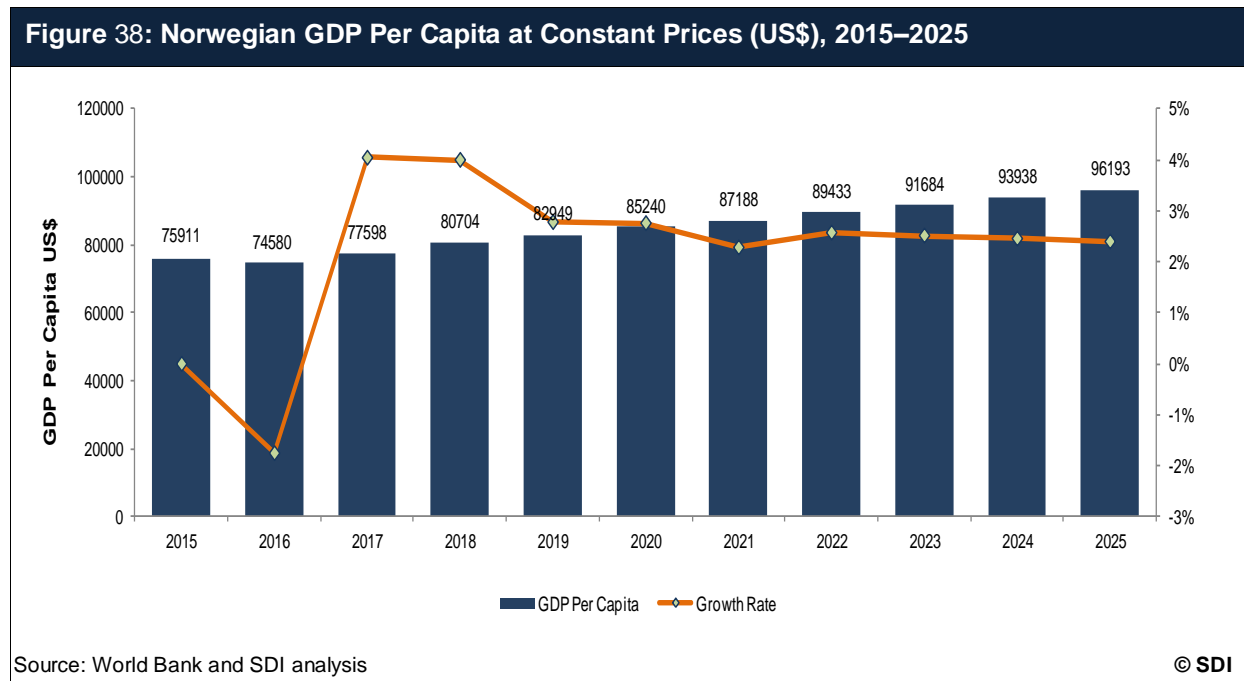
Source: Company website and SDI analysis/ © SDI

8. Business Environment and Country Risk

The following sub-sections detail a range of indicators, assessing the business environment and country risks in Norway.

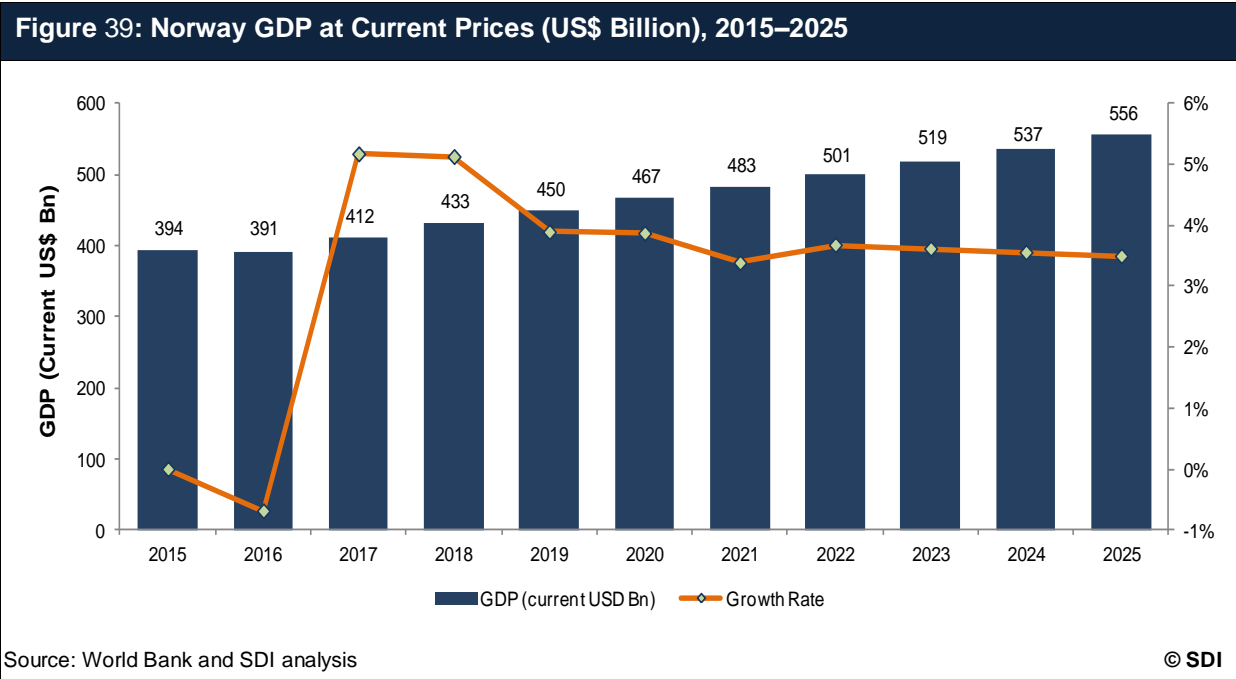
8.1. Economic Performance

8.1.1. GDP per capita at constant prices



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.2. GDP at current prices (US\$)



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.3. Exports of goods and services (current LCU bn)

Figure 40: Norwegian Exports of goods and services (LCU Bn), 2005–2014



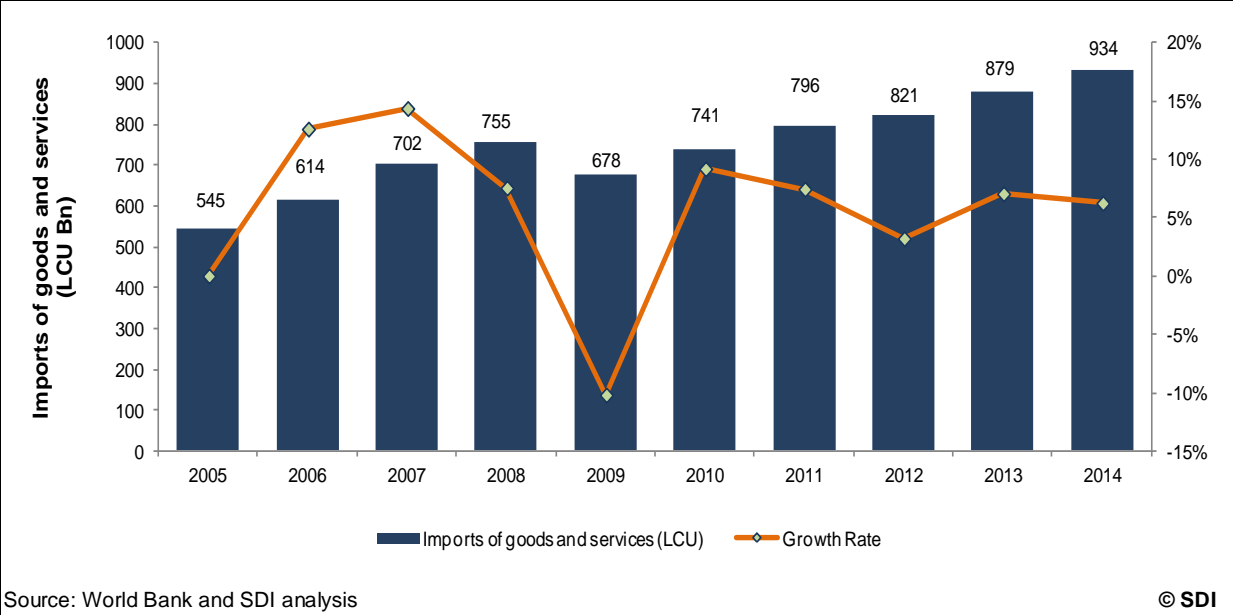
Source World Bank and SDI analysis

© SDI

Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.4. Imports of goods and services (current LCU bn)

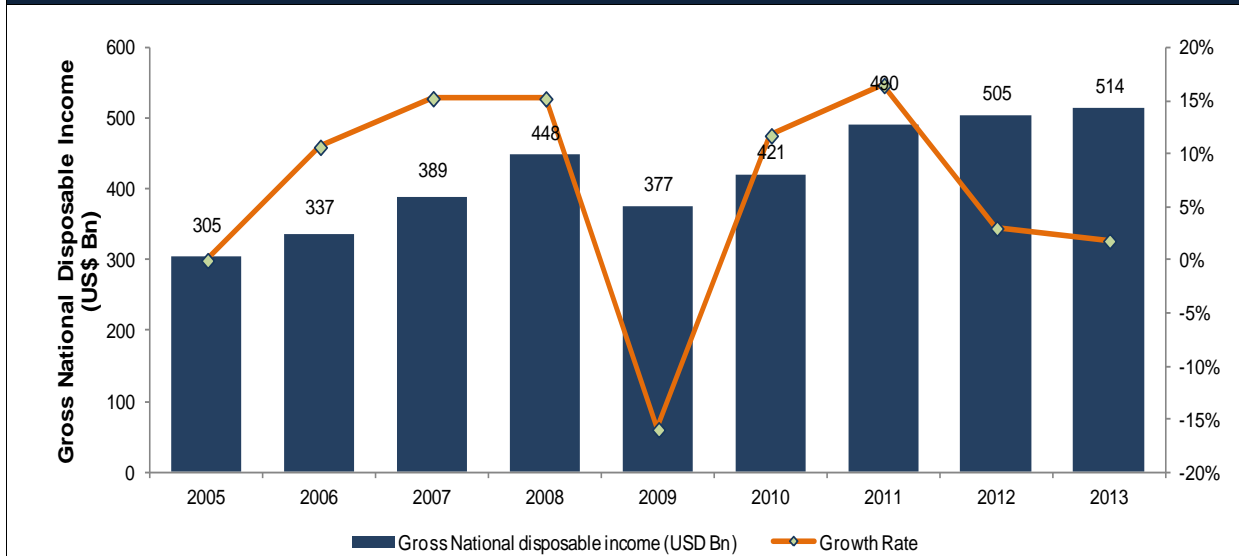
Figure 41: Norwegian Imports of goods and services (LCU Bn), 2005–2014



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.5. Gross national disposable income (US\$ billion)

Figure 42: Norwegian Gross national disposable income (US\$ billion), 2005-2013

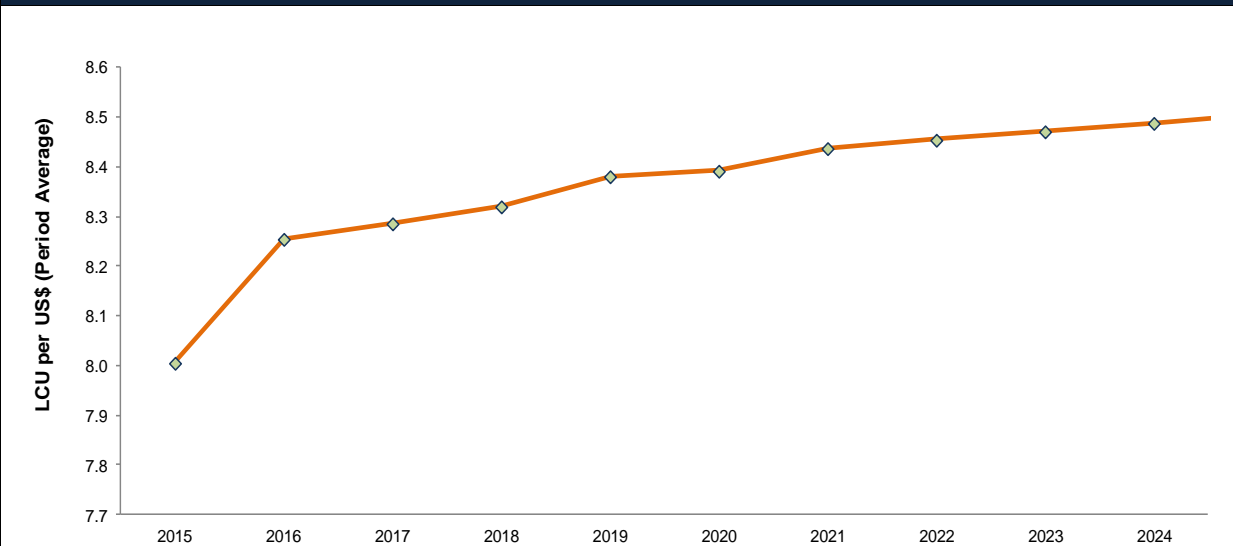


Source: World Bank and SDI analysis

© SDI

8.1.6. LCU per US\$ (period average)

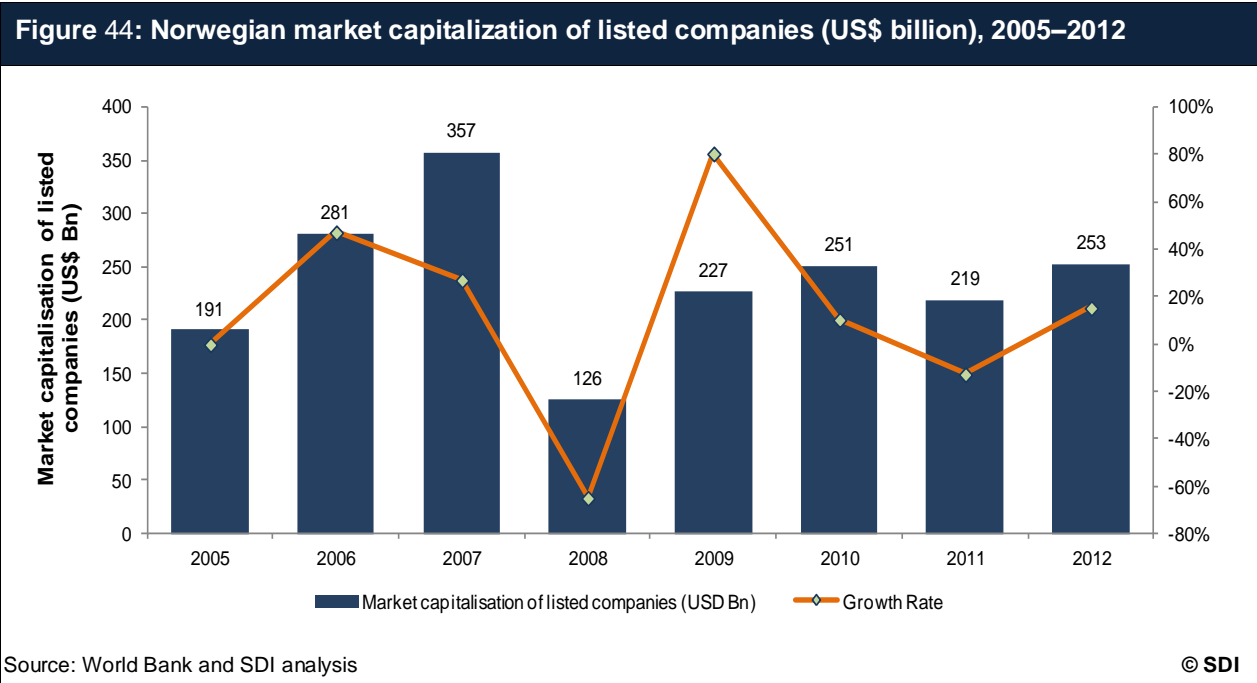
Figure 43: Norway LCU per US\$, 2015–2024



Source: World Bank and SDI analysis

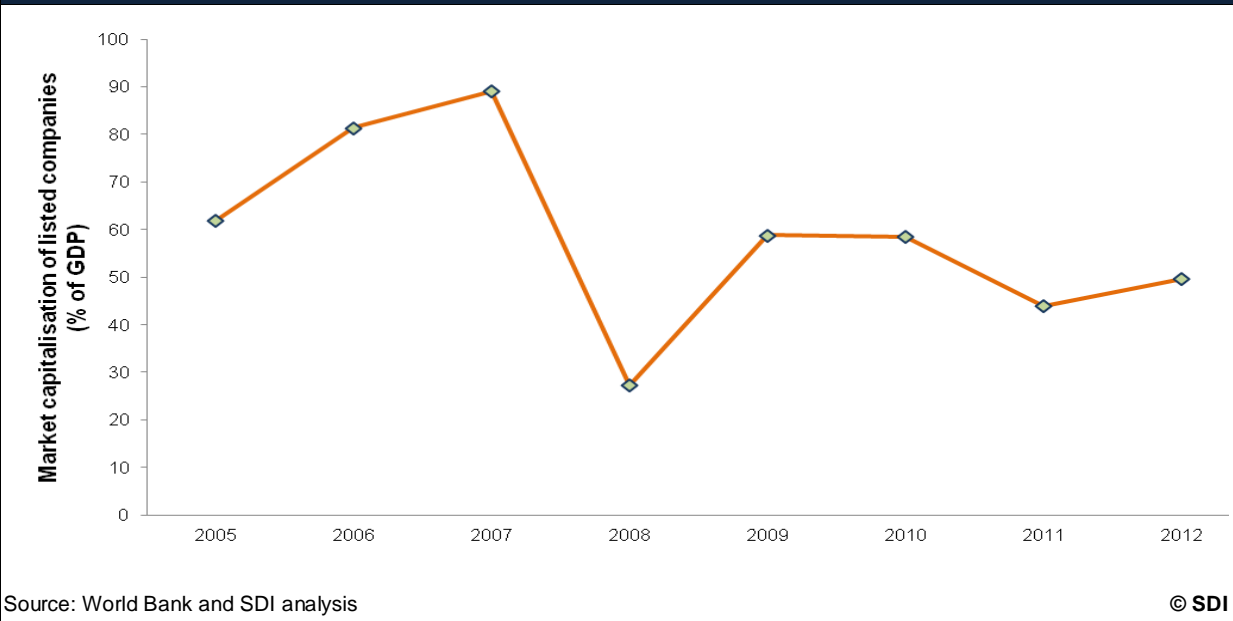
© SDI

8.1.7. Market capitalization of listed companies (US\$ bn)



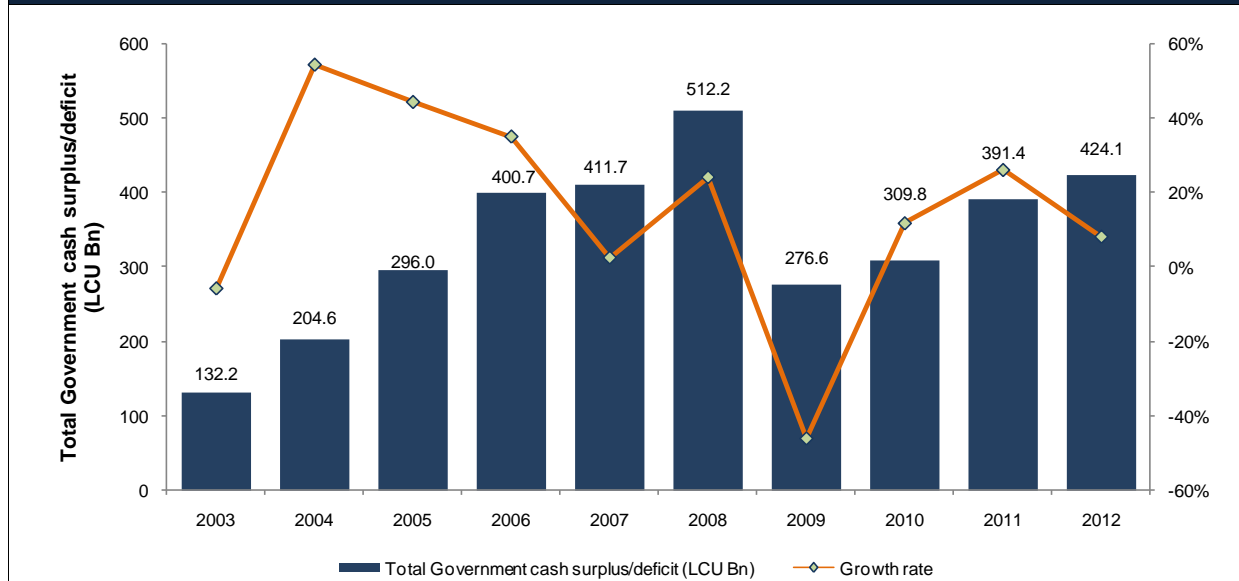
8.1.8. Market capitalization of listed companies (% of GDP)

Figure 45: Norwegian market capitalization of listed companies (% of GDP), 2005–2012



8.1.9. Total Government cash surplus/deficit (LCU billion)

Figure 46: Norwegian Total Government cash surplus/deficit (LCU billion), 2003–2012



Source: World Bank and SDI analysis

© SDI

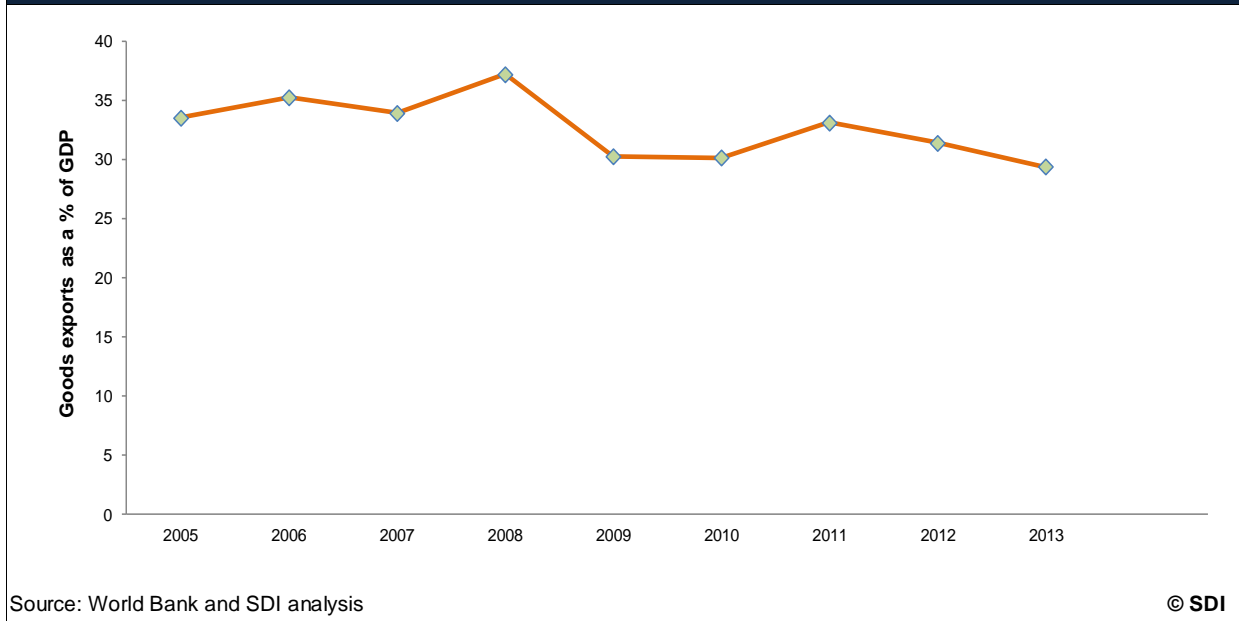
8.1.10. Government cash surplus/deficit as a percentage of GDP (LCU)

Figure 47: Norwegian Government cash surplus/deficit as % of GDP (LCU), 2005–2012



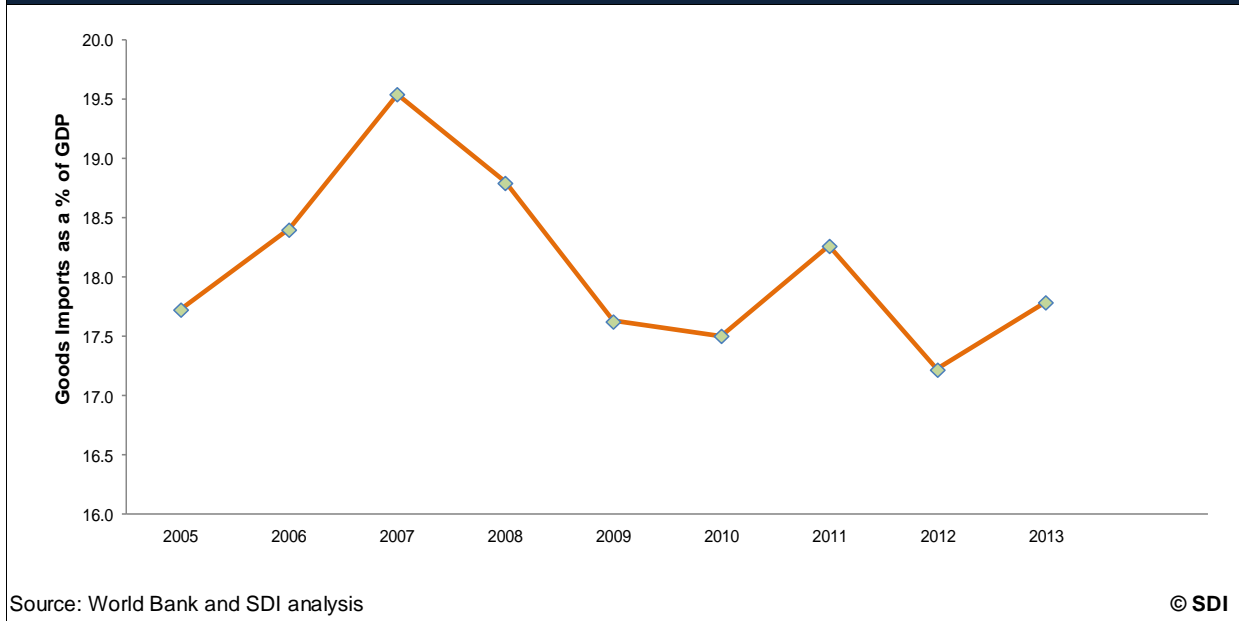
8.1.11. Goods exports as a percentage of GDP

Figure 48: Norway- Goods exports as a % of GDP (2005–2013)



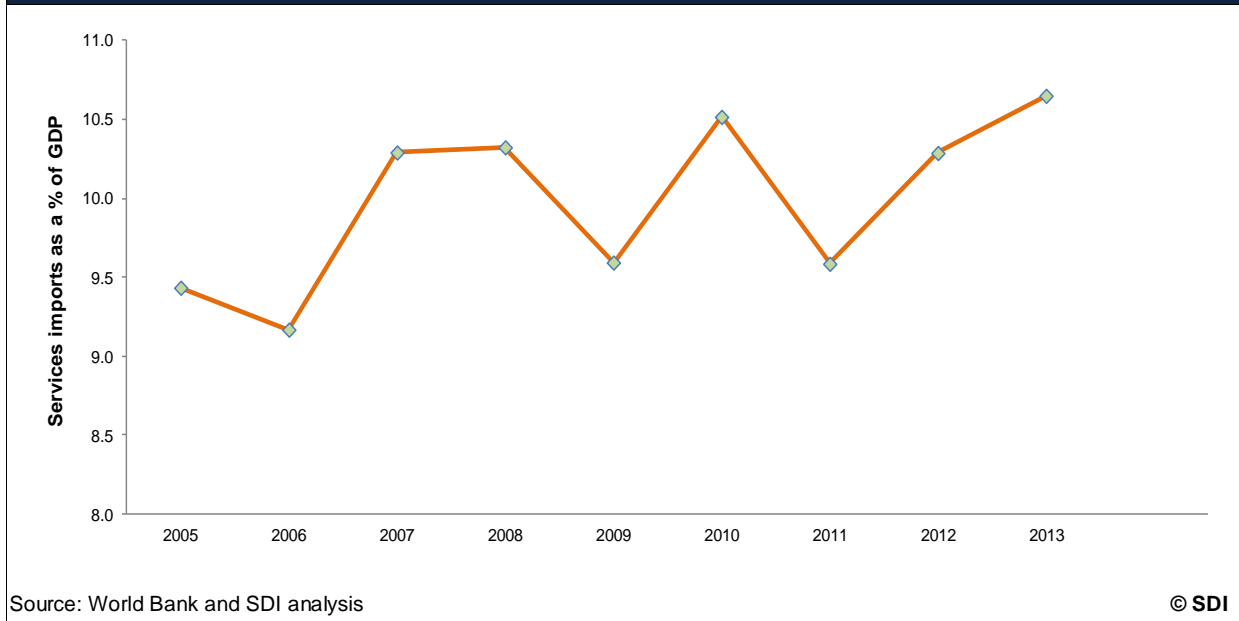
8.1.12. Goods imports as a percentage of GDP

Figure 49: Norway- Goods imports as a % of GDP (%), 2005–2013



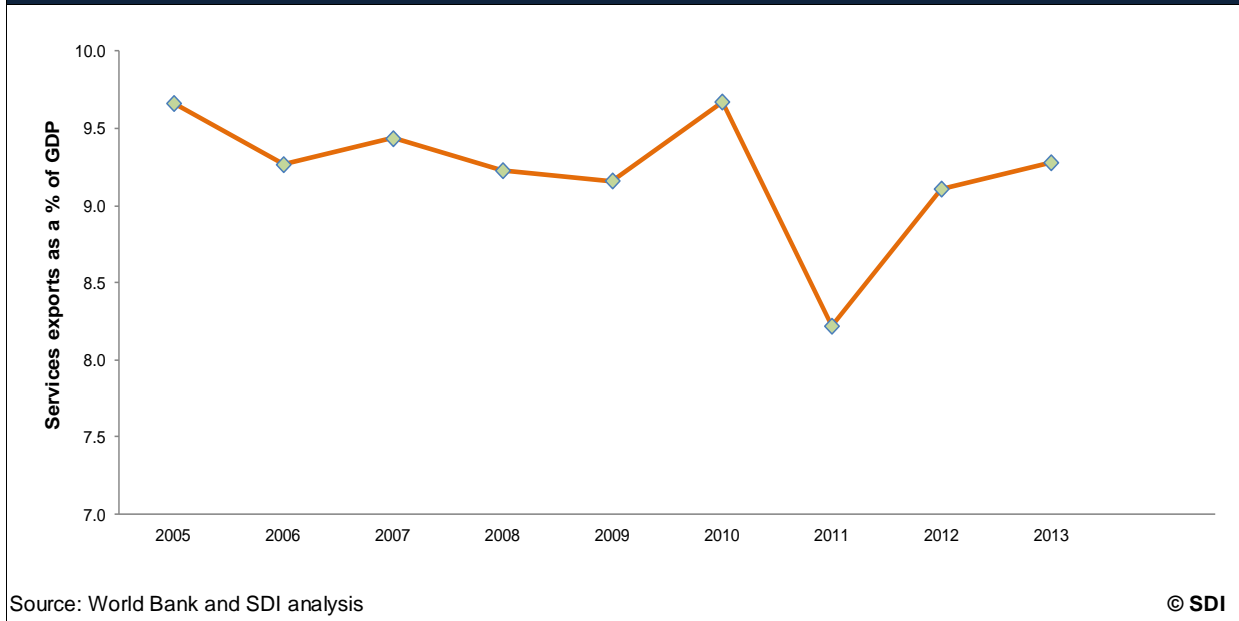
8.1.13. Services imports as a percentage of GDP

Figure 50: Norwegian Services imports as a % of GDP (%), 2005–2013



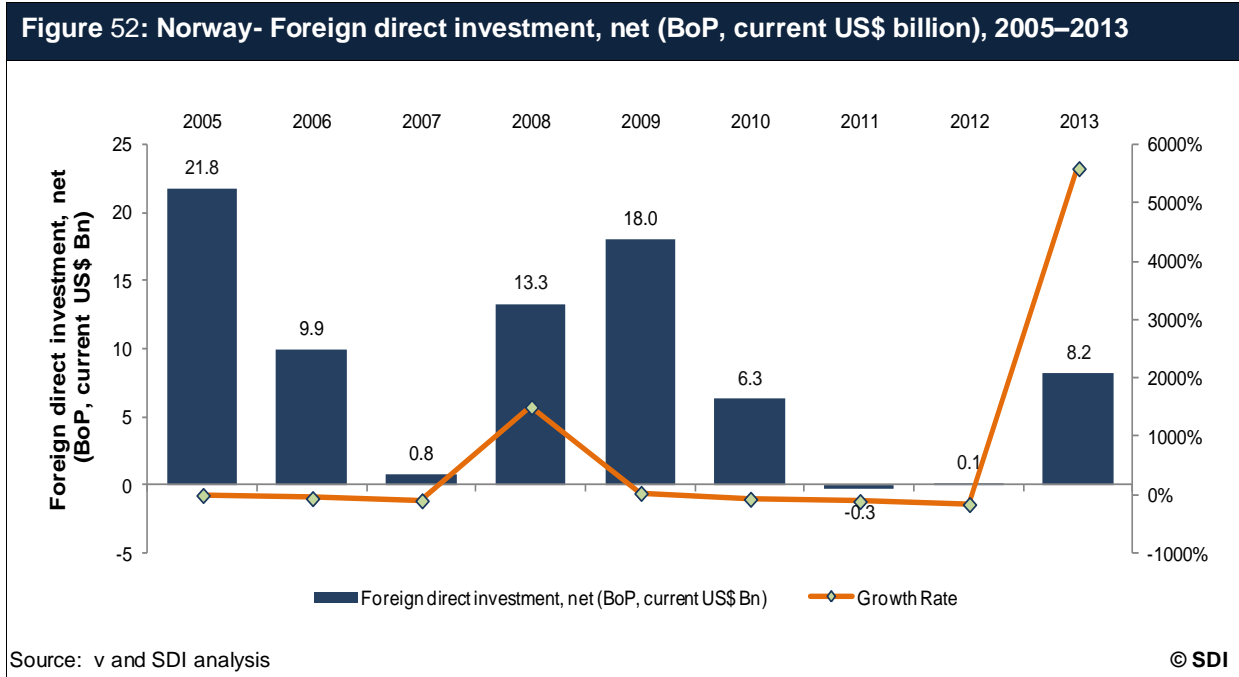
8.1.14. Service exports as a percentage of GDP

Figure 51: Norwegian Service exports as a % of GDP (%), 2005–2013



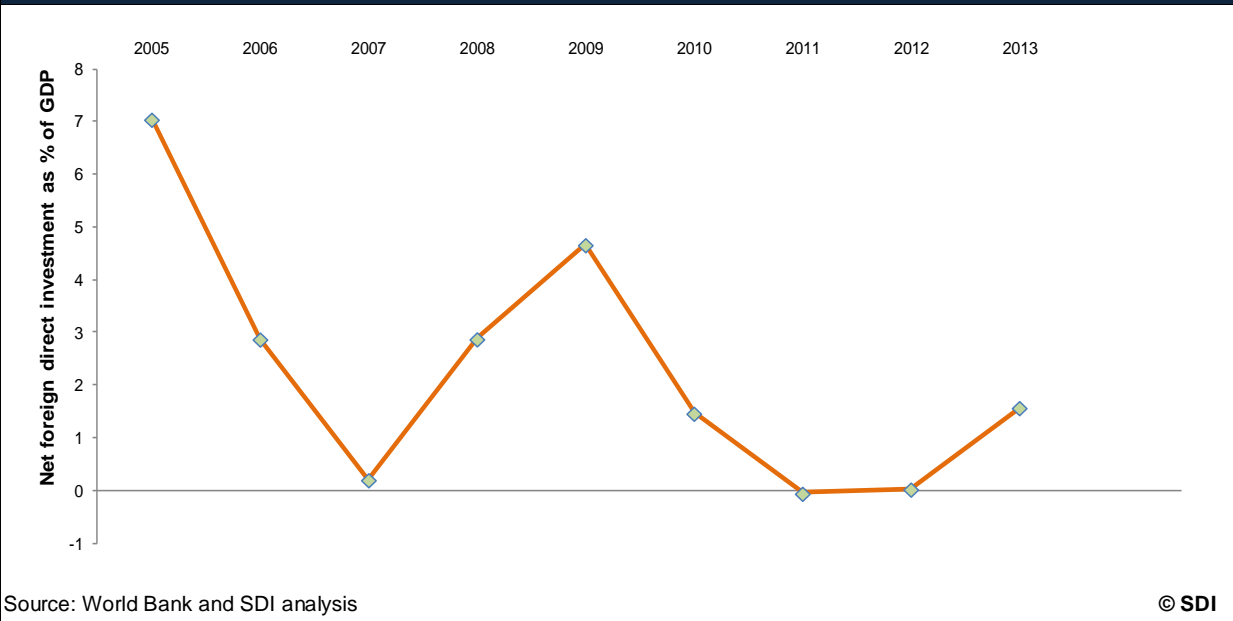
Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.15. Foreign direct investment, net (BoP, current US\$ billions)



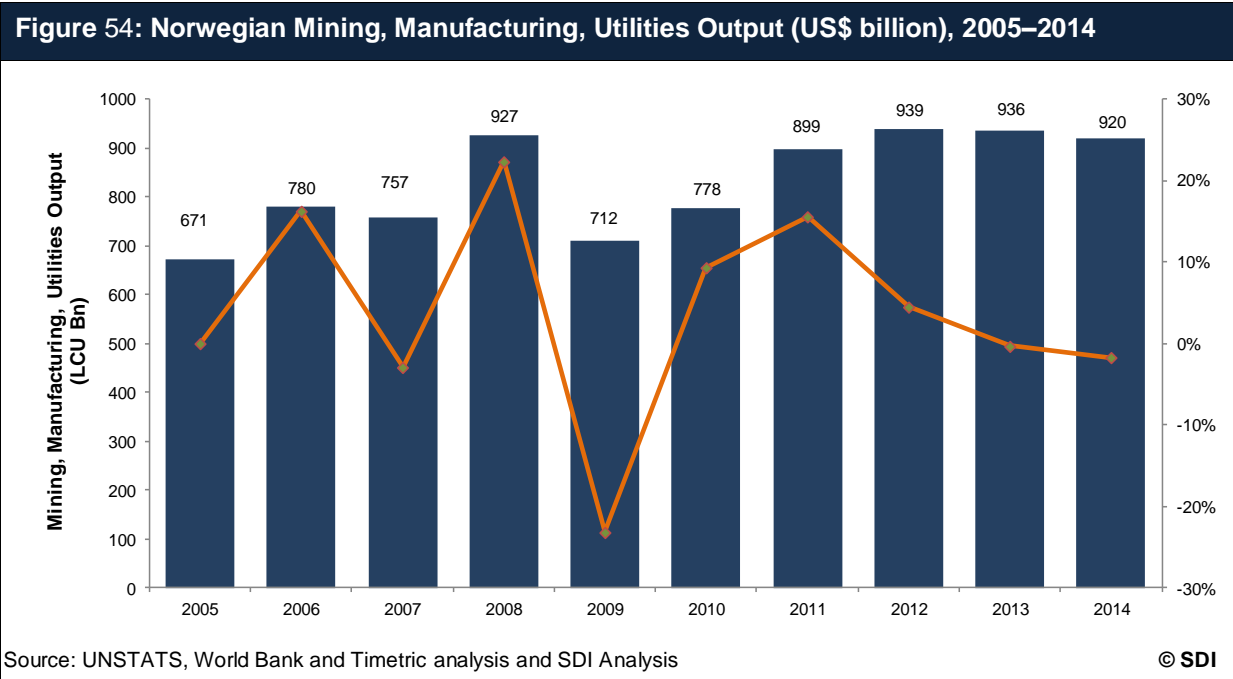
8.1.16. Net foreign direct investment as a percentage of GDP

Figure 53: Norwegian Net foreign direct investment as % of GDP, 2005-2014



Future of the Norwegian Defense Industry- Market Attractiveness, Competitive Landscape and Forecasts to 2022

8.1.17. Mining, Manufacturing, Utilities Output (US\$ billion)



9. Appendix

9.1. About SDI

SDI is a premium business information brand specializing in industry analysis.

9.2. Disclaimer

All Rights of this Report are reserved

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, SDI.

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed. Please note that the findings, conclusions and recommendations that SDI delivers will be based on information gathered in good faith from both primary and secondary sources, whose accuracy we are not always in a position to guarantee. As such, SDI can accept no liability whatsoever for actions taken based on any information that may subsequently prove to be incorrect.