

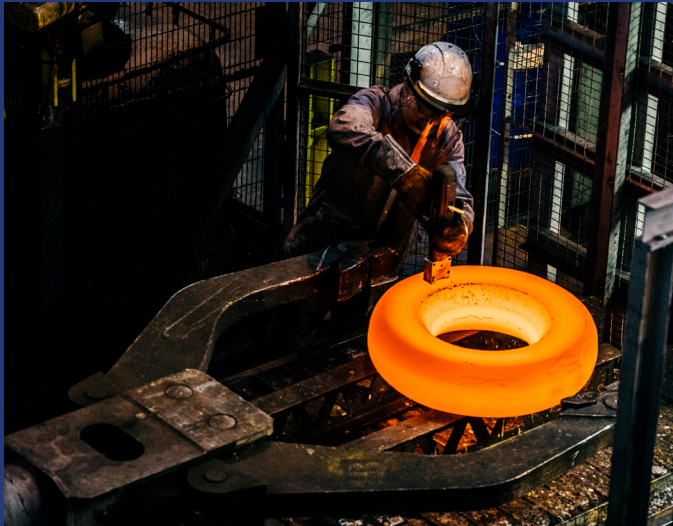


MINISTÈRE
DES ARMÉES

*Liberté
Égalité
Fraternité*

NOTEBOOK

2023 Edition



INTERNATIONAL DEFENCE COMPANIES

Let's build together
the future of defence



NOTEBOOK

2023 Edition

INTERNATIONAL DEFENCE COMPANIES



Manuscript completed on 22 December 2022

French defence procurement agency (DGA)

Industrial Affairs and Economic Intelligence Department

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FOREWORD

Paris, December 22, 2022

The Department for Industrial Affairs and Economic Intelligence presents, on behalf of the French Defence Procurement Agency (Direction générale de l'armement, DGA), the 2023 edition of the «International Defence Companies» notebook.

This publication provides key data from publicly available open sources, for a selection of international companies chosen each year according to their main activities in the defence sector.

In this regard, Aubert & Duval, FNSS, KSOE, LIG Nex1 and Sopra Steria are for the first time included in this 2023 edition, while Atos, AVIC, Avio, Mitsubishi Heavy Industries (MHI), Oshkosh Defense and Rohde & Schwarz make a come back there.

The notebook should in no way be considered as reflecting the opinions or positions of the DGA, nor of XERFI Spécific, which contributed to its preparation.

A digital version of the notebook, both in French and English, is available on the DGA's website at www.defense.gouv.fr/DGA.

I wish you a pleasant reading.

Alexandre Lahousse

Director, Department for Industrial Affairs and Economic Intelligence, DGA
Ministry of Armed Forces

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SCOPE

The 2023 edition of the Notebook on International Defence Companies covers a panel of 62 companies. A specific section, "Key Data", presents the following consolidated financial indicators for each company, provided such information is available ("N/A" meaning that data is not available):

- Revenue (in euros)
- Revenue variation (as a percentage change; calculated from data in local currency)
- Defence revenue (as a % of total revenue)
- Export revenue (as a % of total revenue)
- Operating profit/loss (in euros)
- Operating margin (as a %)
- Net income (in euros) or net income attributable to shareholders
- Order book at the end of the fiscal year (in euros)
- Headcount

To ensure consistency, consolidated financial statements were the preferred source of information. Emphasis was placed on the most recent, restated financial indicators. Furthermore, some data contained in the previous edition have been revised, corrected or modified for this edition in order to take into account more recent currency exchange rates (see below).

Currency conversions were calculated using the annual average exchange rate (source: European Central Bank) during each company's fiscal year. However, order book values were converted using the exchange rates at the closing date of each company's fiscal year. Average annual exchange rates used for conversions are presented in the table below. It should be noted that all financial indicators were converted using the average exchange rate for their corresponding year. To avoid a bias when calculating annual changes of monetary indicators, variations (as a percentage change) were calculated in the original currency used in each company's financial statement.

SOURCES

The defence industry ranking is based on data from the Defense News magazine 2021 top 100 list. For publicly listed groups or those that publish annual statements of consolidated accounts, the following sources were used:

- Annual reports and reference documents
- Consolidated balance sheets and profit & loss statements
- Financial and investor presentations

For unlisted groups or those that do not publish annual statements of consolidated accounts, the following sources were used:

- Press releases, company presentations
- Data bases : Factiva, Diane
- Business press and specialist publications

List of companies that do not publish, or only partially publish, financial statements:

- ArianeGroup
- Arquus
- Aubert & Duval
- Aviation Industry Corporation of China (AVIC)
- Cobham
- Diehl Defence
- FNSS
- General Atomics
- Iveco Defence Vehicles
- KMW + Nexter Defense Systems (KNDS)
- MBDA
- Oshkosh Defense
- Polska Grupa Zbrojeniowa (PGZ)
- Rafael Advanced Defense Systems
- Rohde & Schwarz
- TechnicAtome
- Thales Alenia Space (TAS)
- Thyssenkrupp Marine Systems (tkMS)
- United Aircraft Corporation (UAC)

OWNERSHIP

The "Ownership structure" section draws data from the following sources:

CHARTS

Charts represent the sales breakdown by business segment (i.e. branches or divisions as presented by the company) and geographical region.

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

The "Main programmes, cooperations and export partnerships" section presents the main programmes highlighted by companies in their public media releases (excluding upstream study programmes). Partnerships for each programme are also listed, without further details. These partnerships can take several forms: co-contractorship, co-development or co-production agreements, subcontracting agreements (for tier-1 equipment suppliers considered as "strategic partners"), marketing agreements, joint ventures (JV), or partnerships with foreign companies as part of offset agreements.

Due to the very concise format of the notebook, this section cannot claim to be exhaustive.

EURO EXCHANGE RATES*

COUNTRY	CURRENCY	1 EURO =			
		2018	2019	2020	2021
South Korea	South Korean Won	1 299,070	1 305,320	1 345,580	1 354,060
United States	U.S dollar	1,181	1,120	1,142	1,183
India	Indian rupee**	80,733	78,836	84,639	87,439
Japan	Japanese yen	130,400	122,010	121,850	129,880
Norway	Norwegian krone	9,596	9,851	10,723	10,163
Poland	Polish zloty	4,262	4,298	4,443	4,565
United Kingdom	Pound sterling	0,885	0,878	0,890	0,860
Russia	Russian ruble	74,042	72,455	82,725	87,153
Sweden	Swedish krona	10,258	10,589	10,848	10,147
Turkey	Turkish lira	5,708	6,358	8,055	10,512

*Exchange rates used for conversions were calculated as the annual average rate from January 1 to December 31 (source: European Central Bank)

**The Indian numbering system groups the rightmost three digits together and thereafter groups digits by sets of two. To facilitate the reading of large numbers, the Indian system uses "crore". For instance, one crore rupee is equivalent to ten million (10,000,000) rupees.



AIRBUS

Leading European aerospace and defence group, ranked 3rd worldwide in the military helicopter segment and 15th worldwide in the defence sector.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial and military aircraft
- ▶ Commercial and military helicopters
- ▶ Unmanned aircraft systems (UAS)
- ▶ Commercial and military space (satellites, services)
- ▶ Defence electronics
- ▶ Cybersecurity

GOVERNANCE

Chairman	R. Obermann
Chief Executive Officer	G. Faury
CEO Airbus Defence & Space	M. Schoellhorn

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019*	2020	2021
Revenue	63 707	70 478	49 912	52 149
Δ (%)	7,94%	10,63%	-29,18%	4,48%
Defence (%)	16%	14%	21%	18%
Export (%)**	72%	68%	59%	63%
Operating profit/loss	5 048	1 339	-510	5 342
Operating margin	7,92%	1,90%	-1,02%	10,24%
Net income***	3 054	-1 362	-1 133	4 213
Order book	459 525	471 488	373 127	398 439
Employees	133 671	134 931	131 349	126 495

*Figures restated

**Revenue excluding Europe

***Net income attributable to shareholders

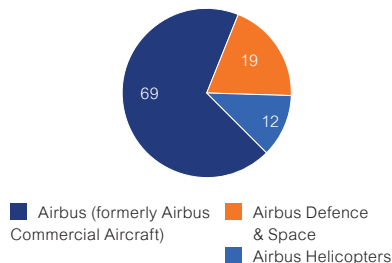
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	AIR
Listed on	Euronext Paris
Market Cap (€m)	90 155

Major shareholders (as of 15.11.2022)

SOGEPA (French State)	10,90%
GZBV (German State)	10,90%
Capital Research & Management Co. (World Investors)	5,05%
SEPI (Spanish State)	4,10%

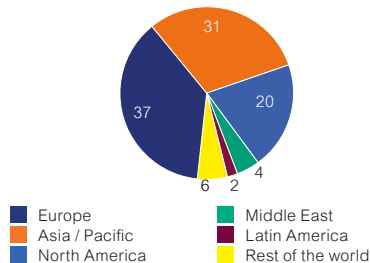
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
NHIndustries	62,5%	France
ArianeGroup	50%	France
ATR	50%	France
AirTanker Holdings	46%	United Kingdom
Eurofighter Jagdflugzeug	46%	Germany
MBDA	37,5%	France

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	BAE Systems	Leonardo	Safran	GE Aerospace*	Raytheon Technologies**	Dassault Aviation	Turkish Aerospace	Naval Aerospace	Rolls-Royce
Military aircraft and Unmanned aircraft systems										
NGF future fighter aircraft (FCAS programme)	●		●			●				
Eurofighter Typhoon fighter aircraft	●	●			●					●
A400M Atlas strategic and tactical military transport aircraft	●		●		●		●			
C295 and AC295 tactical transport aircraft	●				●					
A330 Multi Role Tanker Transport (MRTT) aircraft	●			●						●
A320neo MPA (Maritime Patrol Aircraft)	●		●							
European MALE RPAS future UAV (Eurodrone programme)		●		●		●				
VSR700 future shipborne UAS	●		●					●		
Military helicopters										
Tiger HAP / HAD twin-engine attack helicopter (6 t)	●		●							
H125M single-engine transport helicopter (2 t)	●		●							
H135M and H145M twin-engine transport helicopters (3 t)	●		●							
AS565 Mbe (4 t) and H160M (6 t) twin-engine multirole helicopters	●		●							
H215M (9 t) and H225M (11 t) twin-engine multirole helicopters	●	●	●							
NH90 twin-engine multirole helicopter (11 t)	●		●							
Space										
CSO Earth observation satellite programme	●									
CERES space-born military intelligence system	●									
Syracuse 4 military communications satellite	●	●								
Cybersecurity										
Stormshield Data Security	●									

*Formerly GE Aviation **Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Airbus revenues grew by 4.5% in 2021 to reach €52.1bn, mainly due to the resumption of commercial aircraft deliveries (611 in 2021 compared to 566 in 2020). Among the branches involved in defence, the activity of the Airbus Helicopters branch (12% of total turnover) increased by 5%, while that of the Airbus Defence & Space branch (19% of total turnover) fell by 2.3%.
- ▶ In April 2022, Airbus announced the acquisition of the German company DSI Datensicherheit, specialised in cryptography and communication systems for the space, air, naval and land sectors, for an undisclosed amount. Following this operation, the company was renamed Aerospace Data Security.

Home markets (Germany, Spain, France, United Kingdom)

- ▶ The DGA awarded Airbus a contract worth €10bn in December 2021 for the acquisition of 169 H160M helicopters, with deliveries from 2027.
- ▶ The Spanish Ministries of Defense and Homeland Security signed a contract in December 2021 with Airbus for the supply of 36 H135 helicopters. The first 2 aircraft were delivered in October 2022.
- ▶ In February 2022, OCCAr awarded Airbus a contract worth €7.1bn for the development of the European MALE RPAS (Eurodrone), the production of 60 aircraft and their maintenance over a 5-year period. Airbus Defence & Space is the industrial leader of the programme, in partnership with Dassault Aviation and Leonardo. The first deliveries are scheduled for 2028.
- ▶ In March 2022, the DGA tested the autonomous take-off and landing system at sea for the Airbus VSR700 helicopter drone (derived from the Guimbal Cabri G2 OPV) as part of the French Navy Airborne Drone System (SDAM) programme. The system has successfully completed more than 150 field tests.
- ▶ In March 2022, OCCAr awarded Airbus a contract worth €4bn on behalf of France and Spain for the modernisation of the Tiger helicopter to the MkIII standard. The contract provides for the modernisation of 42 aircraft for France (with an option for 25 additional units) and 18 aircraft for Spain. The maiden flight is scheduled for 2025, with entry into service announced for 2029.
- ▶ At the end of 2022, Airbus and Dassault Aviation reached an industrial agreement on the new generation fighter (NGF) of the Future Combat Air System (FCAS) programme. Design contracts (phase 1B) are to be signed shortly to prepare for the production of a demonstrator (phase 2), the first flight of which is scheduled for 2029/2030.

Export markets

- ▶ Indonesia ordered 2 A400M Atlas multirole transport aircraft (+4 optional) in November 2021 for \$685m (€579m). The contract includes maintenance and training services.
- ▶ Airbus won 2 contracts for the C295 tactical transport aircraft in early 2022: 2 units for Serbia in February and 3 units (including 2 in the maritime surveillance version) for Angola in April.
- ▶ In May 2022, Airbus signed a logistics support contract (LSC) with the US Army for the supply of spare parts and engineering services for 482 UH-72A/B Lakota light helicopters. The contract covers a period of 6 months, with 4 and a half years as an option, and could reach \$1.5bn (€1.3 bn).
- ▶ The Spanish Air Force ordered 20 Typhoon fighter aircraft from the Eurofighter consortium in June 2022 for £500m (€563m). Airbus will be in charge of the final assembly of the aircraft, with deliveries starting in 2025.
- ▶ In September 2022, the Brazilian Combat Aircraft Programme Coordinating Committee (COPAC) ordered 27 H125 helicopters from Airbus, which will be assembled locally by the Helibras subsidiary.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €2.7bn in 2021, representing 5.3% of revenues.



ARIANEGROUP

Leading European company in the space industry and among the world leaders. Specialised in space and ballistic launchers and in space launch capabilities (via Arianespace).

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial launch services (launchers and services)
- ▶ Ballistic missiles
- ▶ Propulsion systems
- ▶ Pyrotechnics (for launchers and satellites)
- ▶ Space instrumentation and equipment (optical, optronic, neutronic)
- ▶ Complex and secure infrastructures

GOVERNANCE

Chairman and CEO	André-Hubert Roussel
Defence Programmes Director	Philippe Clar
Vice President Strategy	Morena Bernardini

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 587	3 069	2 718	3 129
Δ (%)	11,36%	-14,44%	-11,44%	15,12%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income*	237	54	-20	-24
Order book	N/A	N/A	N/A	N/A
Employees	≈ 9 000	≈ 9 000	≈ 9 000	≈ 7 600

*Total comprehensive income

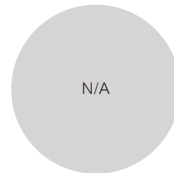
OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

Airbus	50%
Safran	50%

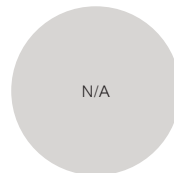
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Nucléutudes	98,9%	France
Pyroalliance	90%	France
Sodern	90%	France
Arianespace	74%	France
Europropulsion	50%	France
Euro Cryospace	45%	France
Regulus	40%	France

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Safran	Thales	Naval Group	Avio	Beyond Gravity*	MT Aerospace**	SABCA***	Air Liquide
Commercial launch services									
Ariane 6 future launcher	●	●	●			●	●	●	●
Ariane 5 launcher	●	●	●			●	●	●	●
Launch services (Ariane 5, Vega, Soyuz****)					●				
Ballistic missile									
M51 submarine-launched ballistic missile	●	●	●	●					
Propulsion systems									
Vulcain 2.1 (Ariane 6) and Vulcain 2 (Ariane 5) rocket engines		●							
Vinci rocket engine (Ariane 6)		●							
P120C rocket engine (Ariane 6, Vega-C)					●				
Prometheus rocket engine project	●	●							
Bipropellant thrusters (4N, 10N, 22N, 200N, 400N)									
Chemical monopropellant hydrazine thrusters (1N, 20N, 400N)									
Electric orbital propulsion systems (RIT 2X, RIT 10 EVO, RIT μX)									
M10 hold down and release mechanisms (ME0032, ME0038)									
Pyrotechnics (for launchers and satellites)									
Vulcain Turbine Pump Starter		●							
Vinci engine ignition system		●							
Vega's Zefiro-9 third-stage engine ignition system					●				
Equipment									
Vision future daylight stellar finder system		●							

*Ex-RUAG Space

**OHB group

***Orizίο group

****Launch of Soyuz rockets suspended since the end of February 2022

STRATEGIC HIGHLIGHTS

Business trends

- ▶ ArianeGroup revenues reached €3.1bn in 2021, up 15.1% year-on-year. Arianespace, the group's main subsidiary, generated revenues of nearly €1.3bn (+30% year-on-year). It carried out 15 launches over the year (9 on Soyuz, 3 on Ariane 5 and 3 on Vega), i.e. 5 more than in 2020, enabling 305 satellites to be put into orbit. In October 2022, Arianespace had an order book of 29 launches for Ariane 6, including 18 launches between 2024 and 2026 to put more than 600 satellites of the Kuiper constellation (Amazon) into orbit.
- ▶ In November 2022, ArianeGroup finalised the sale of its 63% stake in its CILAS subsidiary to MBDA and Safran, following approval by the European Commission.
- ▶ The Russian Space Agency suspended Soyuz rocket launches from Kourou in February 2022. This decision had an impact on Arianespace's activity, which was still planning another 8 Soyuz launches (6 from the Baikonur Cosmodrome in Kazakhstan and 2 from the Guiana Space Centre in Kourou) in 2022, including that of the CSO-3 satellite for the French Ministry of Armed Forces which will ultimately be put into orbit by the future Ariane 6 launcher.
- ▶ The European Space Agency confirmed in November 2022 the rule of European preference for institutional missions and financial support for the Ariane 6 and Vega C programmes.

Home market

- ▶ Arianespace put 4 military satellites into orbit for the French Armed Forces in the fall of 2021: the Syracuse 4A telecommunications satellite in October (flight VA255 operated on Ariane 5) and 3 CERES (Space Electromagnetic Intelligence Capability) satellites in November (flight VV20 operated on Vega).
- ▶ In December 2021, the French Ministry of Armed Forces renewed its trust in ArianeGroup for the supply of optical space surveillance services based on the GEOTracker system. An extension of the contract set up in 2017, this new contract allows for a reinforced space surveillance in all medium, high and geostationary orbits.
- ▶ In January 2022, the main stage and upper stage of the Ariane 6 launcher arrived at the Guiana Space Centre in Kourou. The launcher was transferred to its launch pad for the performance of combined tests, including ignition of the Vulcain 2.1 engine. The first launch is now scheduled for the last quarter of 2023.
- ▶ Arianespace carried out four successful launches in 2022 from Kourou, including one with Soyuz in February and three with Ariane 5 between June and December. The last two Ariane 5 launches, before Ariane 6 enters service, are scheduled for 2023. However, the failure of the first commercial flight of the Vega C launcher in December 2022 has compromised the objective of carrying out at least four launches per year with Vega C from 2023.

Export markets

- ▶ The Sodern subsidiary entered into a partnership with the American company Redwire to produce the Eagle Eye star tracker in the United States. The device is intended for the main players in the American military space industry (Boeing, Lockheed Martin, Northrop Grumman).

Technology and Innovation

- ▶ In November 2021, the French General Directorate for Enterprise (DGE) and CNES selected 2 ArianeGroup projects to benefit from the France Relance recovery plan: one on losses related to the natural evaporation of hydrogen and the other on the creation of a modular test bench dedicated to the group's start-ups partners.
- ▶ Created in January 2022, the MaiaSpace subsidiary announced that it is working on a concept for a reusable mini-launcher powered by green propellant, called Maia, and whose commissioning is scheduled for 2026.
- ▶ In September 2022, ArianeGroup presented Susie (Smart Upper Stage for Innovative Exploration), a reusable upper stage project that can replace the fairing of a launcher (Ariane 6 and the next generation).



ARQUUS

Defence subsidiary of the Volvo group. Among the European leaders in land systems.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Wheeled armoured vehicles
- ▶ Tactical and logistic vehicles
- ▶ Propulsion systems for armoured vehicles
- ▶ Weapon systems (Remote Control Weapon Systems, RCWS)
- ▶ Maintenance and modernisation services

GOVERNANCE

Chairman and CEO Emmanuel Levacher

Senior Vice President Finance & Strategy Christian Cusset

Vice President Operations Michel Brun

Senior Vice President Strategy and Product Lines Frédéric Gratien

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted subsidiary
Market Cap	

Major shareholders (as of 15.11.2022)

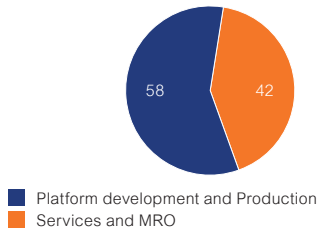
Volvo Group Government Sales	100%
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KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018*	2019	2020	2021
Revenue	≈ 450	≈ 620	≈ 558	≈ 591
Δ (%)	25,00%	37,78%	-10,00%	5,91%
Defence (%)	100%	100%	100%	100%
Export (%)	N/A	42%	27%	10%
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	6 000	5 800	5 500	5 000
Employees	≈ 1 500	≈ 1 500	≈ 1 570	> 1 500

*Figures restated.

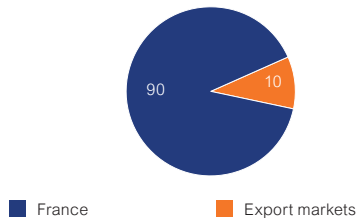
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
SOFEMA	4%	France
ODAS	2%	France

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Nexter*	Thales	AM General	Safran	MBDA
Reconnaissance vehicles					
4x4 VBL Mk2 light armoured vehicle					
4x4 PVP light protected vehicleP					
Scarabée light armoured vehicle					
Armoured combat and transport vehicles					
6x6 Jaguar reconnaissance and combat armoured vehicle (EBRC) and 6x6 Griffon multirole armoured vehicle (VBMR) (Scorpion and CaMo programmes)	●	●			
Maintenance for VAB armoured personnel carrier and transport vehicle					
6x6 VAB Mk3 medium weight armoured vehicle		●			
Bastion and Fortress Mk2 armoured personnel carrier/ combat vehicles			●		
VBCI armoured infantry fighting vehicle	●				
Light tactical vehicles					
VLRA, VLRA 2, Sherpa Light and ALTV					
4x4 VT4					
Heavy tactical and logistics trucks					
4x4 / 6x6 / 8x4 / 8x8 Armis					
4x4 / 6x6 VLRA 2 tactical trucks					
Special Forces vehicles					
Areg, Torpedo, Sabre, Patsas					
Weapon systems					
Hornet family of remote controlled weapon stations			●		
Chassis for ground-to-ground artillery pieces (CAESAR)	●				
Ground-based air defence vehicles (Sherpa Mistral)					●

*KNDS group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Arqus generated revenues of approximately €591m in 2021 (+5.9% year-on-year). The group's order book stood at €5bn at the end of 2021 (including €1.2bn in firm orders), representing more than 8 years of revenue. It fell by around 10% year-on-year, as a result of difficulties in client acquisition and delayed or cancelled arms contracts in the context of the global health crisis.
- ▶ Arqus committed to a €12m plan in 2020 to turn its production sites into centres of excellence. The Limoges site in central France, which will be dedicated to the production of new vehicles, will receive €8.5m of this budget.

Home market

- ▶ Arqus, Nexter (KNDS) and Thales are jointly in charge of the Scorpion programme for the supply of wheeled armoured vehicles to the French Army. 1,872 Griffon VBMR multirole armoured vehicles as well as 300 Jaguar EBRC armoured reconnaissance and combat vehicles will be delivered by 2030, half of which by 2025.
- ▶ In 2021, Arqus notably delivered 119 Griffon armoured vehicles, the first 20 Jaguar, 1,000 VT4s, 72 Ultima VBLs and 186 Hornet remote controlled weapon stations to the French Armed Forces.
- ▶ In May 2022, the French defence procurement agency (DGA) awarded Nexter, Arqus and Thales, as part of their temporary consortium of companies, a new order for 356 Griffon armoured vehicles, including 54 in the mortar carrier version, and 88 Jaguar combat vehicles.
- ▶ In February 2022, Arqus announced its interest in the French Ministry of Armed Forces' tender for the acquisition and support of 9,400 military trucks intended for refuelling, transport of armoured vehicles and logistics (by offering the Armis model).

Export markets

- ▶ Arqus, which has customers in more than 60 countries, aims to expand its export sales (10% of turnover in 2021), which have been declining for several years. European, African and Middle Eastern countries are among the group's main target markets.
- ▶ Together with Nexter and Thales, Arqus is participating in the CaMo (Motorised Capability) programme for the supply of 60 Jaguar and 382 Griffon to the Belgian Army from 2025 onwards. This contract includes training and maintenance services.
- ▶ In early 2021, Arqus launched a new business unit, named Hornet, dedicated to the international promotion and marketing of the new models of its Hornet remote-controlled weapon station range (Hornet and Hornet Lite), developed as part of the Scorpion programme.
- ▶ In October 2021, the Royal Moroccan Armed Forces took delivery of the 300 light reconnaissance and support trucks ordered in 2020. Meanwhile, the first of the 36 Sherpa light armoured vehicles ordered in 2020 were delivered in May 2022.

Technology and Innovation

- ▶ Arqus invests around 4% of its revenues (around €20m) in R&D every year. The group is in particular working on the development of fully autonomous vehicles (new version of the Dagger) and hybrid propulsion vehicles (Scarabée 4x4 armoured vehicle and Griffon VBMR).



ATOS

French digital services company, among the three top players in Europe and the 10 top players worldwide.

BUSINESS AREAS

IT solutions supplier and systems integrator

- ▶ IT services and digital transformation consulting
- ▶ Big Data and High Performance Computing (HPC) solutions
- ▶ Tactical communication systems
- ▶ Command, Control and Surveillance systems
- ▶ Electronic systems (navigation instruments, defence electronics)
- ▶ Cybersecurity

GOVERNANCE

CEO	Nouridine Bihmane
Deputy CEO	Philippe Oliva
Senior Executive VP	Diane Galbe

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	ATO
Listed on	Euronext Paris
Market Cap (€m)	1 281

Major shareholders (as of 15.11.2022)

Siemens AG	9,61%
Employees	3,04%
The Vanguard Group, Inc.	2,58%
Norges Bank Investment Management	2,00%

MAIN JOINT VENTURES AND ASSOCIATES

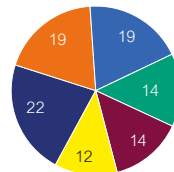
Name	%	Country
Athea	50%	France
Atos Saudi LLC	49%	Saudi Arabia

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018*	2019	2020	2021
Revenue	10 648	11 588	11 181	10 839
Δ (%)	-11,24%	8,83%	-3,51%	-3,06%
Defence (%)	>10%	>10%	>10%	>10%
Export (%)	84%	85%	85%	85%
Operating profit/loss	630	660	650	-2 768
Operating margin	5,92%	5,70%	5,81%	-25,54%**
Net income***	803	834	725	-215
Order book	≈ 21 000	21 900	23 700	23 600
Employees****	122 110	108 317	104 130	109 135

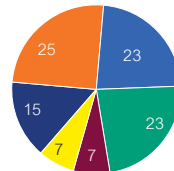
*Figures restated following the deconsolidation of Worldline **Exceptional/unusual expenses are included in this figure ***Normalised net income attributable to shareholders before unusual, abnormal and non-recurring items, net of tax ****Including 'indirect employees'

REVENUE BY BUSINESS SEGMENT (%)



- Public Sector & Defense
- Financial Services & Insurance
- Manufacturing
- Resources & Services
- Telecom, Media & Technology
- Healthcare & Life Sciences

REVENUE BY REGION (%)



- France
- Northern Europe
- Central Europe
- North America
- Growing Markets
- Southern Europe (excl. France)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	Capgemini	CEA	Thales Alenia Space	T-Systems	Nexter	Atarqus
Big Data and High Performance Computing (HPC) solutions							
Artemis.IA programme	●	●	●				
BullSequana supercomputers							
Copernicus Data and Information Access Services (DIAS) (Copernicus programme)				●	●		
Tactical communication systems							
Hoox for Mission tactical 4G/LTE communication solution for intervention forces							
Auxylium tactical LTE communication solution							
Command, Control and Surveillance systems							
Bull Battle Management System (SCORPION Combat Information System)						●	●
CENTINELA checkpoint solution							
VIGIA border monitoring							
Electronic navigation equipment							
LMN electromagnetic speed log*							
Multi-function repeater for surface ships (MFR6, MFR12) and submarines (MFR6 WP)							
Defence electronics							
ELINT/R-ESM systems family (ELIT, OSCAR, CARACAL)							
COMINT/C-ESM systems family (FlashHawk)							
Shadow jammers family (Raid Shadow, Black Shadow)							
Cybersecurity							
Data encryption solutions (Trustway, Trustway Chronos)							

* The LMN6, a new generation of electromagnetic speed log, has been chosen by the French Navy to equip its ships, such as La Fayette-class frigates, Horizon-class frigates, surveillance frigates and mine-hunting vessels.

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Atos posted revenues of €10.8bn in 2021, down 3.1% year-on-year, due in particular to a sharp decline in traditional IT services. The group generates around 10% of its sales in the defence sector.
- ▶ In June 2022, Atos presented its transformation plan, which should lead to the splitting of the group into two entities in the second half of 2023. The historical activities (outsourcing, professional services, etc.) will keep the Atos name, while the growth activities (big data, cybersecurity, digital transformation, etc.) will be brought together in a new structure called Evidian (name of a Bull subsidiary acquired in 2014). The activities in the future scope of Evidian, which were the subject of a €4.2bn bid from French IT company Onepoint (rejected by Atos in September 2022), are said to be of interest to other players including Thales, Orange and Airbus.
- ▶ To finance this transformation, the cost of which is estimated at €1.6bn, Atos announced the sale of non-strategic assets for around €700m. In June 2022, the group sold its full stake in Worldline (payment solutions), in which it only held around 2.5% of the capital, for €219m.
- ▶ In July 2022, Chief Executive Officer Rodolphe Belmer, who had been in office for 6 months, was replaced by Nouridine Bihmane.
- ▶ In February 2022, Atos announced a €60m investment to build a factory of the future in Angers (Maine-et-Loire), on the site of a former Bull factory. The site, which should be operational by the end of 2026, will be dedicated to cutting-edge products and technologies (supercomputers, quantum simulators, cryptology, cybersecurity, etc.). It should enable the group to increase its productivity by 30%.

Home market

- ▶ Atos has been involved in the French Army's Scorpion programme since 2016 (integration of the Bull Battle Management System on Jaguar, Griffon and Serval armoured vehicles) and delivered the Scorpion Combat Information System (SICS in French) in June 2021. The group has also been entrusted with the modernisation and maintenance of the SICS.
- ▶ Atos was selected in June 2020 by Dassault Aviation to develop the new generation of the multi-level gateway (E-SNA) for the Rafale in F4 standard.
- ▶ Atos was selected in January 2022 to develop and produce a new version of the onboard video system of the Falcon Albatros (the French Navy's future maritime surveillance and intervention aircraft) from Dassault Aviation. The Falcon Albatros is part of the Avsimar programme led by the DGA, and is due to be operational in 2025.
- ▶ In June 2022, the DGA awarded Athea, a joint venture between Atos and Thales, an initial order for the implementation of a sovereign big data and AI platform as part of the Artemis.IA programme (Architecture for the Processing and Massive Exploitation of Multi-Source Information and Artificial Intelligence). Delivery of an initial operational platform is expected in 2023.

Export markets

- ▶ Atos generates 85% of its sales from exports, mainly in its civil activities. The group also supports certain foreign Ministries of Defence (in Spain, the United Kingdom, the Netherlands, etc.) in their digital transformation.
- ▶ The NATO Communications and Information Agency (NCI Agency) awarded Atos a €1.2m contract in June 2022 to upgrade cybersecurity systems at 22 international NATO sites.

Technology and Innovation

- ▶ In November 2022, Atos delivered the EuroHPC Leonardo supercomputer (250 petaflops), the second most powerful supercomputer in Europe and the fourth one globally.

AUBERT & DUVAL

French specialist in upscale metallurgy, among the world's leading producers of high performance steels and super alloys, particularly for the defence, aeronautics and space

BUSINESS AREAS

Metal and sub-systems supplier

- ▶ Defence (parts for military platforms, missiles and firearms)
- ▶ Aerospace (parts for aerostructures, engines and space industry)
- ▶ Energy (parts for turbines and the nuclear and oil industries)
- ▶ Steels and alloys for automotive and industrial applications
- ▶ Tool steels

GOVERNANCE

President

Jérôme Fabre

Chief Executive Officer

Denis Hugelmann

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

Eramet Group*

100%

*Subsidiary being sold by Eramet to a consortium consisting of Airbus, Safran and Tikehau ACE Capital. The transaction is expected to close in late 2022 or early 2023.

MAIN JOINT VENTURES AND ASSOCIATES

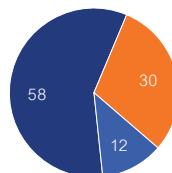
Name	%	Country
EcoTitanium	N/A	France
SQuAD	N/A	India

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	796	642	539	493
Δ (%)	-10,00%	-19,35%	-16,04%	-8,53%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)*	58%	58%	56%	48%
Operating profit/loss*	-22	-48	-131	-62
Operating margin*	-2,99%	-7,66%	-24,52%	-12,41%
Net income*	-298	-100	-339	-181
Order book	N/A	N/A	N/A	N/A
Employees	3 984	4 141	3 916	3 796

*Unconsolidated accounts

REVENUE BY BUSINESS SEGMENT (%)

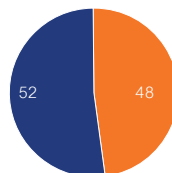


■ Aerospace

■ Other

■ Energy & Defence

REVENUE BY REGION (%)*



■ France

■ Export markets

*Unconsolidated accounts

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Boeing	Safran	Dassault Aviation	Naval Group	Framatome*	TechnicAtome	Rolls-Royce	BAE Systems	Navantia	Nexter**	MBDA
Aerospace												
Parts for aircraft (aerostructures, landing gear, etc.) and helicopters	●	●										
Alloys and parts for the M88 engine (Rafale)			●									
High performance steels for the engines of the Next Generation Fighter (NGF) future fighter aircraft (FCAS programme)	●			●								
Space												
Forgings for propulsion systems and structures of launchers and space vehicles	●		●									
Military shipbuilding												
Marine forgings for launch torpedo tubes, spindles, rods, shafts, steering gears, helicopter landing grids, etc.				●		●	●	●	●			
Components for the nuclear reactors of the future SNLE 3G submarines				●	●	●						
Artillery and Military transportation												
Artillery forgings for tank gun barrels, self-propelled howitzers, mortars, etc.											●	
Missiles												
Materials for missile components (warhead casings, hangers, wings and structural parts, motor cases, tails, etc.)												●
Firearms												
Firearm steels for gun barrels, mechanism parts, etc.												
Metal powders												
Metal powders for 3D-printed manufacturing												

*Subsidiary of EDF **KNDS group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Aubert & Duval posted revenues of €493m in 2021, down 8.5% year-on-year (on a comparable basis). The activity was still affected by difficulties in the aeronautics sector, the company's main market (58% of revenue in 2021, compared with 75% in 2019). Sales of parts for the Energy and Defence sector amounted to €146m in 2021 and represented 30% of revenue (compared to 11% in 2019).
- ▶ The French mining and metallurgical group Eramet signed a contract in June 2022 to sell its subsidiary Aubert & Duval to a consortium consisting of Airbus, Safran and French equity firm Tikehau ACE Capital. The three partners intend to carry out the acquisition via a holding company held in equal shares. The French State will also hold a specific share in the capital of Aubert & Duval, whose activities are considered strategic. The transaction is expected to be finalised in the first quarter of 2023.
- ▶ Faced with the difficulties of Aubert & Duval, whose turnover fell by nearly 40% and which recorded more than €900m in cumulative losses between 2018 and 2021, the new shareholders announced a €300m investment plan over a 5-year period to modernise the company's industrial sites and processes.
- ▶ To be more efficient, Aubert & Duval reviewed its quality control and logistics processes to remedy the problems of product conformity and delivery delays encountered in recent years.

Home market

- ▶ In defence, Aubert & Duval designs and produces high-performance alloys used as critical parts in missiles, military aircraft engines, nuclear submarines, artillery systems, military vehicles and firearms.
- ▶ In particular, the company is involved in the production of the M88 engine (supplied by Safran) for the Rafale fighter aircraft, by producing the nickel-based superalloy powders used to manufacture the turbines as well as various parts of the aircraft (low and high pressure compressor discs, turbine shaft,...).
- ▶ In June 2021, Naval Group awarded Aubert & Duval and Framatome a contract for the production of around fifty draft nuclear boiler rooms intended to equip the 4 future third-generation ballistic missile submarines.
- ▶ Aubert & Duval is also a supplier of Nexter (especially for the CAESAR truck-mounted artillery system), with which the company signed an agreement to supply high performance steels in October 2021.
- ▶ Aubert & Duval is also involved in supplying high performance alloys for the production of the next-generation fighter aircraft (NGF) at the heart of the Future Combat Air System (FCAS) programme.

Export markets

- ▶ Aubert & Duval generates about half of its turnover from exports, mainly through its civil activities.

Technology and Innovation

- ▶ EcoTitanium, a plant jointly owned by Aubert & Duval, the French agency for ecological transition (ADEME) and French bank Crédit Agricole Centre-France that was inaugurated in 2017, is the first titanium production site in Europe recycling offcuts and shavings recovered from major producers like Safran and Airbus. Having produced its first ingots in 2021, the plant has a production capacity of several thousand tonnes per year and should be running at full capacity by 2025.
- ▶ Aubert & Duval is also involved in a project with the Saint-Exupéry Technological Research Institute (Toulouse), Airbus and SMEs in the aeronautics industry to achieve a 30% reduction in the quantity of titanium needed for the production of aeronautical parts.



AVIATION INDUSTRY CORPORATION OF CHINA (AVIC)

Chinese conglomerate made up of about 60 subsidiaries, mainly active in civil and military aeronautics. China's largest and world's 6th-largest defence contractor.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial and military aircraft
- ▶ Commercial and military aircraft propulsion systems
- ▶ Transport and energy
- ▶ Electronics and electric equipment
- ▶ Engineering
- ▶ Financial services

GOVERNANCE

Chairman	Tan Ruisong
Chief Executive Officer	Hao Zhaoping
Chief Financial Officer	Zhang Minsheng

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	56 228	59 695	59 467	67 983
Δ (%) / \$*	N/A	0,68%	1,58%	18,43%
Defence (%)	38%	38%	38%	37%
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	N/A	N/A	N/A	≈ 400 000

*Variation based on revenue in US dollars
See €/\$, p.7

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

SASAC (Chinese State)	100%
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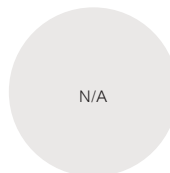
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
AviChina Industry & Technology	58,6%	China
Xi'an AVIC Hamilton Sundstrand Aviation Electric (AUAE)	50%	China

REVENUE BY REGION (%)



AVIATION INDUSTRY CORPORATION OF CHINA (AVIC)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Soukhoi*	Yakovlev*	UEC Saturn**	Klimov**	PAC***	Antonov****	Ivchenko-Progress****	Indra Sistemas	Airbus	Safran
Fighter and trainer aircraft										
Chengdu J-10 fighter aircraft		●								
Chengdu J-20 fighter aircraft										
Shenyang J-11/J-16 fighter aircraft	●									
Shenyang J-15 carrier-based fighter aircraft	●	●								
FC-1/JF-17 fighter aircraft			●	●			●			
Guizhou JL-9/FTC-2000G trainer/light attack aircraft										
Hongdu JL-10/L-15 trainer/light attack aircraft	●						●			
Transport and special aircraft										
Shaanxi Y-9 transport and AEW&C aircraft					●	●				
Xi'an Y-20 strategic transport aircraft										
Xi'an H-20 future strategic bomber										
Propulsion systems										
Shenyang WS-10 (J-10, J-11, J-15, J-20) turbojet engine		●								
Guizhou WS-13 (FC-1/JF-17) turbojet engine										
Shenyang WS-20 (Y-20) turbojet engine										
Helicopters										
Harbin Z-9/Z-19 twin-engine reconnaissance helicopter								●	●	
Unmanned systems										
Wing Loong I and II MALE UASs										
Wing Loong-10 HALE UAS										
Yaoying IIUCAV										
AV500W and AR500C VTOL UAVs										

*Subsidiary of UAC (United Aircraft Corporation), Rostec group **Subsidiary of UEC (United Engine Corporation), Rostec group
 Pakistan Aeronautical Complex *UkrOboronProm group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ AVIC, which includes Chengdu, Shenyang, Guizhou, Hongdu, Xi'an and Harbin aircraft manufacturers, recorded revenues of \$80.4bn (€68.0bn) in 2021, up 18.4% year-on-year in US dollars. The group delivered several 5th-generation J-20 (Chengdu) combat aircraft to the Chinese Air Force.
- ▶ AVIC has been an Airbus partner since 1985 on several programmes, including the assembly of the A320 passenger aircraft in China and the co design and co production of the AC 352 (H175) civil helicopter as well as the production under Airbus licence of the Z-9 / Z-19 (AS365 Dauphin) military helicopters.
- ▶ Several foreign aeronautical groups created joint ventures with AVIC, such as Safran (via their subsidiaries Snecma and SAIC, turboprop engines for commercial aircraft) and Textron (Cessna-AVIC Aircraft, sale and maintenance of business jets). AVIC is also partnering with Chinese players to produce the C919 medium-haul jet, powered by CFM International's LEAP engine (GE Aerospace / Safran) and presented to the public for the first time in China in November 2022, and the ARJ21 short-haul jet (COMAC joint venture). AVIC with Russian aircraft manufacturer United Aircraft Corporation (UAC) also produce the CRJ929 long-haul jet (CRAIC joint venture).

Home market

- ▶ AVIC generates a large part of its turnover on its domestic market. As the leading company in the Chinese aeronautics sector, the group is directly or indirectly involved in most of the country's military aircraft programmes.
- ▶ In autumn 2021, Chengdu manufacturer began flight testing of a two-seat version of its J-20 fighter aircraft, dubbed J-20S. The second crew member could handle UAVs operating alongside the J-20.
- ▶ The Chinese Air Force deployed its first J-16D (Shenyang's site) two-seat electronic warfare aircraft, based on the J-16 fighter jet, in November 2021.
- ▶ In January 2022, Chengdu conducted a flight test of the Wing Loong IE MALE UAV, a new version of the Wing Loong I with improved range, endurance and reliability.
- ▶ Xi'an's site is developing the future H-20 strategic stealth bomber, which could make its maiden flight in 2023.

Export markets

- ▶ The group generates about 20% of its turnover from exports. Africa, the Middle East and Eastern European countries are AVIC's main target markets.
- ▶ Chengdu signed a contract with the Algerian Air Force in September 2021 for the supply of 24 Wing Loong II MALE UAVs, with deliveries until 2022.
- ▶ In February 2022, the Pakistani Air Force ordered 25 J-10C (Chengdu) fighter aircraft, equipped with the WS-10C (Shenyang) turbojet engine. In addition, the United Arab Emirates favoured the Hongdu L-15 for their trainer/light attack aircraft procurement programme.
- ▶ Guizhou Aircraft Industry Corporation (GAIC) signed a contract with the Myanmar Air Force in October 2022 for the supply of an unspecified number of FTC-2000G trainer/light attack aircraft.

Technology and Innovation

- ▶ Chengdu began developing a new version of the WS-10B propulsion system of its J-20 fighter aircraft with thrust vectoring capability (TVC), named WS-10B-3.
- ▶ Shenyang is working on a version of its navalised J-15 fighter jet, dubbed J-15B and launchable from China's Type 003 aircraft carrier, currently undergoing sea trials, using a CATOBAR system. Shenyang's FC-31 fighter aircraft prototype could also be developed into a navalised version which would be catapulted with an EMALS electromagnetic system.

AVIO

Major player in the global space launcher market. Prime contractor of the Vega launcher programme and subcontractor for the Ariane 5 and Ariane 6 programmes.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Launch vehicles
- ▶ Launcher propulsion systems
- ▶ Missile propulsion systems
- ▶ Payload adapters
- ▶ Space vehicle

GOVERNANCE

Chairman	Roberto Italia
Chief Executive Officer	Giulio Ranzo
Chief Financial Officer	Alessandro Agosti

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	AVIO
Listed on	Borsa Italiana
Market Cap (€m)	274

Major shareholders (as of 15.11.2022)

Leonardo S.p.A.	29,63%
Cobas Asset Management SGIIC SA	5,02%
Space Holding SRL	4,84%
In Orbit SpA	4,07%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Spacelab	70%	Italy
Regulus*	60%	France
Europropulsion	50%	France

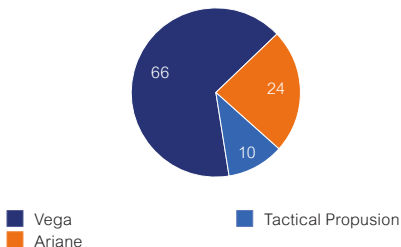
*Responsible for the manufacturing and moulding of the solid propellant intended for Ariane and Vega launchers solid propulsion engines

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	389	369	322	312
Δ (%)	13,06%	-5,15%	-12,67%	-3,23%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	≈ 60%	N/A	N/A	N/A
Operating profit/loss	29	27	16	9
Operating margin	7,33%	7,19%	4,94%	2,86%
Net income*	24	26	14	8
Order book	877	669	736	877
Employees	838	935	950	991

*Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	ArianeGroup	SpaceLab	Telespazio	Beyond Gravity***	Yuzhnoye SDO	SABCA	Thales	Thales Alenia Space	MBDA
Launch vehicles									
Vega launcher	●	●	●	●	●	●	●		
Vega C launcher	●	●	●		●				
Vega E future launcher	●								
Vega C Light future launcher	●								
Launcher propulsion systems									
P80 solid propellant engine (Vega)									
P230 solid propellant engine (Ariane 5) and P120C future engine (Ariane 62, Ariane 64, Vega C, Vega E)*	●								
Vulcain 2 (Ariane 5), Vulcain 2.1 (Ariane 6) and Vinci (Ariane 6) liquid oxygen turbopumps	●								
Zefiro 9 (Vega, Vega C), Zefiro 23 (Vega) and Zefiro 40 (Vega C, Vega E) solid propellant engines									
M10 liquid oxygen and methane engine (Vega E)									
AVUM liquid propulsion module (Vega, Vega C)									
Missile propulsion systems									
CAMM-ER air defence missile propulsion system									●
ASTER 30 air defence missile propulsion and actuation systems and fins									●
Payload adapters									
Small Spacecraft Mission Service (SSMS) dispenser adaptor									
Vampire and VESPA C payload adapters									
Space vehicle									
Space Rider future space transport system**									●

*Based on P80 solid propellant engine

**Developed by SpaceLab (formerly ELV), an Avio subsidiary which is 30% owned by the Italian Space Agency

***Formerly RUAG Space

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Avio revenues amounted to €311.6m in 2021, down 3.2% year-on-year. On one hand, the Ariane Launchers branch (-36.2%) was affected by the gradual load reduction on Ariane 5 and the focus of the P120C solid propellant engine for the future Vega C and Ariane 6 launchers. On the other hand, the Vega launchers (+10.8%) and Propulsion systems (+56.5%) branches posted increasing revenues.
- ▶ Avio's order book stood at €877m at the end of 2021, up 19.2% year-on-year, in line with the group's forecasts (between €850 and €900m). It notably includes contracts signed in recent years for the Vega, Vega C (including the production of 10 new rockets, to be delivered from 2023) and Vega E (development contract) light launchers. The maiden flight of Vega E is expected in 2026.
- ▶ Avio implemented reinforced checks in 2021 to ensure the successful completion of flights VV18, VV19 and VV20 with the Vega light launcher (3 successes) following the failures of flights VV15 and VV17 in 2019-2020.
- ▶ The Vega C launcher successfully completed its maiden flight in July 2022 and put into orbit the LARES-2 scientific satellite on behalf of the Italian Space Agency and 6 research CubeSats for Italy, France and Slovenia. However, the first commercial flight of the Vega C launcher failed in December 2022 after its second stage (Zefiro 40 engine) malfunctioned.

Home market

- ▶ ArianeGroup and Europropulsion (a joint venture between ArianeGroup and Avio) signed a contract in March 2021 for the supply by Avio of 34 P120C engines for Ariane 6 rockets. The contract is worth between €200m and €400m.
- ▶ In July 2021, the European Space Agency (ESA) signed a €118.8m contract with Avio for the set up of the Vega E launcher, a three-stage evolution of Vega C (which has four stages), with a new engine for the upper stage. The two lower stages will be derived from those of Vega C.
- ▶ In December 2021, the New Symphonie consortium, led by Brittany-based start-up Unseenlabs and Euroconsult and made up of 22 European companies including Avio, won the call for tenders issued by the European Commission on a concept study to harness new ideas to create a European broadband constellation. The 6-month contract is valued at €1.4m.
- ▶ The ESA and Avio signed a €51m contract in December 2021 to improve the competitiveness of the Vega C launcher by reducing the service and manufacturing costs of mechanical subsystems and components and expanding mission capabilities.
- ▶ Avio benefits from the contract signed in April 2022 between Arianespace and Amazon covering 18 launches between 2024 and 2026 to put into orbit more than 600 satellites of the Kuiper constellation on Ariane 6. Avio is involved in the development of the P120C engine and the supply of liquid oxygen turbopumps for the Vulcain 2.1 (main stage) and Vinci (upper stage) engines of Ariane 6.

Export markets

- ▶ In July 2021, MBDA France awarded Avio several contracts, worth a total of more than €80m, for the supply of propulsion systems for Aster-30 tactical missiles. Deliveries are scheduled for the 2022-2030 period.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €12.7m in 2021, representing 4.1% of total revenue.
- ▶ In October 2021, Avio inaugurated the Space Propulsion Test Facility (SPTF) in Sardinia (Italy), a centre of technological excellence dedicated to space activities. The SPTF, where the new M10 engine for the upper stage of the Vega E launcher was tested, has a Liquid Rocket Engine (LRE) test bench used for the development and qualification of new generation space engines.



BABCOCK INTERNATIONAL

Aerospace and defence company specialised in support services (MRO, site management, etc.) for Armed Forces and military shipbuilding.

BUSINESS AREAS

Engineering support services company and platform manufacturer

- ▶ Engineering support services, production and integration of equipment (naval and land)
- ▶ Naval MRO, support and services
- ▶ Airbase and naval base support and management
- ▶ Outsourcing contracts (training, fleet management service)

GOVERNANCE

Chairman	Ruth Cairnie
Chief Executive Officer	David Lockwood
Chief Executive Marine	Will Erith

KEY FIGURES (Fiscal year ended: March 31st)

€ millions	2018-19	2019-20***	2020-21***	2021-22
Revenue*	5 073	5 061	4 447	4 826
Δ (%) [£]**	-3,97%	-1,03%	-10,32%	3,28%
Defence (%)	46%	52%	56%	55%
Export (%)	34%	33%	34%	37%
Operating profit/loss*	223	-86	-1 945	267
Operating margin*	4,39%	-1,71%	-43,73%	5,53%
Net income****	226	-135	-2 019	193
Order book	19 814	10 722	10 211	11 702
Employees	35 289	34 220	32 409	28 975

*Excluding joint ventures and associated holdings

**Variation based on revenue in local currency

See €f, p.7

***Figures restated

****Net income attributable to shareholders

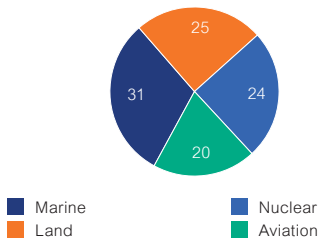
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	BAB
Listed on	LSE
Market Cap (€m)	1 422

Major shareholders (as of 15.11.2022)

Goldman Sachs Asset Management LP	6,61%
Abrams Bison Investments LLC	5,80%
Polaris Capital Management LLC	5,75%
Silchester International Investors LLP	5,06%

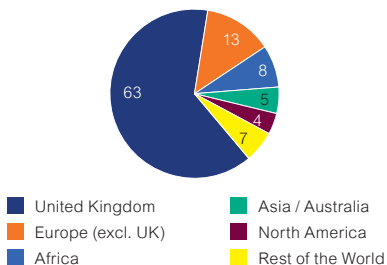
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Cognac Formation Aero	90%	France
Ascent Flight Training Holdings	50%	United Kingdom
Duqm Naval Dockyard	49%	Oman
AirTanker Services	23,5%	United Kingdom

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	BAE Systems	Rolls-Royce	Thales	DSME	Airbus	Lockheed Martin	Dassault Aviation	ASC	BMT	PT PAL	PGZ
Engineering and systems											
Royal Navy's Queen Elizabeth-class aircraft carrier (HMWHS*)	●	●	●								
Royal Navy's Type 31 future frigate (General Purpose Frigate programme)			●					●	●	●	
Royal Navy's Type 26 frigate (weapon systems)	●	●	●								
Republic of Korea Navy's KSS-III Dosan Ahn Changho-class submarine (WHLS**)				●							
MRO and support services											
Royal Navy's Type 23 frigates life extension programme (LIFEX)	●										
Royal Navy's Vanguard-class submarines life extension programme	●										
Royal Australian Navy's Anzac-class frigates and Canberra-class LHD MRO	●										
Royal Australian Navy's Collins-class submarines MRO							●				
VISSC programme (Royal Canadian Navy's Victoria-class submarines MRO)	●										
FSTA programme (Royal Air Force's Voyager tanker aircraft MRO)		●	●		●						
HADES programme (Royal Air Force support services ; 20 sites)											
Naval base management											
Future Maritime Support Programme (HM Naval Base Devonport and HM Naval Base Clyde)											
Outsourcing contracts											
Phoenix II Project (fleet management service)											
UK Military Flying Training System (MFTS) programme						●					
F-Air 21*** programme (French Air Force's training)							●				

*Highly Mechanised Weapons Handling System

**Weapon Handling and Launch System

***Formerly FOMEDEC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Babcock revenues increased 3.3% in local currency during 2021-2022 (excluding joint ventures and associated holdings) to £4,102m (€4,826m). The Land (+11.5%), Nuclear (+3.5%) and Marine (+2.3%) branches recorded increases in activity, while the turnover of the Aviation branch (20% of group revenue) fell by 4.3%.
- ▶ In March 2022, Babcock acquired its Australian partner UGL's stake in the joint venture Naval Ship Management (NSM), becoming the sole owner. NSM is in particular in charge of the MCO of the Royal Australian Navy's Anzac-class frigates and Canberra-class amphibious assault ships. In May 2022, NSM signed a letter of intent with another Australian group, A&P, to jointly carry out military naval maintenance operations in ports on Australia's Pacific coast.
- ▶ Babcock signed a letter of intent with DSME in March 2022 to cooperate on systems integration programmes on future South Korean Navy ships.

Home market

- ▶ The group is a key partner of the British Ministry of Defence (MoD). Babcock has in particular been providing support and other services at the naval bases at Clyde and Devonport since 2014, a partnership that in October 2021 was extended for a period of four and a half years as part of the Future Maritime Support Programme (contract worth around £3.5 bn, or €4.1 bn).
- ▶ Babcock is continuing work on the construction of the Royal Navy's first Type 31 frigate, whose keel was laid at the Rosyth Shipyard (Fife, Scotland) in April 2022. The ship is expected to be launched during 2023.
- ▶ Babcock was awarded a contract worth £30m (€36m) by the MoD in May 2022 to carry out dry dock maintenance on the Royal Navy's Queen Elizabeth-class aircraft carriers for 10 years.
- ▶ In July 2022, Babcock delivered the Vanguard (S28) nuclear ballistic missile submarine to the Royal Navy after 7 years of maintenance to repair a breach in the submarine's nuclear reactor.
- ▶ In September 2022, BAE Systems awarded Babcock a subcontract to continue the pilot training and maintenance of Hawk TMk2 trainer aircraft at the Royal Air Force's Valley Air Base.

Export markets

- ▶ The share of exports in Babcock's total revenues reached 37% in 2021-2022, higher than the target the group set itself in recent years (over 30%).
- ▶ Babcock signed a new contract with the New Zealand Defence Force in February 2022 to carry out engineering, project management, production and maintenance operations for all Royal New Zealand Navy ships over a period of seven and a half years.
- ▶ After being selected by Indonesia in September 2021, the group won a second export contract for its Type 31 (Arrowhead 140) frigate in March 2022 following its selection by the Polish Armament Agency for the acquisition programme of three Miecznik-class coastal defence frigates. The ships will be built in Poland from 2023 by the PGZ-Miecznik consortium including PGZ, Remontowa Shipbuilding, Babcock, MBDA UK and Thales UK, at a cost of approximately PLN 8bn (€1.7bn).
- ▶ Babcock signed a four-year contract with the Brazilian Navy in April 2022 for the maintenance of its flagship, the amphibious helicopter carrier Atlântico (formerly HMS Ocean).

Technology and Innovation

- ▶ The group's self-funded R&D expenditure amounted to £2.6m (€3.1m) in 2021-22, less than 0.1% of revenues.



BAE SYSTEMS

Diversified defence group (aviation, naval, land, etc.). Strong position on the U.S. market and 7th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military aircraft (manned and unmanned aircraft)
- ▶ Naval platform and systems (surface ships and submarines)
- ▶ Land platform and systems (armoured vehicles and artillery systems)
- ▶ Defence electronics
- ▶ Cybersecurity

GOVERNANCE

Chairman
Chief Executive Officer
Managing Director, Air

Roger Carr
Charles Woodburn
Cliff Robson

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	BA
Listed on	LSE
Market Cap (£m)	22 880

Major shareholders (as of 15.11.2022)

Capital Research & Management Co. (World Investors)	8,69%
Invesco Asset Management Ltd.	5,06%
Barclays Bank Plc (Private Banking)	4,06%
Templeton Investment Counsel LLC	3,63%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
CTA International	50%	France
FADEC International	50%	United States
Rheinmetall BAE Systems Land	45%	United Kingdom
Panavia Aircraft	42,5%	Germany
MBDA	37,5%	France
Eurofighter Jagdflugzeug	33%	Germany

KEY FIGURES (Fiscal year ended: December 31st)

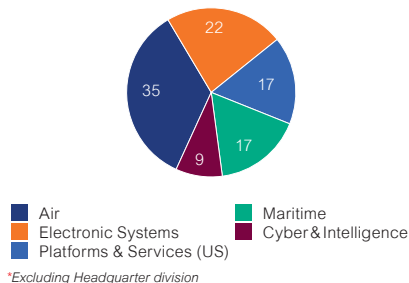
€ millions	2018	2019	2020	2021
Revenue	19 007	20 849	21 660	22 699
Δ (%) [£]*	-2,34%	8,82%	5,31%	1,27%
Defence (%)	91%	92%	95%	95%
Export (%)	78%	80%	81%	80%
Operating profit/loss	1 814	2 163	2 169	2 778
Operating margin	9,54%	10,37%	10,01%	12,24%
Net income**	1 130	1 681	1 460	2 044
Order book	54 078	53 349	50 278	52 381
Employees	85 800	87 800	89 600	90 500

*Variation based on revenue in local currency

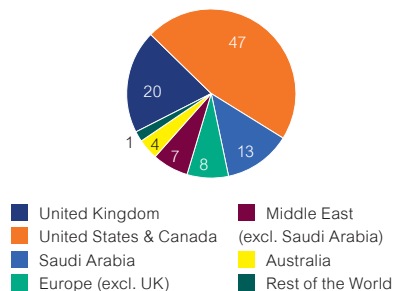
See £1£, p.7

**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Leonardo	Thales	Lockheed Martin	Northrop Grumman	General Dynamics	Babcock International	Raytheon Technologies*	Rolls-Royce	Iveco Defence Vehicles	ASC	Nexter**	Saab
Military aircraft													
Tempest future fighter aircraft		●	●					●	●				
F-35 Lightning II fighter aircraft (Lockheed Martin's level 1 partner)				●	●								
Eurofighter Typhoon fighter aircraft	●	●	●										●
Hawk trainer aircraft				●				●					
Naval platforms and systems													
Hunter-class frigate (SEA 5000 programme)			●	●						●			●
Type 26 frigate (Global Combat Ship programme)		●						●					
Canadian Surface Combatant (CSC) future frigate***				●				●					
Queen Elizabeth-class aircraft carrier		●			●			●					
Dreadnought-class ballistic missile submarine			●	●		●		●					
Astute-class nuclear-powered attack submarine		●			●			●	●				
Land platforms and systems													
Amphibious Combat Vehicle (ACV)									●				
Armored Multi-Purpose Vehicle (AMPV)													
CV90 infantry fighting vehicle		●											●
M109A7 self-propelled howitzer													
40mm Cased Telescoped Armament System (40CTAS)****													●
M982 Excalibur advanced precision guided artillery shell								●					
Cyber & Intelligence													
GEOINT-ISR	●												

*Merger of Raytheon and UTC **KND5 group ***Based on Type 26 frigates ****CTA International, joint venture between BAE Systems and Nexter

STRATEGIC HIGHLIGHTS

Business trends

- ▶ BAE Systems revenues reached £19.5bn (€22.7bn) in 2021, 95% of which in defence. Revenue grew by 1.3% in local currency over the year thanks to deliveries of Typhoon fighters and Hawk trainers to the Qatar Emiri Air Force and increased work on the Type 26 frigate and Astute-class SSN programmes for the Royal Navy. The company is the main supplier of defence equipment to the UK, Saudi Arabia and Australia, as well as one of the 10 top defence contractors to the U.S. Department of Defense.
- ▶ BAE Systems aims to become the world's leading defence, aerospace and security company within the next five to ten years by focusing on three areas: increasing its export sales, expanding its services offering, and restructuring certain activities (land platforms in particular).
- ▶ In March 2022, BAE Systems completed its \$200m (€179m) acquisition of US-based company Bohemia Interactive Simulations (BISim), which specialises in software development and military simulation and training solutions. BISim has 325 employees in the United States, the United Kingdom, Australia, the Czech Republic, Slovakia, etc.

Home market

- ▶ BAE Systems generated 20% of its turnover in the UK during 2021, a share that has been on a downward trend for several years.
- ▶ The group is the prime contractor for the Tempest future fighter aircraft programme, alongside the British Ministry of Defence, Rolls-Royce, Leonardo UK and MBDA UK as well as several Italian industrial groups (Elettronica, Leonardo Italy, MBDA Italy and Avio Aero). In December 2022, the UK, Italy and Japan announced an agreement for a joint future combat aircraft programme (Global Combat Air Programme or GCAP), with BAE Systems, Leonardo and MHI being in charge of the development of the aircraft. The possible role of Sweden and Saab in this future programme is yet unknown.
- ▶ In May 2022, the British Ministry of Defence announced an additional £2bn (€2.4bn) in funding to begin Phase 3 of the Royal Navy's Dreadnought-class SSBN programme. The first unit, named Dreadnought, will begin sea trials during this phase.
- ▶ The British Ministry of Defence awarded BAE Systems a £4.2bn (€4.8bn) contract in November 2022 for the second batch of Type 26 frigates (5 units). The three ships of the first batch are currently under construction and the lead ship is due to be launched at the end of 2022.

Export markets

- ▶ In 2021, 80% of the group's revenue came from exports. BAE Systems is heavily reliant on the U.S. market (nearly half of consolidated turnover), due in particular to the weight of the F-35 programme.
- ▶ Lockheed Martin awarded a \$493m (€417m) subcontract to BAE Systems in December 2021 to develop the new AN/ASQ-239 electronic warfare suite, to equip the Lot 17 of F-35 Lightning II fighter aircraft from 2024.
- ▶ BAE Systems won a contract worth AUD1.5bn (€982m) from the Royal Australian Air Force in 2021 to upgrade its 33 Hawk Mk 127 trainers to make them operational until 2031 (Lead-In Fighter programme).
- ▶ In June 2022, BAE Systems signed a contract worth up to \$12bn (€10.7bn) over 18 years with the US Air Force to continue the maintenance of the Minuteman III and the future LGM-35A Sentinel (ex-Ground Based Strategic Deterrent) intercontinental ballistic missile systems.

Technology and Innovation

- ▶ BAE Systems' self-funded R&D expenditure reached £255m (€297m) in 2021, representing 1.3% of revenue.



BOEING

Industrial group with civil and military activities (in particular military aviation with the FA-18 combat aircraft, CH-47 Chinook helicopter, etc.). Third-largest defence contractor.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial aircraft
- ▶ Military aircraft (combat, transport, surveillance and unmanned aircraft systems)
- ▶ Defence electronics and C4ISR
- ▶ Missile systems
- ▶ Space

GOVERNANCE

Chairman	L. W. Kellner
Chief Executive Officer	D. L. Calhoun
CEO Defense, Space & Security	T. Colbert III

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	BA
Listed on	NYSE
Market Cap (\$m)	102 900

Major shareholders (as of 15.11.2022)

Newport Trust Co.	7,52%
The Vanguard Group, Inc.	7,14%
Capital Research & Management Co.	6,62%
Evercore Trust Company, NA	5,68%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Deep Space Transport	50%	United States
Hellfire Systems	50%	United States
Initium Aerospace	50%	United States
Tata Boeing Aerospace	50%	India
United Launch Alliance	50%	United States

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	85 628	68 356	50 926	52 651
Δ (%) / \$**	7,58%	-24,29%	-24,04%	7,10%
Defence (%)**	26%	34%	45%	42%
Export (%)***	56%	50%	37%	37%
Operating profit/loss	10 150	-1 763	-11 180	-2 453
Operating margin	11,85%	-2,58%	-21,95%	-4,66%
Net income****	8 857	-568	-10 397	-3 552
Order book	428 368	412 647	296 173	333 185
Employees	153 000	161 100	141 000	142 000

*Variation based on revenue in local currency

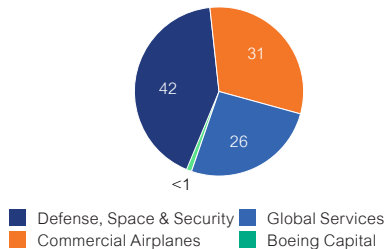
See €/\$, p.7

**Defense, Space & Security division only

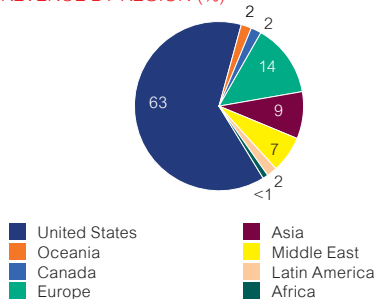
***Excluding 737 MAX-related impacts in 2019, 2020 and 2021

****Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)*



*Excluding 737 MAX-related impacts

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Kawasaki	Heavy Industries	Saab	Northrop	Grumman	Raytheon	Technologies*	Bell**	Lockheed	Martin	Teledyne	Aeroflot	Rocketdyne	Mahindra	Defence Systems	Rohde & Schwarz	Leonardo	HAL
Military aircraft																		
F/A-18E/F Super Hornet fighter aircraft			●									●						●
F-15E Strike Eagle fighter aircraft			●	●														
KC-46A Pegasus tanker aircraft																		
P-8A Poseidon maritime patrol aircraft			●	●														
T-7A Red Hawk trainer aircraft		●											●					
Military helicopters																		
MH-139 Grey Wolf twin-engine multirole helicopter																		●
CH-47 Chinook twin-engine multirole helicopter	●											●	●					
V-22 Osprey multirole tiltrotor aircraft					●													
AH-64 Apache twin-engine combat helicopter			●	●		●												●
Unmanned system																		
MQ-25 Stingray refueling Unmanned Aircraft System (UAS)																		
Wave Glider Unmanned Surface Vehicle (USV)																		
Echo Voyager Unmanned Underwater Vehicle (UUV)																		
Guided ammunition and missile systems																		
Harpoon anti-ship missile										●								
Joint Direct Attack Munition (JDAM)																		
Space																		
CST-100 Starliner spacecraft											●							
Space Launch System (SLS) super-heavy lift launch vehicle		●				●	●	●										

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Boeing revenues reached \$62.3 billion (€52.7 billion) in 2021, up 7.1% year-on-year in local currency. Growth was mainly driven by the Commercial Airplanes branch (+20.6%), which recorded deliveries of 340 aircraft in 2021, compared to 157 in 2020. However, the group is facing delays in the certification of the 737 MAX aircraft by the Federal Aviation Administration, now expected at best in early 2023 for the 737 MAX 7 and in late 2023 or early 2024 for the 737 MAX 10 (re-engined versions).
- ▶ Boeing operates in the military sector via its Defense, Space & Security branch, which generated sales of \$26.5bn (€22.4bn) in 2021. During the year, the group increased its deliveries of combat aircraft (21 F/A-18E/F Super Hornets and 16 F-15E Strike Eagles, compared with 21 and 4 respectively in 2020) and P-8A Poseidon maritime patrol aircraft (16 units delivered in 2021, compared with 15 in 2020). On the other hand, activity was affected by the drop in helicopter sales (15 CH-47 Chinook delivered in 2021, compared to 27 in 2020).
- ▶ After several postponements, the Space Launch System (SLS) super heavy-lift launch vehicle, used for NASA's Artemis programme and whose main stage is supplied by Boeing, made its first flight in November 2022.

Home market

- ▶ Boeing generated 63% of its turnover in the United States in 2021, a share that has remained stable over the year. In defence, the U.S. remains by far Boeing's largest market (75% of sales).
- ▶ Boeing secured a contract worth potentially \$23.8bn (€20.1bn) over just under 10 years from the U.S. Department of Defense in September 2021 to provide maintenance services for 275 C-17 Globemaster III strategic airlifters in service with the U.S. Air Force and eight partners.
- ▶ Lockheed Martin awarded Boeing a \$1.1bn (€930m) subcontract in October 2021 for the production of 1,500 guidance systems for its PAC-3 interceptors and the development of the next generation of guidance systems.
- ▶ In January 2022, the U.S. Department of Defense awarded a \$1.64 bn (€1.47 bn) four-year contract to Boeing and Bell (a Textron subsidiary) for the maintenance of the 228 V-22 Osprey tiltrotor aircraft in service with the U.S. Air Force, the U.S. Navy and the U.S. Marine Corps.
- ▶ The CST-100 Starliner spacecraft completed its first docking with the International Space Station (ISS) on the uncrewed Boe-OFT-2 (Boeing Orbital Flight Test-2) mission in May 2022. The first crewed mission to the ISS, Boe-CFT (Boeing Crew Flight Test), is scheduled for April 2023.

Export markets

- ▶ The group generated 37% of its revenues from exports in 2021. A large share of export sales (around 40%) was generated by the Commercial Airplanes branch.
- ▶ Boeing was awarded a \$471m (€422m) contract by the Japanese Air Self-Defense Force in January 2022 to upgrade 70 of the 98 F-15J Super Eagle air superiority fighters. The Japanese Super Interceptor programme includes the integration of new equipment (radars, communication and electronic warfare systems, etc.) and the ability to carry the AGM-158 JASSM air-to-ground cruise missile.
- ▶ In June 2022, the German government selected Boeing's CH-47F Chinook for its STH (Schwerer Transporthubschrauber) procurement programme for 60 heavy-lift helicopters. The helicopter was chosen over Lockheed Martin Sikorsky's CH-53K King Stallion.

Technology and Innovation

- ▶ Boeing's total R&D expenditure reached \$2.2bn (€1.9bn) in 2021, representing 3.6% of revenue.



COBHAM

Equipment manufacturer specialised in defence electronics. Acquired its domestics peer Ultra Electronics (79th-largest defence contractor worldwide) in August 2022.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Defence electronics and antennas
- ▶ Radiocommunications and SATCOM systems
- ▶ Aeronautics (avionics systems, connectivity systems, aircraft lights)

GOVERNANCE

Co-President

Michael J. Ristaino

Co-President

Donald E. Whitt

President & CEO, Cobham

Mike Kahn

Advanced Electronic Solutions

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

Advent International

100%

MAIN JOINT VENTURES AND ASSOCIATES

Name

%

Country

* No information available

KEY FIGURES (Fiscal year ended: December 31st)

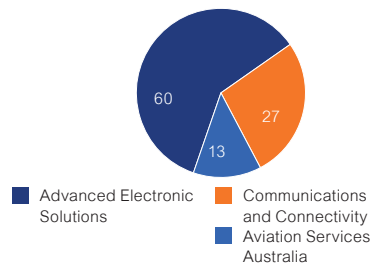
€ millions	2018	2019	2020**	2021**
Revenue	2 105	2 346	2 227	1 468
Δ (%) / \$)*	-10,92%	10,54%	N/A	-31,70%
Defence (%)	64%	68%	N/A	N/A
Export (%)	92%	93%	N/A	N/A
Operating profit/loss	135	95	108	449
Operating margin	6,40%	4,04%	4,86%	30,56%
Net income***	84	72	21	731
Order book	2 983	3 214	2 492	2 057
Employees	10 069	10 037	8 823	5 784

*Variation based on revenue in U.S. dollars
See €/\$, p.7

**Revenue from continuing operations

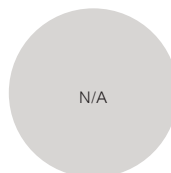
***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue from continuing operations

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Bombardier	Boeing	Lockheed Martin	Northrop Grumman	Airbus	Thales	Raytheon Technologies*	BAE Systems	Leonardo	Textron
Defence systems										
Electromagnetic microwave modules		●	●	●	●			●	●	
SPS Series Precision Positioners		●	●	●				●	●	
Transmitters for jamming systems										
AESA radar antennas and radar subsystems		●	●	●			●			
Components for electronic warfare suites		●	●						●	
Communication systems										
Tactical communications and surveillance systems				●		●	●			
ELT, VHF/UHF antennas		●	●		●					
SATCOM terminals			●	●						
Avionics systems										
Aircraft lights (LED and HID)										
Navigation systems										
Aviator UAV 200 connectivity system for UAVs										
Intercom and radio management systems						●			●	●
JetLAN advanced servers and routers		●	●		●					
Aeronautical services										
Airborne surveillance of the Australian exclusive economic zone**	●									

*Merger of Raytheon and UTC

**Subcontracting from the Australian Border Force (activity sold to Leidos in October 2022)

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Cobham revenues reached \$1.7bn (€1.5bn) in 2021, down 31.7% year-on-year, due in particular to the sale of its Mission Systems division to Irish industrial group Eaton in June 2021. On the other hand, activity in the main division Advanced Electronic Solutions grew by 14.6%.
- ▶ Following its takeover by U.S. private equity firm Advent International in 2019, Cobham embarked on a major restructuring plan involving the disposal of several businesses. The group sold its Aero Connectivity division (antennas, countermeasure systems, etc.) to TransDigm for \$947m (€801m), its Mission Systems business (air-to-air refuelling systems, actuation systems, etc.) to Eaton for \$2.85bn (€2.41bn) and its Slip Rings and Rotating Systems business to Naxicap Partners for \$219m (€183m) in 2021. Cobham also sold its French subsidiary Cobham Microwave (passive microwave components) to the French private equity fund FCDE (Fonds de consolidation et de développement des entreprises) in May 2022 and its Aviation Services Australia division to Leidos and Regional Express Holdings in autumn 2022.
- ▶ Meanwhile, Cobham in July 2021 announced plans to acquire Ultra Electronics, a British military communications equipment manufacturer. Valued at £2.6bn (€3.0bn), the deal was approved by the British government in July 2022 on several conditions, in particular maintaining an Ultra Electronics' corporate head office in the UK, increasing engineering and manufacturing employment in the UK and having a government representative serving on the Board of Directors. Ultra Electronics is considered a strategic defence operator as a sonar systems supplier to the Royal Navy. Cobham and Ultra Electronics announced the completion of the deal on 1 August 2022.

Home market

- ▶ Until the purchase of Ultra Electronics, Cobham was left with a marginal presence in the UK, its third-largest market (behind the U.S. and Australia) with less than 7% of revenue in 2019.
- ▶ The Aero Connectivity division, which was sold in January 2021, had been under contract since March 2020 with the British Ministry of Defence to develop advanced anti-jamming capacities for satellite positioning systems (GNSS).

Export markets

- ▶ Cobham remains highly dependent on the U.S. market, which accounted for almost 60% of its revenue in 2019 (50% in 2018). For example, the group supplies many microelectronic and microwave systems and components for Lockheed Martin's F-35 Lightning II fighter.
- ▶ The U.S. Department of Defense awarded Cobham several contracts in July 2021 to produce radio frequency (RF) and microwave rotary joints and waveguide products for a missile defence programme.
- ▶ In September 2021, Cobham signed a contract with L3Harris Technologies to develop RF components for the new AN/ALQ-254(V)1 Viper Shield electronic warfare system for the F-16 Fighting Falcon Block 70/72 fighter aircraft (Lockheed Martin).
- ▶ Cobham and its partner SWISSto12 were selected in March 2022 by Lockheed Martin to develop and produce 3D printed phased array antennas for future satellites.
- ▶ Cobham won two subcontracts in April 2022, one from Raytheon Technologies to supply components for the AN/SPY-6 naval radar and the other from Lockheed Martin to produce phased array antennas for the Advanced Off-board Electronic Warfare naval system.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to \$80m (€68m) in 2021, representing 4.6% of revenue.



DASSAULT AVIATION

Aerospace and defence group operating in military aviation (including the Rafale fighter jet) and business jets. 20th-largest defence company in the world.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Fighter aircraft
- ▶ Executive jets
- ▶ Unmanned aircraft systems
- ▶ Mission aircraft (maritime patrol, surveillance...)
- ▶ Pyrotechnics and space activities
- ▶ Artificial intelligence (AI)

GOVERNANCE

Chairman and CEO Éric Trappier

Chief Operating Officer Loïk Segalen

Senior Executive Vice-President, Richard Lavaud
International

Executive Vice President, J.-M. Gasparini
Military and Space Programmes

Senior Executive Vice President, Bruno Chevalier
Military Customer Support

Senior Executive Vice President, Gérard Giordano
Sales

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	AM
Listed on	Euronext Paris
Market Cap (€m)	12 189

Major shareholders (as of 15.11.2022)

GIMD (Dassault family)	62,20%
Airbus	9,91%
T. Rowe Price International Ltd.	2,22%
DNCA Finance SA	1,14%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
GIE Rafale International	60%	France
SECBAT	54%	France
Dassault Reliance Aerospace	49%	India
Thales	25%	France

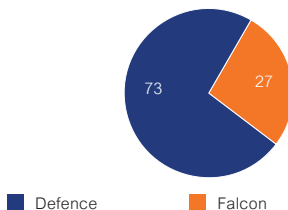
KEY FIGURES* (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	5 084	7 341	5 489	7 233
Δ (%)	4,27%	44,39%	-25,23%	31,77%
Defence (%)	49%	70%	59%	73%
Export (%)	78%	88%	89%	89%
Operating profit/loss	669	765	261	527
Operating margin	13,16%	10,42%	4,75%	7,29%
Net income**	681	814	396	693
Order book	19 376	17 798	15 895	20 762
Employees	11 494	12 757	12 441	12 371

*Figures adjusted

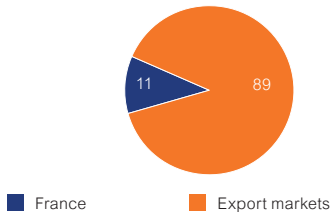
**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



*Figures adjusted

REVENUE BY REGION (%)*



*Figures adjusted

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	Safran	HAL*	Naval Group	L3Harris Technologies**	Leonardo	Airbus	Prair & Whitney***	Avio Aero****	Rolls-Royce	Saab
Fighter aircraft											
Next Generation Fighter (NGF) future fighter aircraft (Future Combat Air System programme)	●	●				●					
Rafale (F3R, F4 and RAVEL standards)	●	●									
Mirage 2000	●	●	●								
Maritime patrol and reconnaissance aircraft											
Future maritime and patrol reconnaissance aircraft (AVSIMAR programme)*****	●										
Falcon 8X Archange future intelligence aircraft	●						●				
Falcon 2000 MRA/MSA	●			●			●				
Modernisation of the ATL2 maritime patrol aircraft	●		●								
Unmanned aircraft systems											
nEUROn UCAV demonstrator					●	●			●	●	
European MALE RPAS future UAV (Eurodrone programme)					●	●		●			

*Hindustan Aeronautics Ltd

**Merger of L3 Technologies and Harris Corporation

***Raytheon Technologies group (merger of Raytheon and UTC)

****Subsidiary of GE Aerospace (formerly GE Aviation)

*****Based on Falcon 2000 LXS

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Dassault Aviation adjusted revenues reached €7.2 billion in 2021, up 31.8% year-on-year. Growth was driven by the Defence branch (+61.8%). In export markets, the group delivered 25 Rafale aircraft to India and Qatar (compared with 13 in 2020), in line with its forecasts, and the first 6 second-hand Rafales to Greece (out of the 12 ordered).
- ▶ As of December 31, 2021, Dassault Aviation's order book stood at €20.8 billion, up 30.6% year-on-year. It mainly consisted of orders from the defence sector (85% in value) and included in particular 86 new Rafales, of which 46 are to be delivered overseas (compared with 34 at the end of 2020), excluding the 80 aircraft ordered by the United Arab Emirates at the end of 2021, and 40 to France (28 at the end of 2020).
- ▶ For 2022 as a whole, Dassault Aviation expects a decrease in revenues, with limited deliveries (13 Rafale and 35 Falcon aircraft).

Home market

- ▶ In December 2021, the French Ministry of the Armed Forces' Directorate of Aeronautical Maintenance (Direction de la Maintenance Aéronautique - DMAé) awarded Dassault Aviation the BALZAC maintenance and support contract for the French Air Force's Mirage 2000 aircraft over a 14 year period (i.e. until their retirement). This « verticalized » contract covers all services and equipment, excluding engines, seats, radar hulls and services provided by the Service Industriel de l'Aéronautique (SIAé) from the Aeronautics Armed Forces.
- ▶ In February 2022, OCCAr awarded a €7.1bn contract for the development of the European MALE RPAS (Eurodrone), the production of 60 aircraft and their maintenance over a 5-year period. Airbus Defence & Space is the industrial leader of the programme, in partnership with Dassault Aviation and Leonardo. The first deliveries are scheduled for 2028.
- ▶ The French Ministry of Armed Forces announced in September 2022 the order of 42 new Rafales in 2023, including 30 aircraft from tranche 5 and 12 to replace the aircraft withdrawn from French Air Force service and sold to Croatia.
- ▶ On 1 December 2022, Dassault Aviation confirmed the reaching of an industrial agreement with Airbus on the new generation fighter (NGF) of the Future Combat Air System (FCAS) programme. Design contracts (phase 1B) are to be signed shortly to prepare for the production of a demonstrator (phase 2), the first flight of which is scheduled for 2029/2030.

Export markets

- ▶ The group generated 89% of its revenues from exports in 2021.
- ▶ In December 2021, the United Arab Emirates signed a contract for the supply of 80 Rafale F4s, worth €16bn (including €2bn for the missile systems supplied by MBDA, namely Mica NG air-to-air and Black Shaheen cruise missiles). Deliveries are scheduled between 2027 and 2031.
- ▶ In February 2022, Indonesia signed a contract for the acquisition of 42 Rafales, including crew training, logistical support, the delivery of a training centre with two mission simulators and offsets. A first phase of the contract for 6 Rafales, to be delivered from 2025, was formalised for \$1.3bn (€1.2bn).
- ▶ In March 2022, Greece ordered 6 additional new Rafales for its Air Force, bringing the total number of new aircraft ordered to 12. These aircraft will be delivered from the summer of 2024.
- ▶ After testing both aircraft, the Indian Navy is reportedly favouring the Rafale M (Marine) over the Boeing F/A-18E Super Hornet for its Multi Role Carrier Borne Fighters programme under which 26 aircraft could be ordered.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €551m in 2021, representing 7.6% of revenues.



DIEHL DEFENCE

Defence division of German industrial conglomerate Diehl. One of the main European players in the missiles segment.

BUSINESS AREAS

Missile manufacturer and systems integrator/
equipment supplier

- ▶ Missile and air defence systems
- ▶ Ammunition
- ▶ Surveillance and reconnaissance systems
- ▶ Transmission systems and vehicle support services

GOVERNANCE

Chief Executive Officer	Helmut Rauch
Chief Financial Officer	Thomas Bodenmüller
R&D Manager	Frank Kienzler

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	464	516	571	660
Δ (%)	1,75%	11,21%	10,66%	15,59%
Defence (%)	100%	100%	100%	100%
Export (%)	42%	53%	57%	52%
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	2 509	2 666	2 797	2 904

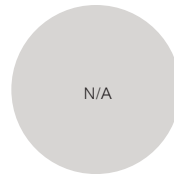
OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted division
Market Cap	

Major shareholders (as of 15.11.2022)

Diehl group		100%
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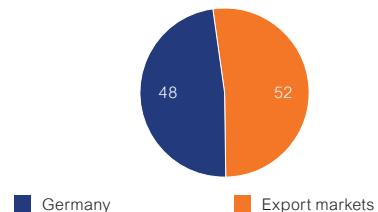
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES*

Name	%	Country
DynITEC	58,8%	Germany
Junghans Microtec	55%	Germany
GIWS	50%	Germany
PARSYS	50%	Germany
RAM-System	50%	Germany
Eurospike	40%	Germany

REVENUE BY REGION (%)



*JVs and associates of Diehl group in the defence market

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	MBDA	Rafael	TKMS*	Leonardo	Saab	Rheinmetall	Raytheon Technologies**	Elbit Systems	Kongsberg	Lockheed Martin	Safran	Boeing	Airbus
Missiles and air defence systems													
IRIS-T and IRIS-T SLS/SLM air-to-air missiles	●			●			●						
AIM-9 Sidewinder air-to-air missile						●							
HUSSAR future air-to-ground light missile										●			
IDAS surface-to-air missile		●											
RIM-116 RAM Block 2 surface-to-air missile	●					●							
RBS15 Mk3 anti-ship missile				●									
PARS 3 LR air-to-ground anti-tank missile	●												
Spike family of anti-tank missiles		●			●								
Falcon air defence system				●					●				
Ammunition													
40 mm infantry ammunition													
76 mm and 127 mm naval ammunition													
127 mm and 155 mm Vulcano guided ammunition			●										
GBU-54 Laser JDAM (Joint Direct Attack Munition) weapon system										●			
Surveillance and protection systems													
SIMONE infrared monitoring system													
Integration of the DIRCM J-MUSIC countermeasure system (Luftwaffe's military aircraft A400M)							●					●	

*Thyssenkrupp Marine Systems, thyssenkrupp group

**Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Diehl Defence revenues reached €660m in 2021, up for the sixth consecutive year (+15.6%). The branch accounted for 20.8% of the Diehl Group's total turnover and 18.0% of its workforce in 2021.
- ▶ The division is involved in many key programmes. Among others, it is partnering with Saab (RBS15 Mk3 anti-ship missile), Rheinmetall and Rafael (Spike anti-tank missiles), Leonardo (Vulcano guided munitions), Roxel - a joint venture between Safran and MBDA - (rockets for artillery munitions), and Safran (HUSSAR ultra-light air-to-ground missile).
- ▶ The Diehl Group became the sole shareholder of the Diehl & Eagle-Picher joint venture by acquiring the stake owned by American group Eagle-Picher Industries (co-owner since 1971) in November 2021. Renamed Diehl Energy Products, the company produces thermal batteries used for military applications, in particular the production of missiles and anti-torpedo systems.
- ▶ In March 2022, Diehl Defence entered into a partnership with Sovereign Missile Alliance, a joint venture equally owned by Australian groups Electro Optic Systems and Nova Systems, to participate in the Australian Government's Guided Weapons and Explosive Ordnance Enterprise (GWEOE) tender. Presented in July 2021, this programme aims to develop sovereign missile and guided munitions production capabilities for the Australian Armed Forces and has a budget of AUD1bn (€628M).

Home market

- ▶ As a key supplier to the German Armed Forces, Diehl Defence expects to benefit from the country's increasing military spending to strengthen its position in its domestic market, where it generated 48% of its sales in 2021.
- ▶ Diehl Defence and Hensoldt strengthened their cooperation in air defence systems in April 2022. The two groups are working on a new version of the IRIS-T SLM, called IRIS-T SLX, with extended capabilities against air targets (range up to 80 km and altitude up to 30 km), which is to be offered to the German Armed Forces by the end of 2022.

Export markets

- ▶ Diehl Defence export sales grew by 4.6% to €341m in 2021 (representing 52% of total turnover) and exceeded sales in Germany for the third year in a row.
- ▶ In December 2021, the Hungarian Armed Forces ordered IRIS-T missiles as part of the MS20 Block II modernisation programme for the Air Force's JAS 39 Gripen (Saab) fighter aircraft. The Hungarian Gripen fleet consists of 14 aircraft delivered in 2006-2007.
- ▶ The German government authorised several arms contracts with Egypt in December 2021, including the sale of 16 IRIS-T SLM missiles supplied by Diehl Defence. 7 missiles were reportedly delivered in April 2022.
- ▶ Diehl Defence signed a contract with an unspecified African country in May 2022 for the supply of its High-Power Electromagnetic (HPem) SkyWolf anti-drone system.

Technology and Innovation

- ▶ Diehl Defence's R&D investments are mainly focused on the development of the next generation of RBS15 anti-ship missiles alongside Saab, as well as the modernisation of the RIM-116 Rolling Airframe Missile (RAM) system alongside Raytheon Technologies and MBDA.
- ▶ At Eurosatory 2022, Diehl Defence presented a new version of its IRIS-T air-to-air missile. Designated Iris-T FCAAM (Future Combat Air-to-Air Missile), this short-range missile is designed for the future Franco-German-Spanish NGF fighter aircraft (FCAS programme) and is notably equipped with a targeting system that uses artificial intelligence algorithms.



ELBIT SYSTEMS

Israel's main defence group, world leader of helmet-mounted sights and displays for aircraft pilots. 31th-largest defence contractor worldwide.

BUSINESS AREAS

- Systems integrator/equipment supplier
- ▶ Military aircraft and helicopter systems
 - ▶ Unmanned systems
 - ▶ C4ISR systems
 - ▶ Electro-optic systems, EW and SIGINT
 - ▶ Land systems and artillery systems
 - ▶ Cybersecurity
 - ▶ Simulation and training

GOVERNANCE

Chairman	M. Federmann
Chief Executive Officer	B. Machlis
General Manager of Airborne Systems	Y. Shmueli

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	ESLT
Listed on	TASE and NASDAQ
Market Cap (ILSm)	28 037

Major shareholders (as of 15.11.2022)

Michael Federmann	44,20%
1832 Asset Management LP	5,03%
Clal Pension & Provident Funds Ltd.	4,62%
Phoenix Provident Fund Ltd.	4,32%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
AEL Sistemas	75%	Brazil
UAV Tactical Systems (U-Tacs)	51%	United Kingdom
Collins Elbit Vision Systems	50%	United States
Opgal-Optronic Industries	50%	Israel
Adani Elbit Advanced Systems India	49%	India
Halbit Avionics	26%	India

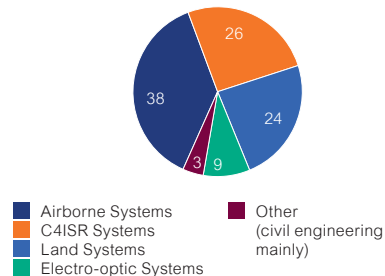
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 119	4 025	4 083	4 462
Δ (%) [\$/]**	9,06%	22,38%	3,42%	13,21%
Defence (%)	97%	97%	97%	96%
Export (%)	80%	76%	76%	79%
Operating profit/loss	248	287	285	354
Operating margin	7,95%	7,13%	6,99%	7,93%
Net income**	175	203	208	232
Order book	8 209	8 931	8 985	12 057
Employees	16 149	16 575	16 676	17 787

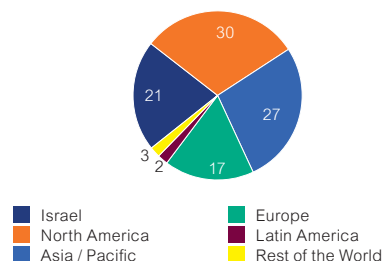
*Variation based on revenue in U.S. dollars
See €/\$, p.7

**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



ELBIT SYSTEMS

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Boeing	Thales	Diehl Defence	UAC*	Collins Aerospace**	Adani	Kraiken Robotics	Embraer	Lockheed Martin	Leonardo	IAI
Aircraft systems and equipments												
Avionic systems (F-16I, MiG-21, MiG-29)				●				●				
Modernisation projects (F-5, F-16, MiG-21, MiG-29, Su-25, C-130, Mi-8/17)				●				●			●	
F-35 Gen III Helmet Mounted Display System (HMDS) (F-35)					●			●				
Joint Helmet-Mounted Cueing System (JHMCS) (F-15, F-16, F/A-18)		●			●			●				
Helmet Display and Tracking System (HDTs) ANVIS/HUD (helicopters)	●	●						●		●		
Unmanned systems												
Hermes (45, 450, 900, 900 StarLiner) family of UAVs			●			●						
Skylark (I-LEX, 3, C) family of small UAVs												
Seagull Unmanned Surface Vehicle (USV)							●			●		
C4ISR systems												
Weapon-integrated Battle Management System (WinBMS)												
Tadiran and E-Lynx tactical radio and communication systems												
CoMPASS (MicroCoMPASS, DCoMPASS) and SPECTRO XR electro-optic payloads												
SkEye Wide Area Persistent Surveillance (WAPS)												
Electronic warfare												
J-MUSIC Directed IR Countermeasures (DIRCM) system	●	●		●				●	●	●		
Land systems and artillery systems												
RCWS, DRWS, UT30 and UT30 MK2 remote weapon stations												
ATMOS 155 mm self-propelled howitzer												

*United Aircraft Corporation, Rostec group **Raytheon Technologies group (merger of Raytheon and UTC) *** Israel Aerospace Industries

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Elbit Systems revenues reached \$5.3bn (€4.5bn) in 2021, up 13.2% year-on-year in U.S. dollar terms, 96% of which from defence activities. The Airborne Systems branch was the group's main growth driver (+21.6% year-on-year in U.S. dollars), thanks to sales of aerial guided munitions.
- ▶ Elbit Systems established a subsidiary in the United Arab Emirates in November 2021 to support the group's local sales and organise potential technology transfers to UAE companies.
- ▶ The group completed the sale of its shares in Ashot Ashkelon Industries to the FIMI Opportunity Funds investment fund for \$84m (€75m) in June 2022. The company supplies components for the aerospace industry (engine shafts, transmissions, gearboxes, landing gear components, etc.).
- ▶ Elbit Systems teamed with Swiss company SWISSto12 in July 2021 to develop antennas for the Israeli group's naval electronic warfare programmes. SWISSto12 will bring its expertise in 3D printing of products for radio-frequency applications for the aerospace and defence industries.

Home market

- ▶ The Israeli market accounted for 21% of Elbit Systems' business in 2021. The group strengthened its positions in its home market with the acquisition of Israeli weapons manufacturer IMI Systems in 2018.
- ▶ In May 2022, the Israeli Directorate of Defense Research and Development (DDR&D) and Elbit Systems unveiled the « Edge of Tomorrow » programme. This project aims to strengthen the synergy between dismounted soldiers and their teams through the Soldier as System (SAS) and Platoon as System (PAS) approaches. This project requires the integration of several technologies under the umbrella of Elbit Systems, in particular the C2 TORCH-X combat management system, augmented reality goggles, a computerised assault rifle system, a digital head-mounted display system, etc.

Export markets

- ▶ Exports accounted for 79%, or \$4.2bn (€3.5bn), of the group's sales in 2021. Elbit Systems alone accounts for around 40% of Israeli arms exports by value.
- ▶ In December 2021, Elbit Systems announced it had signed a \$350m (€296m) contract with an undisclosed international customer to supply land systems for three years.
- ▶ In December 2021, the Brazilian Air Force ordered 2 Hermes 900 UAVs from AEL Sistemas, a Brazilian subsidiary of Elbit Systems, with delivery within 16 months.
- ▶ At the end of 2021, Elbit Systems delivered 12 ATMOS wheeled self-propelled howitzers (155 mm calibre) and 15 M125A2 armoured vehicles equipped with Cardom mortars (120 mm calibre) to the Philippine Armed Forces. The latter announced the delivery of 20 Sabrah ASCOD 2 light tanks in 2022 and 10 Sabrah Pandur II 8x8 armoured vehicles in 2023 (Revised Armed Forces Modernisation Programme Horizon 2, RAFFMP).
- ▶ Elbit Systems announced in June 2022 that it had won a contract worth \$548m (€489m) over four years to provide multi-domain networked combat capabilities to the Armed Forces of an unspecified Asia-Pacific country. Especially, the group will provide its TIGER-X middleware, an airborne, naval and land C2 suite based on the TORCH-X combat management system, E-LynX software radios, etc.
- ▶ In July 2022, Elbit Systems announced the signing of a \$660m (€589m) contract with an unspecified European country for the supply of intelligence systems.

Technology and Innovation

- ▶ Elbit's R&D expenditure, 88% of which was self-financed, amounted to \$448m (€379m) in 2021, representing 8.5% of revenues.



FINCANTIERI

Among the leading European players in naval defence and world's main cruise shipbuilding group, 48th-largest defence company worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military vessels and commercial ships
- ▶ Offshore (drilling units, offshore support vessels)
- ▶ Naval systems (propulsion systems, platform systems)
- ▶ Maintenance and services

GOVERNANCE

Chairman	C. Graziano
Chief Executive Officer	P. Folgiero
General Manager Naval Vessels	D. Deste

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018*	2019	2020	2021
Revenue	5 416	5 849	5 879	6 911
Δ (%)	7,89%	7,99%	0,51%	17,55%
Defence (%)**	24%	23%	21%	23%
Export (%)	83%	82%	87%	87%
Operating profit/loss	285	153	148	289
Operating margin	5,26%	2,62%	2,52%	4,18%
Net income***	72	-141	-240	22
Order book	25 524	28 590	27 781	25 819
Employees	19 274	19 823	20 150	20 774

*Figures restated

**Naval vessels revenue, 2020 figure restated

***Net income attributable to shareholders

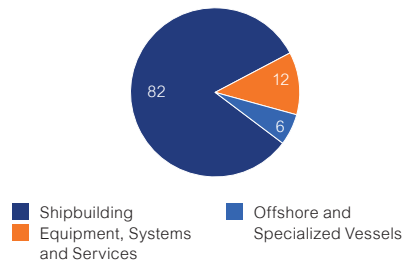
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	FACT
Listed on	Borsa Italiana
Market Cap (€m)	939

Major shareholders (as of 15.11.2022)

Italian State	71,30%
Cassa Nazionale di Previdenza ed Assistenza per gli Ingegneri	2,20%
The Vanguard Group, Inc.	0,77%
Dimensional Fund Advisors LP	0,41%

REVENUE BY BUSINESS SEGMENT (%)*

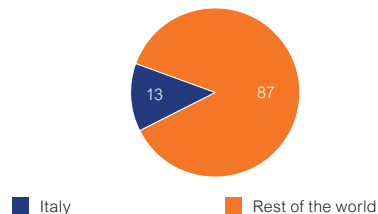


*Excluding revenue from Other activities division

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Vard Holdings	98,33%	Singapore
Marinette Marine	87,44%	United States
Centro per gli Studi di Tecnica Navale Cetena	86,1%	Italy
Orizzonte Sistemi Navali	51%	Italy
Naviris	50%	Italy
Etihad Ship Building	35%	UAE

REVENUE BY REGION (%)



FINCANTIERI

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	tkMS*	MAN	Leonardo	Gibbs & Cox**	Lockheed Martin	Naval Group	Chantiers de l'Atlantique	GE Aerospace***	Rolls-Royce	LMG Marin	MTU Aero Engines	Electronica	Wartsila
Surface ships													
Cavour aircraft carrier			●				●				●	●	
Trieste Landing Helicopter Dock (LHD)	●	●						●			●		
San Giorgio-class Landing Platform Dock (LPD)			●								●	●	
Constellation-class future guided-missile frigate (FFG-62 program)				●			●						
FREMM Bergamini-class multi-purpose frigate			●		●		●				●		
Freedom-class LCS frigate				●	●			●					
Multi-Mission Surface Combatant (MMSC) frigate				●	●								
Doha-class guided-missile corvette			●										
PPA Thao ni Revel-class multi-purpose Offshore Patrol Vessel (OPV)	●	●					●			●	●		
Jan Mayen-class coastguard vessel									●				
Vulcano-class Logistic Support Ship (LSS)	●	●									●		
BRF logistic support and refuelling ship (FlotLog programme)****					●	●							
Submarine													
Todaro-class conventionally-powered attack submarine (U212 design under tkMS licence)	●		●							●			
Propulsion and guidance systems													
Shaft lines and propellers													
Propulsion systems													
Fin stabilizers													
Turbines													
Rudder roll governance and stabilisation systems													

*Thyssenkrupp Marine Systems, thyssenkrupp group **Subsidiary of Leidos ***Formerly GE Aviation ****Based on Italian Navy's Vulcano-class LSS

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Fincantieri revenues increased sharply (+17.6%) to €6.9bn in 2021, mainly supported by its Offshore and Specialised Vessels division (+23.6%). After two consecutive years of losses, the group once again made a profit (€22m, or 0.3% of revenue), notably following the restructuring of its Norwegian subsidiary Vard (closure of the Aukra and Brevik shipyards).
- ▶ Defence revenues grew by 38.2% to €1.7bn (before intra-group eliminations). During fiscal year 2021, Fincantieri delivered seven military vessels, including two Freedom-class LCS frigates to the U.S. Navy, one FREMM multipurpose frigate to Egypt, one Doha corvette to Qatar and one Vulcano tanker to Italy.
- ▶ In May 2022, Pierroberto Folgiero replaced Giuseppe Bono as Chief Executive Officer. The group's Board of Directors, which was completely renewed, is now chaired by Claudio Graziano.
- ▶ In December 2021, Fincantieri and Naval Group, through their joint venture Naviris, signed an agreement with Spanish shipbuilder Navantia to cooperate on the European Patrol Corvette (EPC) or Modular Multirole Patrol Corvette (MMPC) military programme. The programme was jointly launched with France at the end of 2019. It is supported by the European Defence Agency with a €60m funding and is overseen by Italy. Other countries (Spain, Greece, Denmark and Norway) subsequently joined the programme.

Home market

- ▶ With nine shipyards and over 10,600 employees in Italy, Fincantieri is the prime contractor for the Italian Navy's main programmes (surface ships, special vessels, submarines under German licence, naval systems, etc.). However, the group generates a small share of its sales on its domestic market (less than 13% in 2021).
- ▶ In November 2021, the Italian Coast Guard ordered a UAM (Unità d'Alta Multi ruolo) multirole offshore patrol vessel from a consortium between Fincantieri and the Italian shipyard Cantiere Navale Vittoria. The contract, worth around €80m, includes the first vessel and an option for two additional units.
- ▶ Fincantieri signed a €410m contract with OCCAr in December 2021 to supply the Italian Navy with a second Vulcano-class logistic support and refuelling ship, to be delivered in 2025. The contract includes an option for a third vessel.
- ▶ In January 2022, Fincantieri launched the construction of the first of two U212 NFS (Near Future Submarine) conventional submarines ordered by the Italian Navy in early 2021, with delivery respectively scheduled for 2027 and 2029.
- ▶ Fincantieri delivered the first Thacon di Revel-class Pattugliatori Polivalenti d'Alta (PPA) multipurpose offshore patrol vessel and launched the fourth unit. The Italian Navy's modernisation programme, launched in 2015, includes the supply of 7 vessels to be delivered by 2026.

Export markets

- ▶ Export sales accounted for around 87% of the group's revenues in 2021. Through its subsidiaries Marinette Marine and Vard, the group is well positioned in the United States and Northern Europe (Nordic countries, Ireland).
- ▶ Fincantieri laid down the Landing Platform Dock (LPD) amphibious ship ordered by Qatar under a contract signed in 2016. The ship is scheduled for delivery in 2024.
- ▶ In June 2022, the U.S. Navy awarded Marinette Marine a \$536m (€480m) contract to build the third of ten Constellation-class multi-mission guided-missile frigates (FFG-62 programme, formerly FFG(X)).

Technology and Innovation

- ▶ The group's total R&D expenditure amounted to €155m in 2021, representing 2.2% of revenues.



FNSS

Joint venture between Turkish family-owned conglomerate Nuro! Holding and BAE Systems.
One of Turkey's leading producers of armoured vehicles.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Armoured tracked and wheeled vehicles
- ▶ Combat support and specialised vehicles
- ▶ Unmanned land vehicles
- ▶ Turrets and remote controlled weapon stations
- ▶ Support services

GOVERNANCE

Chief Executive Officer	Kadir Nail Kurt
Assistant General Manager	Douglas Jackson

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	303	335	227	163
Δ (%)*	94,48%	23,34%	-14,23%	-6,02%
Defence (%)	100%	100%	100%	100%
Export (%)	≈ 80%	N/A	N/A	≈ 10%
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	1 024	999	984	976

*Variation based on revenue in local currency
See € / TRY, p.7

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted groupe
Market Cap	

Major shareholders (as of 15.11.2022)

Nuro! Holding	51%
BAE Systems	49%

REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES*

Name	%	Country
------	---	---------

REVENUE BY REGION (%)



*No information available

**MAIN PROGRAMMES, COOPERATIONS
AND EXPORT PARTNERSHIPS**

	PT Pindad	Aselsan	Delftech*	John Cockerill	General Purpose Vehicles
Tracked armoured vehicles					
Kaplan family of tracked armoured vehicles					
Kaplan MT/Harimau tracked armoured vehicle	●			●	
MAV (Marine Assault Vehicle) amphibious vehicle	●				
ACV-15 (Armoured Combat Vehicle) amphibious vehicle		●	●		
Wheeled armoured vehicles					
Pars family of amphibious armoured vehicles			●		●
Combat support and specialised vehicles					
AACE (Armoured Amphibious Combat Earthmover) vehicle					
OTTER amphibious crossing system					
Unmanned ground vehicles					
Shadow Rider UGV					
Turrets and remote controlled weapon stations					
SABER and TEBER families of turrets					
ARCT (Anti-tank Remote Controlled Turret), CAKA and SANCAK remote controlled weapon stations					
Support services					
Turkish Army's ACV-15 tracked armoured vehicles modernisation		●			

*DRB-HiCOM Defence Technologies

STRATEGIC HIGHLIGHTS

Business trends

- ▶ FNSS' turnover reached TRY 1,717m (€163m) in 2021, down 6% in local currency.
- ▶ As one of Turkey's leading producers of armoured vehicles, along with Otokar and BMC, FNSS has delivered more than 4,000 vehicles since its creation. The group has established itself as one of the preferred suppliers to the Turkish Armed Forces, notably with the ACV-15 (about 2,300 units in service in Turkey), the Kaplan 10 and the Pars (208 and 236 units ordered respectively between 2016 and 2021).
- ▶ FNSS also sets up cooperation or technology transfer agreements to win contracts abroad, such as the partnerships with PT Pindad in Indonesia and Deftech in Malaysia.
- ▶ BAE Systems has held a 49% stake in FNSS since the takeover of the American group United Defense in 2005. FNSS is integrated into the Platforms & Services (US) branch of the British group.

Home market

- ▶ FNSS is a major supplier to the Turkish Ministry of Defence and is expected to benefit from the country's increased military spending in the coming years. Turkey is particularly interested in developing its capabilities in land systems, in order to reduce its dependency on arms imports and strengthen the country's strategic autonomy.
- ▶ In October 2020, Turkey launched a modernisation programme for the ACV-15 tracked armoured vehicles. The vehicles will notably be equipped with Aselsan's NEFER remote controlled turret, armed with a 25 mm automatic cannon and a 7.62 mm or 12.7 mm machine gun.
- ▶ FNSS signed a contract with the Turkish Ministry of Defence in May 2021 to supply 84 additional armoured vehicles for the ATV (Anti-Tank Vehicles) programme, including 60 Pars wheeled vehicles and 24 Kaplan tracked vehicles. Delivery of these new vehicles is scheduled to begin in 2023.

Export markets

- ▶ Traditionally, FNSS achieved most of its revenues from exports, but the situation recently reversed as a result of the global health crisis and the completion, in 2021, of two major contracts in Malaysia and Oman. The group aims to achieve a balanced distribution by 2025, notably by targeting new markets such as South America and Central Asia.
- ▶ In August 2020, FNSS completed the delivery of 172 Pars III 6x6 and 8x8 wheeled armoured vehicles (in 13 different configurations) ordered by the Royal Army of Oman in 2015. The group will also provide support and maintenance services for the vehicles through the construction of a dedicated facility in Oman.
- ▶ In early 2021, FNSS announced the signing of two contracts with the Philippine Ministry of Defence for the supply of AACE (Armoured Amphibious Combat Earthmover) vehicles, turrets and services (integration, logistical support, etc.). Deliveries are scheduled to be completed in March 2023.
- ▶ In March 2022, FNSS and Malaysian company Deftech teamed up to participate in Malaysia's tender for up to 400 wheeled armoured vehicles. The two players, which market FNSS' Pars 4x4 and 6x6 vehicles, are expected to compete with Iveco Defence Vehicles, Hyundai Rotem, PT Pindad and General Dynamics Land Systems Canada.
- ▶ FNSS is partnering with PT Pindad to potentially produce AAAV (Armoured Amphibious Assault Vehicle) amphibious vehicles, based on FNSS' MAV amphibious tracked vehicle, for the Indonesian Navy.

Technology and Innovation

- ▶ FNSS strengthens its investments in unmanned ground vehicles (UGVs) and plans to present new prototypes in the coming years.



GE AEROSPACE (EX-GE AVIATION)

One of the world's leading manufacturers of engines for civil and military aircraft and ships, 34th-largest defence contractor, and parent company of Italian engine manufacturer Avio Aero

BUSINESS AREAS

Engine manufacturer, systems integrator/
equipment supplier

- ▶ Propulsion systems (fighter aircraft, transport aircraft and helicopter engines, gas turbines)
- ▶ Aircraft systems and equipment (avionics, structures)
- ▶ Support services and maintenance solutions

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018**	2019**	2020	2021
Revenue	25 881	29 353	19 301	18 014
Δ (%) / \$)*	13,15%	7,55%	-32,95%	-3,32%
Defence (%)***	13%	13%	21%	19%
Export (%)	59%	59%	49%	55%
Operating profit/loss	5 465	6 082	1 076	2 436
Operating margin	21,11%	20,72%	5,58%	13,52%
Net income	N/A	N/A	N/A	N/A
Order book	195 220	243 317	212 235	267 821
Employees	≈ 48 000	≈ 52 000	≈ 40 000	≈ 40 000

*Variation based on revenue in local currency
See €/\$, p.7

**Figures restated

***Military division only

GOVERNANCE

Chairman & CEO	H. Lawrence Culp
President, Military Systems Operation	Amy Gowder
President, Aviation Systems	Brad D. Mottier

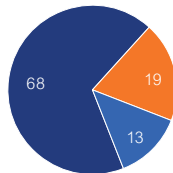
OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted division
Market Cap	

Major shareholders (as of 15.11.2022)

General Electric	100%
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REVENUE BY BUSINESS SEGMENT (%)

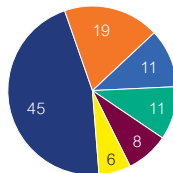


- Commercial Engines & Services
- Military
- Systems & Other

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Advanced Ceramic Coatings	50%	United States
CFM International	50%	United States
GE Aerospace / Woodward	50%	United States
TUSAS Engine Industries	46,2%	Turkey
NGS Advanced Fibers	25%	Japan

REVENUE BY REGION (%)



- United States
- Europe
- China
- Africa and Middle East
- Asia (excl. China)
- Americas (excl. United States)

GE AEROSPACE (EX-GE AVIATION)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Hanwha Aerospace*	Safran	MTU Aero Engines	IHI Corporation	IPP Aero	GKN Aerospace	TransCanada Turbines	Leonardo DRSS**	StandardAero	TAE Aerospace	Navantia	HAL***
Aircraft engines												
XA-100 future adaptive cycle engine												
F404 (F/A-18C/D Hornet, T-50, T-7A Red Hawk, JAS-39 Gripen C/D)	●					●				●		
F414 (F/A-18E/F, EA-18G, JAS-39 Gripen E/F, Tejas Mk II, KF-X)		●		●	●					●		
F108/CFM56-7B (737 AEW&C, P-8A Poseidon)		●										
F110 (F-16C/D, F-16E/F, F-15, F-15EX)	●	●	●			●			●			
F138/CF6 (C-5M, KC-10, E-767, A310 MRTT)		●										
Helicopter engines												
T901 future turboshaft engine (AH-64, UH-60)												
T408 (formerly GE38) (CH-53K)			●									
T700/CT7 (UH-60, AH-64, NH90, Surion)	●			●	●							
UAS propulsion system												
Catalyst engine (European MALE RPAS)												
Gas turbines												
GE LM2500 (FREMM, Arleigh Burke, Cavour, Vikrant, Independence, Constellation)	●		●	●		●	●	●			●	●
GE LM500 (PKX-A, PKX-B, Izumo)	●			●								
Systems and aerostructures												
Landing gear systems (X-47B, T-38)												
Pylons (P-8A Poseidon)												
External fuel tanks (F/A-18, Eurofighter Typhoon)												
Refuelling probes (A400M Atlas)												

*Hanwha group **U.S. subsidiary of Leonardo ***Hindustan Aeronautics Ltd

GE AEROSPACE (EX-GE AVIATION)

STRATEGIC HIGHLIGHTS

Business trends

- ▶ GE Aerospace is the largest branch of U.S. conglomerate General Electric (GE), accounting for 28.7% of its consolidated revenue and 23.8% of its total workforce in 2021. It is the world's leading supplier of engines for commercial aircraft (through CFM International, its joint venture with Safran) and is one of the world's top three engine manufacturers for military aircraft, alongside Rolls-Royce and Pratt & Whitney.
- ▶ After a 33% drop in 2020, GE Aerospace's revenues continued to decline in 2021, falling by 3.3% in local currency to \$21.3bn (€18.0bn). The group's activity was still affected by the health crisis, particularly through disruptions in its supply chain.
- ▶ In November 2021, General Electric announced plans to split into three independent, publicly traded companies, comprising respectively its activities in aeronautics (Aerospace branch), health (Healthcare branch) and energy (Renewable Energy and Power branches). The demerger of the latter two entities is planned for early 2023 (with GE retaining a 19.9% stake in its former Healthcare branch) and early 2024 respectively. At the end of this process, GE will be refocused on its aeronautical activities, including the defence activities which are mainly concentrated in the Military division of its Aerospace branch.
- ▶ During the third quarter of 2022, GE Aviation was renamed GE Aerospace to signal its intention to expand its activities beyond aircraft engines.

Home market

- ▶ GE Aerospace generated 45% of its sales in the United States in 2021. The military engine business remains heavily reliant on orders from the U.S. Department of Defense.
- ▶ In October 2021, GE Aerospace was selected by the U.S. Air Force as the sole engine manufacturer for the F-15EX Eagle II (Boeing) fighter aircraft fleet. The contract, worth a potential \$1.58bn (€1.34bn), includes seven options for a total of 329 engines to be delivered through June 2031. The branch signed an initial contract worth \$137m (€116m) to supply a batch of 29 F110 engines for the F-15EX, to be delivered from October 2023.
- ▶ GE Aerospace is continuing to develop the T901 turboshaft engine (ITEP programme, won in 2019 against ATEC, a joint venture between Pratt & Whitney and Honeywell), which will power the U.S. Army's future attack helicopters. The branch announced the start of the test phase for the first engines.

Export markets

- ▶ Most of GE Aerospace's export sales relate to civil engines, mainly in Europe and Asia. In Europe, GE Aerospace owns, among others, Italian aerospace company Avio Aero (supplier of engine components, resulting from the acquisition of Avio's aviation business, finalised in 2013 - the Avio group being since refocused on its space activities) and the British engineering company Dowty Propellers, a manufacturer of propeller blades.
- ▶ In January 2022, a consortium consisting of Avio Aero, Leonardo and Lockheed Martin signed a €380m contract with the Italian Air Force to provide technical and logistical support services for the Italian C-130J Super Hercules transport aircraft fleet for five years.
- ▶ In March 2022, Airbus selected Avio Aero's Catalyst engine (against Safran's Ardiden 3TP engine) to power the European MALE RPAS UAV (Eurodrone). The programme covers the supply of 120 engines and maintenance services. As the European Commission required sovereignty guarantees, in particular to grant the planned subsidies (€100m), Avio Aero confirmed that production will be carried out in Europe and that the engine will not be subject to the U.S. Administration's ITAR regulations.

Technology and Innovation

- ▶ Self-financed R&D expenditure amounted to \$664m (€561m) in 2021, representing 3.1% of total revenues.



GENERAL ATOMICS

Family-owned group, a leading player in the global UAV market (MQ-9 Reaper, MQ-1C Gray Eagle, MQ-9B SkyGuardian). Operates in the defence, space and nuclear energy sectors.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Unmanned aircraft systems
- ▶ Radars, sensors
- ▶ Electromagnetic aircraft launch and recovery systems
- ▶ Weapon systems
- ▶ Satellite and space systems
- ▶ Nuclear engineering (fusion and fission technologies)

GOVERNANCE

Chairman & CEO

James N. Blue

CEO GA-ASI

Linden P. Blue

Chief Financial Officer

Liam Kelly

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	≈ 2 440	≈ 2 979	N/A	≈ 2 649
Δ (%)	N/A	N/A	N/A	N/A
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	≈ 15 000	≈ 15 000	≈ 15 000	≈ 15 000

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

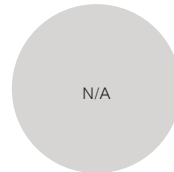
Market Cap

Major shareholders (as of 15.11.2022)

Blue Family

100%

REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
ConverDyn	50%	United States
TRIGA International	50%	United States

REVENUE BY REGION (%)



GENERAL ATOMICS

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Cobham	Lockheed Martin	Northrop Grumman	BAE Systems	Leonardo	Raytheon Technologies*	Huntington Ingalls Industries**	GKN Technologies**	Aerospace	QinetiQ	Honeywell	SABCA***
Unmanned aircraft systems												
MQ-20 Avenger / Predator C UCAV	●				●							
MQ-9A Reaper / Predator B UCAV				●	●	●	●				●	
MQ-9B SkyGuardian et SeaGuardian ISTAR MALE UAVs	●			●	●		●					●
MQ-1C Gray Eagle et Gray Eagle Extended Range (GE-ER) MALE UAVs	●	●	●		●							
Future Mojave reconnaissance and close air support STOL UAV												
Ground control stations												
Legacy GCS, STORM GCS and Advanced Cockpit GCS												
Radars, sensors												
Lynx multi-mode radar												
Highlighter Gen I and Highlighter Gen II airborne electro-optical sensors												
Claw 3 integrated sensor payload control and analysis software							●					
Aircraft launch and recovery systems												
Electromagnetic Aircraft Launch System (EMALS)						●					●	
Advanced Arresting Gear (AAG)						●					●	
Weapon systems												
High Energy Liquid Laser Area Defense System (HELLADS)	●											
Power systems												
Lithium-ion Fault Tolerant (LiFT) battery systems	●											

*Merger of Raytheon and UTC **Merger of L3 Technologies and Harris Corporation ***Orizyo group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ A privately held company, wholly owned by the Blue family, General Atomics regularly makes acquisitions to integrate new technologies into its solutions. In 2021, for example, General Atomics acquired the rights and production site for the Dornier 228 NG (New Generation) multirole aircraft from RUAG International. In June 2022, General Atomics announced plans to relaunch production of the aircraft, with the first unit to roll off the assembly line in 2024.
- ▶ In May 2022, General Atomics opened a new office in Ottawa, Canada, to support its proposal in response to a Canadian government tender for the acquisition of armed UAVs (Remotely Piloted Aircraft Systems, RPAS).

Home market

- ▶ General Atomics is a key supplier to the U.S. government. For example, the group is expected to supply MQ-1C Gray Eagle MALE UAVs worth \$103m (€87m) to the U.S. Army by December 2023. However, U.S. drone requirements are changing and the U.S. Air Force may stop purchases of MQ-9A Reapers in the near future, as they may no longer be suitable against new threats.
- ▶ General Atomics is also involved in the U.S. Navy's Gerald R. Ford-class aircraft carrier programme as a supplier of Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG) systems. These systems are in service on the first unit of the class (CVN-78) and are being installed on the next two sisterships (CVN-79 and CVN-80).
- ▶ In May 2022, the U.S. Space Force awarded a contract to General Atomics to produce a weather satellite prototype with infrared optronic sensors as part of the Electro-Optical Infrared Weather System (EWS) programme to replace the Defense Meteorological Support Program (DMSP) satellites. This prototype is to be launched in 2024.

Export markets

- ▶ The group's export strategy is constrained by the U.S. Administration's ITAR regulations and Missile Technology Control Regime (MTCR). Most sales are made under the FMS (Foreign Military Sales) programme and mainly offer unweaponized systems. Western European countries are among the target markets for General Atomics, whose MQ-9A UAV is operational in the British, Spanish, French and Italian Armed Forces.
- ▶ The French Ministry of Armed Forces announced in July 2021 that it had ordered six new MQ-9A Reaper Block 5 UAVs from General Atomics and the upgrading of six MQ-9A Reaper Block 1 UAVs ordered in 2013 to the Block 5 standard, for delivery in March 2024. These UAVs might be armed with missiles and guided bombs and will be equipped with an electromagnetic intelligence capability.
- ▶ In December 2021, the American Defense Security Cooperation Agency made a determination approving a possible sale to France, under the FMS programme, of an EMALS electromagnetic catapult system and an AAG advanced arresting system, which the French Navy would like to install on its future next-generation aircraft carrier (PA-NG), for an estimated amount of €1.17 bn.
- ▶ General Atomics delivered an MQ-9B SeaGuardian UAV to Japan in October 2022 and may sign several export contracts in the coming months, in particular with Greece (MQ-9B SeaGuardian UAVs in STOL version) and Poland (MQ-9A Reaper UAVs).

Technology and Innovation

- ▶ In May 2022, General Atomics presented a light airborne UAV, called Eaglet, which can be operated from another UAV and is intended for ISR missions over the battlefield, allowing the carrier UAV to stay clear of enemy air defence.



GENERAL DYNAMICS

Diversified defence group (surface ships, submarines, armoured vehicles...) with commercial aerospace activities. Fifth-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial aircraft (Gulfstream, Jet Aviation)
- ▶ Naval (surface ships and submarines)
- ▶ Armoured vehicles
- ▶ Weapon systems, artillery systems, ammunition
- ▶ C4ISR
- ▶ IT solutions and cybersecurity

GOVERNANCE

Chairman and CEO	Phebe N. Novakovic
Executive VP Marine Systems	Robert E. Smith
Chief Financial Officer	Jason W. Aiken

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	GD
Listed on	NYSE
Market Cap (\$m)	67 814

Major shareholders (as of 15.11.2022)

Capital Research & Management Co.	11,40%
Longview Asset Management LLC	11,00%
Evercore Trust Company, NA (Invst Mgmt)	7,91%
The Vanguard Group, Inc.	7,30%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Defense Munitions International	50%	United States
GR Dynamics	50%	United States
Range Generation Next	50%	United States
EuroTrophy	N/A	Germany
GD Mission Systems Middle East	N/A	UAE

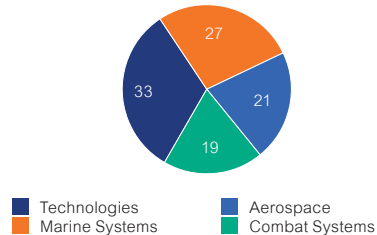
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	30 646	35 134	33 209	32 518
Δ (%) / \$7*	16,85%	8,72%	-3,62%	1,43%
Defence (%)	62%	62%	66%	67%
Export (%)**	22%	19%	18%	18%
Operating profit/loss	3 721	4 080	3 619	3 519
Operating margin	12,14%	11,61%	10,90%	10,82%
Net income	2 832	3 111	2 773	2 753
Order book	59 276	77 422	72 933	77 312
Employees	105 600	102 900	100 700	103 100

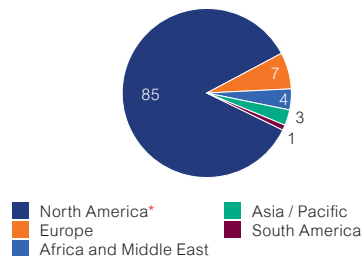
*Variation based on revenue in local currency
See €/\$, p.7

**Excluding foreign military sales

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)*



*Including foreign military sales

GENERAL DYNAMICS

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Rafael	Thales	Hill	Northrop Grumman	Raytheon Technologies**	Lockheed Martin	L3Harris Technologies***	Honeywell	BAE Systems	Leonardo	Austal USA	VAI
Aeronautics												
Gulfstream multi-mission jets												●
Surface ships												
Zumwalt-class (DDG-1000) destroyer		●		●	●			●				
Arleigh Burke-class (DDG-51) destroyer		●		●	●			●				
Submarines												
Columbia-class ballistic missile submarine		●	●									
Virginia-class nuclear-powered attack submarine		●	●					●				
Armoured vehicles												
Abrams M1A1, M1A2 et M1A2C main battle tanks	●							●		●		
Future Mobile Protected Firepower light tank												
Ajax armoured fighting vehicle		●		●	●							
Stryker armoured infantry fighting vehicle				●	●					●		
Piranha family of armoured infantry fighting vehicles												
LAV family of light armoured vehicles				●								
Weapon and artillery systems, ammunition												
SAMSON remote controlled weapon station	●											
70 mm Hydra-70 family of rockets												
Mission systems and C4ISR												
Bowman C4I system and Morpheus future system				●		●		●	●			
Warfighter Information Network-Tactical (WIN-T)				●	●	●		●				
Open architecture computing infrastructure (OPEN CI) (LCS frigates)												●

*Huntington Ingalls Industries **Merger of Raytheon and UTC ***Merger of L3 Technologies and Harris Corporation

STRATEGIC HIGHLIGHTS

Business trends

- ▶ General Dynamics revenues reached \$38.5bn (€32.5bn) in 2021, up 1.4% year-on-year in local currency. The Marine Systems branch was the most dynamic (+5.5%), driven by shipbuilding activities for the U.S. Navy (Columbia-class SSBNs, Arleigh Burke-class destroyers, John Lewis-class refuelling tankers, etc.).
- ▶ The group has a very diversified portfolio of defence activities (67% of total revenues in 2020) through its multiple subsidiaries: surface ships and submarines (Electric Boat, Bath Iron Works), armoured vehicles (General Dynamics Land Systems-GDLS), weapons, artillery systems and ammunition, cybersecurity, etc. The Aerospace branch, however, is predominantly civilian-oriented (12% of defence turnover only in 2021).
- ▶ In March 2022, General Dynamics European Land Systems (GDELS), KMW (KNDS Group) and Rafael established the company EuroTrophy for the production in Germany of the Trophy (Rafael) Active Protection System (APS) for armoured vehicles. The company will also provide integration and support services for the Trophy system and will be responsible for its marketing in Europe.

Home market

- ▶ The United States remain General Dynamics' largest market, accounting for 82% of total revenues in 2021. The U.S. Department of Defense alone accounted for 56% of revenues in 2021.
- ▶ Construction of the USS Patrick Gallagher, the 77th Arleigh Burke-class destroyer (DDG-127), began in March 2022 at the Bath shipyard (Maine). The ship is expected to be delivered to the U.S. Navy during 2023.
- ▶ The only remaining player in the bid for the U.S. Army's Mobile Protected Firepower light armoured vehicle programme following the elimination of BAE Systems in March 2022, General Dynamics was selected in June 2022 to produce 96 units for \$1.14bn (€1.02bn), with a first delivery planned for December 2023. Up to 504 vehicles could be ordered.
- ▶ In July 2022, General Dynamics Mission Systems signed a \$273m (€244m) contract with the U.S. Navy to develop, produce and integrate the fire control system for the Royal Navy's second and third Columbia-class SSBNs and third Dreadnought-class SSBN by July 2028.
- ▶ In July 2022, General Dynamics Electric Boat was awarded a \$698m (€623m) contract by the U.S. Navy to complete the overhaul of the USS Hartford, a Los Angeles-class submarine (SSN-768), by October 2026.

Export markets

- ▶ The group generated 18% of its revenues from exports in 2021 (without FMS programmes), mostly via its subsidiaries GDLS Europe (GDELS), which has a solid base in continental Europe (Germany, Austria, Denmark, Spain, Czech Republic, Romania and Switzerland), and General Dynamics UK (United Kingdom).
- ▶ In autumn 2021, South Korea selected GDELS' M3 Amphibious Bridge crossing system, to be produced under licence by Hanwha Defense (55 units of the systems dubbed M3K to be delivered by 2027). The U.S. Army also authorised the supply of the M3 system to Latvia.
- ▶ In December 2021, Santa Bárbara Sistemas (a subsidiary of GDELS) began production of the 348 units planned of the VCR 8x8 Dragón wheeled armoured vehicles for the Spanish Army.
- ▶ In July 2022, the U.S. Army awarded a \$1.15bn (€1.03bn) contract to General Dynamics for the supply of 250 M1A2 SEP-v3 Abrams tanks to the Polish Army under the FMS programme, with deliveries starting in 2025.

Technology and Innovation

- ▶ Self-financed R&D expenditure amounted to \$415m (€351m) in 2021, representing 1.1% of the group's revenues.



HENSOLDT

Defence electronics group majority-owned by the German State and Italian group Leonardo. 58th-largest defence company worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Radar systems
- ▶ Defence electronics
- ▶ Optronics
- ▶ Communications and display systems
- ▶ Identification Friend or Foe (IFF) systems

GOVERNANCE

Chairman of the Supervisory Board	Johannes P. Huth
Chief Executive Officer	Thomas Müller
Chief Financial Officer	Christian Ladurner

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	1 110	1 114	1 207	1 474
Δ (%)	3,06%	0,36%	8,35%	22,12%
Defence (%)	≈ 95%	≈ 95%	≈ 95%	≈ 95%
Export (%)	55%	57%	50%	43%
Operating profit/loss	22	62	69	126
Operating margin	1,98%	5,57%	5,72%	8,55%
Net income*	-61	6	-65	63
Order book	2 261	2 202	3 424	5 092
Employees	4 457	5 461	5 605	6 316

*Net income attributable to shareholders

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	HAG
Listed on	XETRA
Market Cap (€m)	2 331

Major shareholders (as of 15.11.2022)*

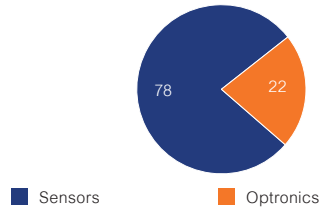
German State	25,10%
Leonardo S.p.A.	25,10%
Lazard Asset Management LLC	5,50%
Wellington Management International	3,90%

*KKR divestment completed in April 2022

MAIN JOINT VENTURES AND ASSOCIATES

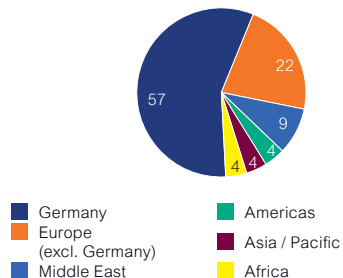
Name	%	Country
DEGFA	66,67%	Germany
Hensoldt Cyber	51%	Germany
Euro-ART International EWIV	50%	Germany
Atlas Optronics	49%	UAE
SCAFSE	49%	Algeria
Euro-ART Advanced Radar Technology	25%	Germany
EuroMIDS	25%	France

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations

REVENUE BY REGION (%)*



*Revenue distribution based on total sales excluding eliminations

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	Indra Sistemas	Leonardo	BAE Systems	Lockheed Martin	Electronica	Safran	Rohde & Schwarz	Diehl Defence	Madses	ESG
Radar systems											
Captor-E Mk1 AESA radar (Typhoon)		●	●								
PrecISR and ASR air surveillance radars											
Counter Battery Radar (COBRA)	●				●						
TRS-3D and TRS-4D naval radars	●										
Defence electronics											
Defence electronics of the NGF future fighter aircraft (FCAS programme)	●	●						●	●		●
Praetorian Defensive Aids Sub-System (DASS) (Typhoon)		●	●	●		●					
European MALE RPAS' future ISTAR solution	●	●				●					
Airborne Missile Protection System (AMPS)											
MILDS and MILDS-F missile warning systems											
Advanced Laser Threat Alerting System (ALTAS)											
Kalaetron family of radar warning receivers											
Future Multifunctional Self-protection System 2.0 (MUSS 2.0) for armoured vehicles											
Optronics											
European MALE RPAS' Euroflir 610 future multispectral optronical targeting and observation system						●				●	
SETAS optronic system for armoured vehicles											
Communication and display systems											
MIDS Low Volume Terminals (MIDS-LVT)	●	●	●								
Identification Friend or Foe (IFF) systems											
MSR 1000 I and MSSR 2000 I IFF interrogators			●								

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Hensoldt revenues reached €1.5 billion in 2021 (+22.1% year-on-year), of which around 95% from defence activities.
- ▶ The American investment fund KKR sold 25.1% of Hensoldt's shares to the Italian group Leonardo in January 2022 and completed its divestment in the following months. The German state also acquired 25.1% of Hensoldt's capital in May 2021.
- ▶ In March 2022, the Hensoldt Cyber subsidiary entered into a partnership with Beyond Gravity (formerly RUAG Space) to work on cybersecurity for satellites. Hensoldt Cyber will provide its Trentos operating system for Beyond Gravity's Lynx satellite computer.
- ▶ Hensoldt and Diehl Defence announced that they have been working since April 2022 on a new version of Diehl Defence's IRIS-T SLM medium-range air defence missile, called IRIS-T SLX with extended capabilities (range up to 80 km and altitude up to 30 km). Hensoldt already supplies the TRML 4D and Twinvis radars for the IRIS-T SLM.

Home market

- ▶ A major supplier to Germany's Armed Forces, Hensoldt generates a growing share of its revenues on its domestic market (57% in 2021, +7 points over one year).
- ▶ In August 2021, Germany's Federal Office of Bundeswehr Equipment (BAAINBw) selected Hensoldt to improve the performance of the Praetorian DASS self-protection system of the Typhoon fighter aircraft (Eurofighter). This project is aimed at boosting the R&D carried out within the EuroDASS consortium (Hensoldt, Leonardo, Elettronica and Indra Sistemas) on the new Praetorian eVolution (eVo) concept, as part of the Eurofighter Long Term Evolution programme.
- ▶ In January 2022, Hensoldt signed a contract worth over €50m with Kta Naval Systems, a joint venture between tkMS and Kongsberg, to supply six systems, each consisting of OMS 150 / OMS 300 optronic masts and an i360°OS3 panoramic surveillance system, to equip the six Type 212CD submarines jointly ordered by Norway and Germany from tkMS in March 2021.
- ▶ In April 2022, Hensoldt signed a contract worth more than €100m with Thales for the supply of the TRS 4D naval radar for the German Navy's future F126 multi-mission frigates (4 ships to be delivered by 2031 and 2 units optional). The first deliveries of the radars, which will be integrated by Thales, are scheduled for 2025.

Export markets

- ▶ More than half of export sales (43% of the group's total revenues in 2021) are generated in Europe.
- ▶ In September 2021, Hensoldt won a contract worth tens of millions of euros to supply COMINT systems to two unspecified NATO countries. These radio communications monitoring and analysis systems can be installed in armoured vehicles or carried by foot soldiers.
- ▶ In July 2022, OCCAr exercised an option for the supply of an additional 20,000 MIKRON night vision systems to the German Armed Forces, to be delivered by the third quarter of 2024. The systems will be produced by the Hensoldt Theon NightVision joint venture, established in February 2022 by Hensoldt and Belgian company Theon Sensors.
- ▶ In July 2022, Elta Systems (a subsidiary of Israel Aerospace Industries) awarded several contracts amounting to approximately €10m to Hensoldt to supply MSR 1000 I and MSSR 2000 ID IFF interrogators, which will be integrated on civil and military radars (for air defence) of several countries.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €31m in 2021 (2.1% of turnover).



HINDUSTAN AERONAUTICS LTD (HAL)

Indian state-owned company mainly operating in military aviation. Prime contractor for the LCA Tejas national fighter aircraft programme, and 42nd defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer, engine manufacturer and systems integrator

- ▶ Fighter, advanced training and light transport aircraft
- ▶ Helicopters
- ▶ Aerostructures and components
- ▶ Avionics
- ▶ Propulsion systems
- ▶ Maintenance repair and operations

GOVERNANCE

Chairman & CEO	R. Madhavan
Director of the MiG Complex	D. Maiti
Director of the Helicopter Complex	S. Anbuvelan

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	HAL, 541154
Listed on	NSE, BSE
Market Cap (INR bn)	897

Major shareholders (as of 15.11.2022)

Indian State	75,20%
Life Insurance Corporation of India	7,72%
HDFC Asset Management Co. Ltd. (Invnt Mgmt)	3,93%
Nippon Life India Asset Management Ltd. (Invnt Mgmt)	1,01%

MAIN JOINT VENTURES AND ASSOCIATES

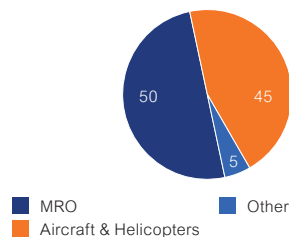
Name	%	Country
HATSOFF Helicopter Training	50%	India
Safran HAL Aircraft Engines	50%	India
TATA-HAL Technologies	50%	India
BAeHAL Software	49%	India
Indo Russian Aviation	48%	India
SAMTEL HAL Display Systems	40%	India

KEY FIGURES (Fiscal year ended: March 31st)

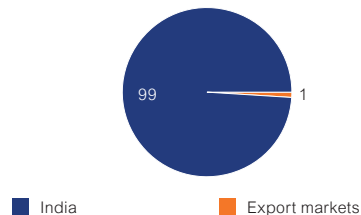
€ millions	2018-19	2019-20	2020-21	2021-22
Revenue	2 448	2 694	2 583	2 814
Δ (%) <i>[INR]*</i>	8,41%	7,10%	5,38%	8,91%
Defence (%)	94%	90%	93%	93%
Export (%)	2%	1%	1%	1%
Operating profit/loss	462	500	493	604
Operating margin	18,88%	18,55%	19,09%	21,47%
Net income	290	361	374	588
Order book	7 538	6 389	9 397	9 765
Employees	28 345	27 384	26 432	25 412

*Variation based on revenue in local currency
See €/INR, p.7

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



HINDUSTAN AERONAUTICS LTD (HAL)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	Safran	General Atomics	Dassault Aviation	BAE Systems	Boeing	Airbus	Elbit Systems	GE Aerospace*	Rolls-Royce	UAC**	UEC**
Military aircraft												
Future Advanced Medium Combat Aircraft (AMCA)								●				
LCA Tejas Mk1/Mk1A fighter aircraft	●						●	●				
Su-30 MKI*** fighter aircraft	●						●			●	●	
HTT-40 trainer aircraft												
Hawk*** trainer aircraft and Hawk i future trainer aircraft				●					●			
Do-228*** surveillance and patrol aircraft		●										
Military helicopters												
Light Utility Helicopter (LUH) single-turbine multirole helicopter		●										
Prachand (LCH) twin-turbine multirole helicopter		●										
Dhruv and Rudra**** twin-turbine multirole helicopters		●										
Cheetah***/Cheetal***** and Chetak***/Chetan***** multirole helicopters		●				●						
Aircraft modernisation												
Mirage 2000 fighter aircraft	●		●									
Jaguar DARIN-III*** fighter aircraft												
Aerostructures												
Weapons bay doors (F/A-18E/F, P-8I)						●						
Propulsion systems												
AL-31FP*** turbojet engine (Su-30 MKI)												●
HTSE-1200 future turboshaft engine (LUH, Prachand, Dhruv and Rudra)												
Ardiden 1H1*** (Prachand, Dhruv) and Artouste III B*** (Cheetah, Chetak) turboshaft engines		●										
Cryogenic propellant tanks for space launchers												

*Formerly GE Aviation **Rostec group ***Sub-licensed production ****Armed version of Dhruv *****Re-engined versions

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Hindustan Aeronautics Ltd (HAL) revenues reached Rs 24,362 crores (€2.8bn) in 2021-2022 (fiscal year ended March 31st), up 8.9% year-on-year in local currency. According to the group, HAL produced 44 aircraft, including Do-228 (sub-licensed), LCA Tejas aircraft and Dhruv helicopters, and 84 new engines during the year. The group also completed maintenance operations on 203 aircraft and 478 engines.
- ▶ The group is mainly a pure defence player. HAL's know-how was mainly acquired from Russian and European providers through technology transfer agreements. The company should also benefit from India's recovery plan, called « Atmanirbhar Bharat », which includes gradual import bans for about a hundred items of military equipment by the end of 2022.
- ▶ HAL and Israel Aerospace Industries, which were already partners, signed a letter of intent in October 2022 to lease, operate and maintain aerial drones for the Indian Armed Forces.

Home market

- ▶ The group remains highly dependent on its domestic market (99% of sales during fiscal year 2021-2022).
- ▶ In March 2022, the Indian government approved the acquisition of 15 Prachand helicopters (LCH, based on the Dhruv) for the Indian Air Force and the Indian Army. The contract value is Rs 3,887 crores (€465m), plus Rs 377 crores (€44m) for infrastructure construction.
- ▶ In October 2022, the Indian Air Force awarded HAL a contract worth Rs 6,826 crores (€817m) for the supply of 70 HTT-40 trainers.
- ▶ In September 2022, the Indian government's Cabinet Committee on Security (CCS) granted HAL a budget of Rs 6,500 crores (€818m) to proceed with the LCA Tejas Mk2 (or Medium Weight Fighter) programme's development, flight testing and certification. The aircraft's first flight is scheduled for 2023 or 2024 and delivery of the first four prototypes by 2027. The Indian Air Force could order over a hundred aircraft.
- ▶ Doubts remain about the number of fighter jets that India will actually order following the Multi-Role Fighter Aircraft (MRFA) programme tender. The initial target was 114 aircraft for the Indian Air Force (18 imported and 96 assembled in India), for a budget of Rs 150,000 crores (€18bn). The Indian Air Force could acquire a first batch of 54 aircraft, including 18 bought off the shelf and 36 assembled in India, and then order additional aircraft at a later date. HAL will be the key partner for the winner of the tender, which includes Boeing, Dassault Aviation, the Eurofighter consortium, Lockheed Martin, Saab and UAC.

Export markets

- ▶ In January 2022, HAL signed a contract to supply a Dhruv helicopter in an upgraded Mk III version to Mauritius. India is participating in the financing of this contract through a \$100m (€85m) loan granted in early 2021, to foster the sale of Indian-made equipment.
- ▶ In April 2022, HAL signed a contract with the Nigerian Army for the second phase of flight training for six officers on the Chetak helicopter (70 flight hours per person) until December 2022. The first phase of the training was completed in December 2021.

Technology and Innovation

- ▶ Having steadily increased since fiscal year 2018-2019, the group's R&D expenditure reached Rs 1,967 crores (€227m) in 2021-2022, representing 8.1% of revenue.
- ▶ In March 2022, HAL launched the manufacture of the first parts (leading edge of the wing) of the prototype of the future AMCA fighter aircraft, whose first flight is announced in 2025 and production start-up in early 2030. In 2018, HAL withdrew from a project with Russian aircraft manufacturer UAC to develop a 5th-generation fighter aircraft based on the Su-57, with India favouring domestic production of the AMCA.



HONEYWELL INTERNATIONAL

Commercial and military provider (mainly propulsion systems). 23rd-largest defence contractor worldwide.

BUSINESS AREAS

Engine manufacturer, systems integrator/
equipment supplier

- ▶ Commercial and military aerospace (propulsion systems, avionics, wheels, brake systems)
- ▶ Defence electronics and ISR systems
- ▶ Protection solutions
- ▶ Infrastructures, energy
- ▶ Healthcare, pharmaceutical industry

GOVERNANCE

Chairman and CEO Dariusz Adamczyk

CEO Honeywell Aerospace Mike Madsen

Chief Financial Officer Greg Lewis

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	HON
Listed on	NYSE
Market Cap (\$m)	144 213

Major shareholders (as of 15.11.2022)

The Vanguard Group, Inc.	8,55%
SSgA Funds Management, Inc.	4,85%
Massachusetts Financial Services Co.	2,98%
Evercore Trust Company, NA (Invst Mgmt)	2,93%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Honeywell TAECO Aerospace (Xiamen)	65%	China
ATEC	50%	United States
Integrated Guidance Systems	50%	United States
ITEC	50%	United States
LHTEC	50%	United States

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	35 395	32 776	28 579	29 072
Δ (%) /\$*	3,13%	-12,18%	-11,09%	5,38%
Defence (%)**	11%	14%	18%	15%
Export (%)	56%	55%	52%	52%
Operating profit/loss	5 677	6 117	4 988	5 241
Operating margin	16,04%	18,66%	17,45%	18,03%
Net income***	5 728	5 485	4 185	4 685
Order book	21 703	22 807	21 002	24 432
Employees	114 000	113 000	103 000	99 000

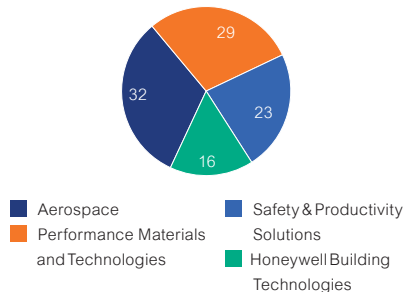
*Variation based on revenue in local currency

See €/\$, p.7

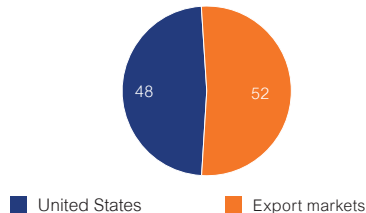
**Defense and Space activity of the Aerospace division

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



HONEYWELL INTERNATIONAL

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Rolls-Royce	Lockheed Martin	AIDC*	Raytheon Technologies**	PT Dirgantara Indonesia	Turkish Aerospace	KHI***	HAL****
Propulsion systems and Auxiliary Power Units (APU)								
T55 turboshaft engine (CH-47)								●
CTS800 turboshaft engine (AW159 Wildcat, T129 ATAK, T625 Gökbey)	●				●			
F124/F125 turbofan engines (M346 Master, L-159 Alca, F/A-259 Striker)			●					
TPE331 turboprop engine (MQ-9 Reaper, HTT-40, NC-212i)				●				●
AGT1500 gas turbine (M1 Abrams)								
36-150 APUs family (AH-64, UH-60, CH-47)								
G230 and G250 APUs (F-35, F-22)								
Avionics and navigation systems								
Enhanced Ground Proximity Warning System (EGPWS)								
Embedded GPS/INS (EGI)								
Weather radar systems								
RDR-4000/7000 weather radar systems								
Security and maintenance								
Health and Usage Monitoring System (HUMS)								
Control actuation system								
CAS and FCA directional steering control systems for missiles and GMLRS	●			●				
TVC steering control system for launch vehicles and spacecraft	●							
Satellite communication systems								
JetWave satellite communication system								

*Aerospace Industrial Development Corp. **Merger of Raytheon and UTC ***Kawasaki Heavy Industries ****Hindustan Aeronautics Ltd

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Honeywell revenues reached \$34.9bn (€29.1bn) in 2021, up 5.4% year-on-year in local currency. All three of the group's civil divisions reported higher sales: Safety and Productivity Solutions (+20.6%), Honeywell Building Technologies (+6.7%) and Performance Materials and Technologies (+6.3%). On the other hand, revenues of the Aerospace (aviation and defence) branch, which was affected by the downturn of the civil aviation market in 2020, continued to decline in 2021 (-4.5%).
- ▶ Honeywell signed several letters of intent in March-April 2022: with Spanish company SAPA Palencia to develop electric propulsion systems for military land platforms, with Qatari companies Barzan Holdings and Gulf Helicopters for the maintenance of Honeywell-supplied equipment for the Qatar Emiri Air Force's F-15QA Strike Eagle fighter aircraft, and with Malaysian companies Airod Techno and Galaxy Aerospace for, respectively, the maintenance of the 85 series auxiliary power unit of the Royal Malaysian Air Force's C-130 Hercules transport aircraft, and the supply of spare parts for the Malaysian Army Aviation's AW139 helicopters.

Home market

- ▶ In 2021, Honeywell generated 48% of its revenues in the United States. Sales to the U.S. Department of Defense amounted to \$3.2 bn (€2.7 bn), or 62% of the group's defence business.
- ▶ Under multi-year contracts, Honeywell is involved in the maintenance and modernisation of various equipment for the U.S. Army. The group is in particular in charge of updating its T55 turboshaft engine that powers the U.S. Army's CH-47 Chinook helicopters.
- ▶ In the first half of 2022, Boeing and Sikorsky (a Lockheed Martin subsidiary) selected Honeywell's HTS7500 turboshaft engine, derived from the T55, and the 36-150 series auxiliary power unit to power their Defiant X helicopter, which was competing in the U.S. Army's Future Long-Range Assault Aircraft programme. However, in December 2022, the U.S. Army selected the V-280 Valor helicopter offered by Bell (Textron).

Export markets

- ▶ In 2021, 52% of Honeywell's sales came from exports. 40% of production is located outside the United States, mainly in Europe and Asia (but only 15% in the Aerospace division).
- ▶ Operational maintenance services are key drivers of export sales, and are supported by engine production licences and partnerships, for example with Japan's KHI (for the T55 engines of the CH-47 JA helicopters, also built by KHI), Turkey's Turkish Aerospace (for the CTS800 engines of the T129 ATAK and T625 Gökbey helicopters) and Taiwan's AIDC (for the F125 engines of the F-CK-1 Ching-kuo multirole combat aircraft).
- ▶ In June 2022, the German government selected Boeing's CH-47F Chinook helicopter for its STH (Schwerer Transporthubschrauber) programme to acquire 60 heavy-lift transport helicopters. Honeywell and Rolls-Royce Deutschland will be involved in the propulsion part of the programme.

Technology and Innovation

- ▶ Honeywell's self-financed R&D expenditure amounted to \$1.33bn (€1.13bn) in 2021, representing 3.9% of the group's revenues.
- ▶ In December 2021, Honeywell began a two-year test period of its new T55-GA-714C turboshaft engine, intended to power the CH-47 Chinook helicopter. The new 6,000 shp engine offers 23% more power and 8% less fuel consumption than the current version of the T55 (T55-GA-714A).



INDRA SISTEMAS

Company with civil and military activities, leader in the Spanish defence electronics market, involved in the FCAS programme, and 90th-largest defence contractor worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Defence and security (air defence systems, radar systems, defence electronics, surveillance systems, C4ISR systems)
- ▶ Transportation
- ▶ Energy and Industry
- ▶ Financial Services
- ▶ Public and Health sectors
- ▶ Telecom and media

GOVERNANCE

Non-executive Chairman
Chief Executive Officer

Marc Murtra
Ignacio Mataix

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	IDR
Listed on	Bolsa de Madrid
Market Cap (€m)	1 667

Major shareholders (as of 15.11.2022)

Spanish State*	25,2%
Fidelity Management & Research Co.	8,65%
Amber Capital (UK) LLP	5,13%
SAPA Placencia SL	5,00%

*The Spanish State plans to increase its stake to 28% of the capital

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
UTE Indra-Eurocopter	62,5%	Spain
Saes Capital	49%	Spain
Inmize Sistemas	40%	Spain
UTE VCR 8x8	37,94%	Spain
Eurofighter Simulation System	26%	Germany
Euromids	25%	France
A4 Essor	21%	France

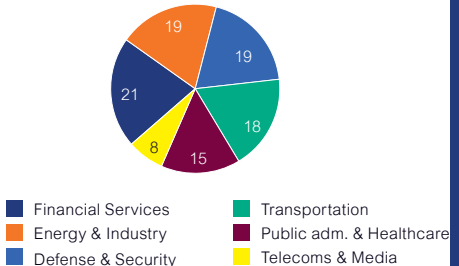
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 104	3 204	3 043	3 390
Δ (%)	3,09%	3,22%	-5,02%	11,40%
Defence (%)*	18%	18%	17%	19%
Export (%)	50%	50%	48%	49%
Operating profit/loss	199	221	-33	256
Operating margin	6,41%	6,90%	-1,08%	7,55%
Net income**	120	121	-65	143
Order book	4 065	4 511	5 229	5 459
Employees	43 707	50 349	49 027	52 083

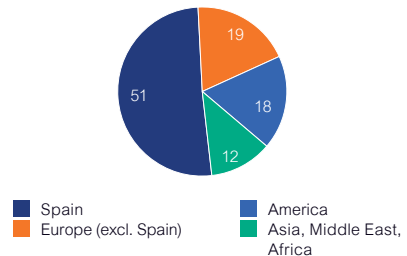
*Defence & Security division

**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Navantia	Hensoldt	Airbus	Dassault Aviation	Lockheed Martin	Electronica	BAE Systems	Santa Bárbara Sistemas*	Leonardo	Boeing	Thales
Defence electronics											
FCAS programme (Sensors pillar, Combat Cloud pillar)		●	●	●							●
InSHIELD DIRCM countermeasure system (A400M)			●								
EuroDIRQM IR countermeasure system					●						
RF ALQ-500 countermeasure system (Spanish F/A-18)											
Praetorian Defensive Aids Sub-System (DASS) (Eurofighter Typhoon)	●				●	●		●			
RIGEL electronic defence system											
C4ISR systems											
Mission system of the future 8X8 DRAGON wheeled combat vehicles							●				
SILVER Battlefield Management System (BMS)											●
ISTAR system for European MALE RPAS	●				●						●
Simulators											
Aircrew Synthetic Training Aids (ASTA) simulator (Eurofighter)											
Transport aircraft simulators (A400M, C130, A330 MRTT)			●								
Helicopter simulators (Tiger, NH90, AW159, Chinook, etc.)		●						●	●		
Radar and sonar systems											
Naval suite for submarines (209/212/214, S-80)	●										
Lanza 3D radar family											
E-Captor and ECRS MK1 AESA radars (Eurofighter Typhoon)		●									
S-Band AESA naval radar (F-100/F-110)	●				●						
X-Band maritime surveillance radar (F-110)	●										

*Spanish subsidiary of General Dynamics

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Indra Sistemas (Indra) revenues rose by 11.4% to €3.4 bn in 2021, driven by solid growth in the Defence and Security division (+22.1%).
- ▶ After months of negotiations, Indra's acquisition of a capital stake in Spanish engine manufacturer ITP Aero has been postponed. Upon completion of the deal, the Spanish players - already owning 15% of the capital of ITP after it was sold by Rolls-Royce to the consortium led by U.S. investment fund Bain Capital in mid-2022 - should finally hold 27.5%. The deadline to form the Spanish shareholding was extended to the end of December 2022.
- ▶ In November 2022, Indra signed an agreement with Leonardo to acquire some activities of its American subsidiary Selex ES (navigation systems for civil and military aircraft).

Home market

- ▶ Indra generated 51% of its revenues in its domestic market in 2021. The group is expected to benefit from increased public support, particularly due to the announced rise in Spain's military spending (up to 2% of GDP in the coming years) and the planned increase in the Spanish state's stake in the group to 28%, via the holding company SEPI.
- ▶ In September 2021, the Spanish Directorate General of Armament and Material (DGAM) awarded Indra a €120m contract to upgrade the Air Force's aerial surveillance network. The group will notably supply fixed and mobile Lanza 3D radars.
- ▶ In December 2021, the Spanish government approved a budget of around €2bn for the Halcón programme to acquire 20 Eurofighter European combat aircraft. Indra is responsible for equipping these aircraft with avionics and sensor systems, including the ECRS Mk1 AESA radar, and the Praetorian DASS self-protection system (contract worth over €80m). At the same time, the maintenance contract for the current fleet of Spanish Eurofighter aircraft was renewed (€100m over 5 years).
- ▶ In January 2022, Indra signed a €35m contract to equip the Spanish Army's CH-47F Chinook helicopters with state of the art electronic warfare systems. Namely, the group will supply the RWR ALR-400FD radar warning system, the InWarner sensor (missile and laser warning) and the DIRCM InShield infrared countermeasure system.
- ▶ At the end of September 2022, the Spanish Ministry of Defence launched a concept of operations study for the Next Generation Weapon System (NGWS) of the Future Combat Air System (FCAS) programme, joined by Spain in early 2019, and notified contracts to several manufacturers, including Indra, Airbus D&S Spain and ITP Aero.

Export markets

- ▶ Indra generated 49% of its sales from exports in 2021, mainly in the civilian sector.
- ▶ In November 2021, the group signed a contract with South Korean shipyard DSME to equip a fourth KSS-III submarine with its Pegaso electronic defence system.
- ▶ In February 2022, Indra was appointed to design the mission system of future European armoured vehicles, as part of the European (EDIDP then EDF) FAMOUS (European Future Highly Mobile Augmented Armored Systems) programme overseen by Patria and involving Nexter (within KNDS) and Arqus. It aims at designing new-generation tracked and wheeled vehicles, which could be operational by the end of the decade.
- ▶ In March 2022, Indra was selected by the French defence procurement agency (DGA) to supply air traffic management systems and 2D PSR radars to the air bases of Dax (Landes) and Solenzara (Corsica). These systems are already in use at the Luc-en-Provence base (Var).

Technology and Innovation

- ▶ The group's R&D expenditure amounted to €293m in 2021, or 8.6% of total revenues.



ISRAEL AEROSPACE INDUSTRIES (IAI)

Second Israel defence group with minor civil activities. Highly export-oriented, mainly to the U.S. market. 37th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Defence electronics
- ▶ Commercial and military aircraft
- ▶ Unmanned systems
- ▶ Missile and air defence systems
- ▶ Naval equipment and platforms
- ▶ Cyber defence
- ▶ Observation and communications satellites

GOVERNANCE

Chairman of the Board Amir Peretz
 President & CEO Boaz Levy
 Executive VP Finance Eran Anchikovsky

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 118	3 668	3 664	3 784
Δ (%) [$\$/$]*	4,60%	11,57%	1,85%	7,00%
Defence (%)	72%	75%	84%	86%
Export (%)	74%	74%	71%	72%
Operating profit/loss	10	108	171	183
Operating margin	0,33%	2,95%	4,66%	4,85%
Net income	-37	80	116	125
Order book	1 790	12 021	10 269	11 827
Employees	14 917	14 922	14 331	13 725

*Variation based on revenue in U.S. dollars
 See €/\$, p.7

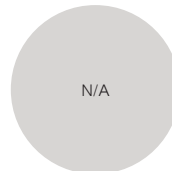
OWNERSHIP STRUCTURE

Symbol	ARSPB1
Listed on	TASE
Market Cap	Unlisted group

Major shareholders (as of 15.11.2022)

Israeli State | 100%

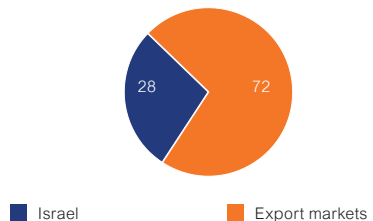
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
D.T.S.	50%	Chile
EAE Aerospace Solutions	50%	Brazil
Pioneer UAV	50%	United States
Tiltan Systems Engineering	30%	Israel
HELA Systems	26%	India

REVENUE BY REGION (%)



ISRAEL AEROSPACE INDUSTRIES (IAI)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Rheinmetall	Boeing	DRDO*	Aero Vodochody	Elbit Systems	L3 MAS**	Honeywell	Embraer	Indra Sistemas	Gulfstream***	Rafael
Defence electronics												
ELL-8212, ELL-8222, ELL-8265, ELL-8260 and ELL-8270 systems for aircraft protection												
Military aircraft												
P600 Airbone Early Warning (AEW) aircraft (radar, electronic systems, etc.)								●				
G550 Oron surveillance aircraft (radar, electro-optical systems, etc.)											●	
F/A-259 Striker light attack aircraft				●								
GPS Anti-Jam Navigation System							●					
Wide Area Surveillance Payload												
Unmanned systems												
Heron TP (Eitan) MALE UAS	●	●				●			●			
Green Dragon, Harop, Harpy and Rotem loitering munition systems												
Missile and air defence systems												
Rampage long range air-to-ground missile					●							
LORA long range surface to surface missile												
Arrow 2 and Arrow 3 missile defence systems and Arrow 4 future system			●		●							
BARAK MX air defence system				●								●
ELM-2084 multi-mission radar		●										
Naval equipment and platforms												
Super Dvora MK3 fast patrol boat												
ELM-2248 and ELM-2258 multi-mission radars												
Space												
Dror 1 future communications satellite												

*Defence Research and Development Organisation (India) **L3Harris Technologies group (merger of L3 Technologies and Harris Corporation)

***General Dynamics group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ IAI revenues reached \$4.5bn (€3.8bn) in 2021, up 7% year-on-year in U.S. dollar terms. Growth was mainly driven by the Systems Missiles & Space and Military Aircraft divisions. The group's military activities grew by approximately 10% year-on-year (in dollars) and accounted for 86% of sales.
- ▶ Announced at the end of 2020, the IPO project for a minority share of the group's capital (presumably 25%), open only to national investors, is awaiting the agreement of the Israeli government.
- ▶ In November 2021, Amir Peretz (former Israeli Defence Minister) was appointed Chairman of the Board of Directors of IAI, following the resignation earlier this year of his predecessor, Harel Locker.

Home market

- ▶ IAI generated 28% of its turnover in its domestic market in 2021. The group is a key partner of the Israel Defense Forces and the second-largest national defence group, behind Elbit Systems and ahead of Rafael.
- ▶ In June 2022, the Israeli Ministry of Defence confirmed an order worth ILS 100m (€28m) for several hundred combat vehicles for the Israeli Special Forces. IAI and its subsidiary ELTA Systems will equip the vehicles, based on commercial models, for military missions, in partnership with Ido Cohen (a manufacturer of all-terrain vehicles acquired by IAI in 2020) and American vehicle manufacturer The Armored Group.

Export markets

- ▶ IAI generated 72% of its sales from exports in 2021.
- ▶ In April 2022, IAI delivered to the Czech Republic the first of 8 ELM-2084 multi-mission radars ordered at the end of 2019 (contract worth \$125m, or €112m).
- ▶ In April-May 2022, IAI signed several contracts to supply the Philippine Navy with Alpha 3D radar systems (in partnership with Hyundai Heavy Industries) and MiniPOP electro-optical systems, which will be integrated on corvettes and patrol boats respectively.
- ▶ In June 2022, IAI delivered additional aerostructure assemblies (wings, vertical fins and fuel tanks) for the F-16 Block 70/72 aircraft and the 200th F-35 aircraft wing to Lockheed Martin. The group is to supply a total of 811 pairs of wings for the F-35, potentially worth more than \$2bn (€1.9bn) by 2034.
- ▶ In June 2022, IAI received a multi-million dollar order from an unspecified Asian country for the supply of Scorpion-SP (Self-Protection) ELL-8222SB airborne jammer pods.
- ▶ In July 2022, IAI signed a contract worth more than \$200m (€188m) with an unspecified European NATO member state for the supply of military aircraft (Special Mission Aircraft). The type of aircraft was not specified but IAI and its subsidiary ELTA Systems offer 4 variants (based mainly on Gulfstream, Beechcraft and Bombardier aircraft): AEW&C (Airborne Early Warning & Control), AGS (Air to Ground Surveillance), MPA (Maritime Patrol Aircraft) and SIGINT (Signal Intelligence).
- ▶ In August 2022, IAI signed a memorandum of understanding with Babcock to supply its Compact Multi Mission Radar (C-MMR) to the British Ministry of Defence, as part of the SERPENS (Next Generation Weapon Locating System) programme. The radar will be partly produced in the UK.
- ▶ In September 2022, IAI signed a contract with an unspecified Asian country for the supply of several dozen DroneGuard ComJam anti-UAV systems produced by its subsidiary ELTA Systems.

Technology and Innovation

- ▶ IAI's self-financed R&D expenses amounted to \$204m (€172m) in 2021, representing 4.6% of revenues.



IVECO DEFENCE VEHICLES

Subsidiary of the Iveco group, specialised in military vehicles (armoured tracked and wheeled and logistic vehicles).

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military vehicles (light multirole vehicles, armoured and amphibious vehicles)
- ▶ Civil security vehicles

GOVERNANCE

CEO of Iveco Group Gerrit Marx

CEO Iveco Defence Vehicles Claudio Catalano

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	292	356	366	475
Δ (%)	-13,28%	21,83%	2,69%	29,95%
Defence (%)	100%	100%	100%	100%
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	2	-13	3	24
Operating margin	0,62%	-3,68%	0,83%	4,99%
Net income	-6	-19	-3	11
Order book	N/A	N/A	N/A	N/A
Employees	838	814	809	843

OWNERSHIP STRUCTURE

Symbol

Listed on Unlisted subsidiary

Market Cap

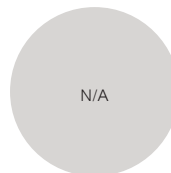
Major shareholders (as of 15.11.2022)

Iveco Group* | 100%

**Group incorporated under Dutch law with headquarters in Amsterdam (Netherlands) and main site in Turin (Italy).*

Iveco Group's majority shareholder (27,1%) is Exor, a Netherlands based investment company controlled by the Agnelli Family.

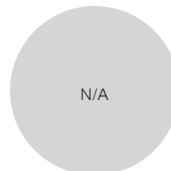
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Consorzio Iveco Oto-Melara	50%	Italy

REVENUE BY REGION (%)



IVECO DEFENCE VEHICLES

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Leonardo	BAE Systems	KMW*	Lohr - Soframe	Cristamini	FPT Industrial**
Main battle tank						
Ariete main battle tank	●					
Armoured infantry and fighting vehicles						
Centaurus II and Freccia armoured infantry fighting vehicles	●					
8x8 Superav amphibious armoured vehicle		●				
6X6 VBTP amphibious armoured vehicle						●
4x4/6x6 PUMA light armoured vehicles	●					
4x4 Medium Protected Vehicle (MPV)			●			
4x4 MTV multirole tactical vehicle			●			
Tactical and logistic wheeled vehicles						
8x8 PPT tactical vehicle				●		
Military Utility Vehicle (MUV) and M40.15 WM light range						●
8x8 M1250.70T WM tactical vehicle						●
Trakker and Eurocargo logistic vehicles						
Light multirole vehicles						
Light Multirole Vehicle (LMV/Lynx)		●			●	
Light Multirole Vehicle 2 (LMV 2/Lynx 2)						

*KINDS group

**Iveco group

IVECO DEFENCE VEHICLES

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Iveco Defence Vehicles (IDV) revenues grew by almost 30% in 2021 to €475 million. Financial performance also improved, with net income returning to positive territory after several years of losses.
- ▶ Iveco Defence Vehicles is a wholly-owned subsidiary of the Iveco Group, an entity incorporated under Dutch law which was spun off from the CNH Industrial (CNHI) conglomerate on 1 January 2022 and listed on the Milan Stock Exchange.
- ▶ Iveco Defence Vehicles and the Iveco-OTO Melara (CIO) consortium could suffer from the possible sale of Leonardo's Defence Systems division, which includes OTO Melara (a specialist in armed turrets). Announced in the summer of 2021, the project was nevertheless postponed due to the uncertainties linked to the Russian invasion of Ukraine.

Home market

- ▶ Directly and through the CIO consortium, Iveco Defence Vehicles is a major supplier of land vehicles to the Italian Army, which plans a major acquisition programme for Centauro II and Freccia armoured vehicles, produced by the Iveco-OTO Melara consortium (total value of €2.2bn over the 2020-2032 period), as well as Iveco LMV 2 Lynx multirole vehicles.
- ▶ In January 2021, Iveco Defence Vehicles delivered the first 12 VTLM Lince 2 4x4 tactical vehicles equipped with OTO Melara's Hitrole Light remote weapons station to the Italian Army. 22 vehicles remain to be produced and up to 650 additional vehicles might be ordered.
- ▶ In December 2021, the Iveco - OTO Melara consortium signed a contract with the Italian Secretariat General of Defence for the supply of 46 Freccia Plus armoured vehicles, including 14 Mortar Carrier VBMs (equipped with a 120 mm mortar), 26 Command Post VBMs and 6 rescue and recovery vehicles. The vehicles equipped with a turret will benefit from a new fire control system developed by OTO Melara.

Export markets

- ▶ In order to be less dependent on orders from the Italian Army, Iveco Defence Vehicles targets export markets, mainly in Europe and Brazil but also in the United States via BAE Systems.
- ▶ In January 2021, Germany's Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw) awarded Iveco Defence Vehicles a blanket order for the supply of 1,048 8x8 Trakker heavy duty trucks, with deliveries over the 2021-2028 period. 224 vehicles are expected to be delivered in the first batch.
- ▶ At the end of 2021, Iveco Defence Vehicles delivered to the Brazilian Army the 500th VBTP 6x6 amphibious armoured vehicle produced at the Sete Lagoas plant (Brazil) since 2014, as part of the Guarani programme. At the same time, IDV completed the delivery of the first batch of 32 LMV-BR 4x4 light multirole armoured vehicles (a contract won in 2015 and encompassing the supply of 186 vehicles).
- ▶ Iveco Defence Vehicles is benefiting from the \$169m (€149m) contract awarded to BAE Systems in February 2022 to supply 33 additional amphibious combat vehicles (ACVs) to the U.S. Marine Corps.
- ▶ In March 2022, Iveco Defence Vehicles and Malaysian company Deftech joined forces to open a maintenance centre for IDV's vehicles in Malaysia. These two players are jointly supplying two batches of Eurocargo family trucks to the Malaysian Army (132 and 150 units respectively).

Technology and Innovation

- ▶ At Eurosatory 2022, Iveco Defence Vehicles and Hensoldt displayed a demonstrator of the MUV (Military Utility Vehicle), based on an IDV chassis (maximum payload of 4 tonnes) and equipped with a sensor suite supplied by Hensoldt.



KMW + NEXTER DEFENSE SYSTEMS (KNDS)

Leading European defence land systems group resulting from the 50-50 merger between Germany's KMW and France's Nexter. 40th-largest defence company in the world.

BUSINESS AREAS

System architect-integrator

- ▶ Armoured tracked and wheeled vehicles
- ▶ Artillery and weapon systems
- ▶ Ammunition
- ▶ Defence and security robotics
- ▶ Embedded electronics
- ▶ Simulation and training solutions

GOVERNANCE

Chairman	Philippe Petitcolin
CEO of KNDS	Frank Haun
CEO of Nexter	Nicolas Chamussy
CEO of KMW	Ralf Ketzel

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

Wegmann & Co. GmbH	50%
Giat Industries S.A.	50%

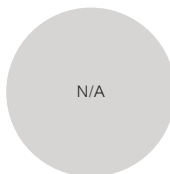
MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Nexter		
CTA International	50%	France
TNS-MARS	37,5%	France
KMW		
Projekt System & Management	50%	Germany
ARTEC	36%	Germany
Milrem Robotics	24,9%	Estonia

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	2 245	2 539	2 409	2 700
Δ (%)	-15,22%	13,10%	-5,12%	12,08%
Defence (%)	100%	100%	100%	100%
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	285	N/A	283	N/A
Operating margin	12,72%	N/A	11,74%	N/A
Net income	205	N/A	183	N/A
Order book	7 800	9 633	10 600	10 700
Employees	7 545	7 873	8 270	8 767

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



KMW + NEXTER DEFENSE SYSTEMS (KNDS)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

■ Joint programmes
■ Nexter ■ KMW

	Arquus	Thales	Safran	Texelis	BAE Systems	Rheinmetall	Elcis Pardubice	Tetra	MAN
Armoured vehicles									
■ Main Ground Combat System (MGCS) future French-German main battle tank					●				
■ VBCI 8x8 infantry fighting vehicle	●								
■ Jaguar 6x6 armoured reconnaissance and combat vehicle	●	●	●						
■ Griffon 6x6 multirole armoured vehicle	●	●	●						
■ Serval 4x4 light multirole armoured vehicle				●					
■ Titus ®* 6x6 multirole armoured vehicle						●	●		
■ Leopard 2 main battle tank					●				
■ Boxer 8x8 infantry fighting vehicle (ARTEC consortium)					●			●	
■ Dingo 2 4x4 family of armoured vehicles									
Artillery and weapon systems									
■ CIFS (Common Indirect Fire System) future French-German artillery system									
■ Caesar 155 mm self-propelled howitzer	●						●		
■ 40 CTAS 40 mm case-telescoped autocannon (CTA International joint venture)					●				
■ PzH 2000 155 mm self-propelled howitzer					●				
■ FLW 100, 200 and 500 remote controlled weapon stations									
Ammunition									
■ Bonus Mk II 155 mm artillery shell					●				
■ KATANA 155 mm guided ammunition									
■ Tank (76, 90, 105 and 120 mm) and medium caliber (20, 25, 30 and 40 mm) ammunition and ground artillery (105 and 155 mm)									
■ Naval artillery ammunition (20, 40, 76, 100 and 127 mm)									

*Rights reserved

STRATEGIC HIGHLIGHTS

Business trends

- ▶ KNDS revenues reached €2.7bn in 2021, up around 12% year-on-year. Despite a drop in new order intake (€2.8bn, compared to €3.3bn in 2020), the group's order book reached a solid €10.7bn at the end of 2021.
- ▶ In March 2022, KMW (subsidiary of KNDS), General Dynamics European Land Systems (GDELS) and Rafael established the company EuroTrophy for the production in Germany of the Trophy (Rafael) Active Protection System (APS) for armoured vehicles and its marketing in Europe.
- ▶ In April 2022, Nexter entered into a strategic partnership with Greek company Hellenic Defence Systems in view to a modernisation programme of the Hellenic Army's armoured vehicles.

Home markets (France, Germany)

- ▶ Launched in May 2020, the System Architecture Definition Study - Part 1 (SADS-1) of the MGCS future French-German main battle tank has been extended until early 2023. Work is ongoing in 2022 to complete the industrial organisation between KNDS (KMW / Nexter) and German group Rheinmetall.
- ▶ Nexter, Arquus and Thales are jointly in charge of the Scorpion programme for the supply of wheeled armoured vehicles to the French Army. A total of 1,872 Griffon VBMR multirole armoured vehicles as well as 300 Jaguar EBRC armoured reconnaissance and combat vehicles will be delivered by 2030, half of which by 2025. More than 400 Griffon and over 30 Jaguar vehicles are expected to be delivered by the end of 2022.
- ▶ In the first half of 2022, the French defence procurement agency (DGA) awarded Nexter several contracts for the production of 356 Griffon armoured vehicles (including 54 in the MEPAC version equipped with a 120 mm mortar) and 88 Jaguar combat vehicles, the launch of the CAESAR phase 2 operation including the development of the new generation (NG) version, the acquisition of 33 new CAESAR NGs and the refurbishment of 76 CAESAR MK1s to the NG standard.
- ▶ In July 2022, in the context of the Russian invasion of Ukraine, the DGA ordered 18 CAESAR 6x6 Mark I artillery systems from Nexter to replace those delivered to Ukraine by France.

Export markets

- ▶ Nexter, alongside Thales and Arquus, will supply 60 Jaguar and 382 Griffon vehicles to the Belgian Army from 2025 in the frame of the CaMo (Capacité Motorisée) programme. This contract includes training, education and maintenance services.
- ▶ The British Ministry of Defence ordered 100 additional Boxer armoured vehicles from ARTEC (a joint venture between KMW and Rheinmetall). The original contract, signed in 2019, provided for the supply of 523 Boxer vehicles in several variants, to be delivered from 2023.
- ▶ After the order of 9 CAESAR 6x6 Mark II artillery systems from Nexter for €62m in May 2022, the Belgian Ministry of Defence announced in June 2022 its will to acquire 19 additional systems. Lithuania also ordered 8 CAESAR Mark II artillery systems in 2022.
- ▶ In July 2022, Germany approved the sale to Ukraine of 100 PzH 2000 155mm self-propelled howitzers supplied by KMW.

Technology and Innovation

- ▶ Nexter is involved in three projects funded under the European Defence Industrial Development Programme (EDIDP) on future 155 mm artillery and ammunition systems (FIRES - Future Indirect FIRes European Solution - and E-COLORSS - European COmmon LOng Range indirect fire Support System - consortia) and the armoured vehicles of the future (FAMOUS - European Future Highly Mobile Augmented Armoured Systems - project).



KONGSBERG

Technology group with civil and military activities, 50% owned by the Norwegian State.
Specialist for RWS and missile systems (NSM, JSM) and 69th-largest defence contractor.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Remote weapon stations (RWS)
- ▶ Missile and air defence systems
- ▶ Combat systems for surface ships and submarines
- ▶ C4ISR and communication systems
- ▶ Systems and equipment for commercial ships
- ▶ Aircraft and space systems (aerostructures, propulsion systems)

GOVERNANCE

Chairman	E. Reiten
Chief Executive Officer	G. Håøy
President Kongsberg Defence & Aerospace	E. Lie

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	KOG
Listed on	Oslo Stock Exchange
Market Cap (NOKm)	67 131

Major shareholders (as of 15.11.2022)

Norwegian State	50,00%
Folketrygdfondet	7,10%
Erik Christian Must	2,44%
MP Pensjon PK	2,04%

MAIN JOINT VENTURES AND ASSOCIATES

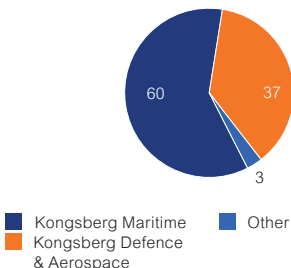
Name	%	Country
Kongsberg Aviation Maintenance Services (formerly AIM Norway)	50,1%	Norway
Kongsberg Satellite Services	50%	Norway
Kta Naval Systems	50%	Norway
Patria	49,9%	Finland
Andøya Space	10%	Norway

KEY FIGURES (Fiscal year ended: December 31st)

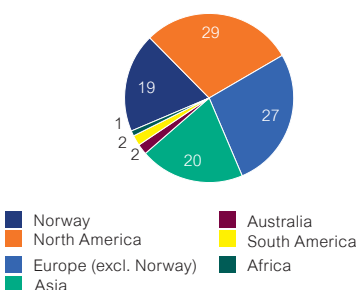
€ millions	2018**	2019**	2020	2021
Revenue	1 439	2 360	2 389	2 701
Δ (%) [NOK]**	N/A	68,36%	10,18%	7,17%
Defence (%)***	44%	31%	33%	37%
Export (%)	N/A	81%	80%	81%
Operating profit/loss	73	104	178	282
Operating margin	5,08%	4,43%	7,44%	10,43%
Net income****	N/A	71	270	212
Order book	1 679	3 279	3 433	4 940
Employees	6 842	10 793	10 689	11 122

*Variation based on revenue in local currency See €/NOK, p.7
Figures restated *Kongsberg Defence & Aerospace division only
****Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	PCZ	Raytheon Technologies*	Northrop Grumman	BAE Systems	Rheinmetall	Marvin Group	Lockheed Martin	Leonardo	Patria	Nammo	HMS
Defence systems												
PROTECTOR family of remote weapon stations (RWS, MCT, Lite)	●		●	●	●					●		
Missile systems												
Penguin anti-ship missile												●
Naval Strike Missile (NSM)	●	●										●
Joint Strike Missile (JSM)		●		●			●					
Air defence systems												
National Advanced Surface-to-Air Missile System (NASAMS)		●							●			
Coastal Defence System (CDS)												
Naval systems												
MCM C2 tactical system												
MSI-90U Mk2 submarine combat management system												●
PROTEUS naval training solutions												
HUGIN Autonomous Underwater Vehicles (AUVs)												
C4ISR and communication systems												
Kongsberg Tactical Communication System (K-TaCS)		●										
NATO Alliance Ground Surveillance (AGS) System Master Archival/Retrieval Facility information (SMARF)			●									
Military aircraft												
F-35 Lightning II fighter aircraft (fuselage parts, main landing gear, JSM carriage)			●		●	●						
MRO (aircraft, helicopters)							●	●	●			

*Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Kongsberg revenues reached 27.4bn NOK (€2.7bn) in 2021, up 7.2% year-on-year in local currency. Sales by Kongsberg Maritime, which is strongly focused on the civil market, rose only 0.9%. Kongsberg Defence & Aerospace recorded solid growth (+18.6%), mostly driven by increased deliveries of NSM / JSM missiles, NASAMS air defence systems (two systems co-developed with Raytheon Technologies) and PROTECTOR remote weapon stations. Kongsberg Defence & Aerospace generated revenues of 10.1bn NOK (€989m) in 2021, accounting for 36.6% of the group's total turnover, and has 3,428 employees.
- ▶ In September 2022, Kongsberg joined forces with Milrem Robotics to develop a Robotic Combat Vehicle (RCV), the Nordic Robotic Wingman, based on the Estonian group's Type-X RCV. Kongsberg will be in charge of developing the vehicle's turret. The two partners aim to market the RCV in the Nordic countries, Western Europe and the United States.
- ▶ In June 2022, Kongsberg and Thales entered into a long-term strategic partnership in the fields of aeronautics, naval systems, land systems, space systems and cyber, including programmes financed by the European Defence Fund.

Home market

- ▶ The group generated 19% of its turnover (5.2bn NOK, or €514m) in its domestic market in 2021, of which 1.7bn NOK (€170m) from defence activities (17.2% of total defence revenues).
- ▶ In July 2021, the German and Norwegian Armed Forces ordered Kongsberg's NSM anti-ship missile for the navies of both countries at a cost of 4.4bn NOK (€433m).
- ▶ In October 2021, the Norwegian Defence Materiel Agency (NDMA) awarded Kongsberg two contracts for the supply of NSM anti-ship missiles for the Royal Norwegian Navy's frigates and corvettes (contract value of 1,426m NOK, or €140m) and JSM cruise missiles for the Royal Norwegian Air Force's F-35A Lightning II fighter aircraft (contract value of 3,950m NOK, or €389m).
- ▶ In June 2022, Kongsberg signed a 267m NOK (€28m) contract with the NDMA to upgrade the combat system of the Royal Norwegian Navy's six Skjold-class corvettes as part of their mid-life modernisation.

Export markets

- ▶ Kongsberg generated 82.8% of its defence sales from exports in 2021. Its main export market is North America (54.0% of defence revenues), ahead of Europe excluding Norway (18.2%).
- ▶ In December 2021, the Estonian Armed Forces ordered the group's PROTECTOR RS4 remote weapon stations as part of their CV9035EE armoured infantry fighting vehicle modernisation programme. This variant is configured to fire the Javelin anti-tank missile. Estonia is the 28th country to order the RWS.
- ▶ In April 2022, Northrop Grumman awarded Kongsberg a subcontract worth 1.4bn NOK (€143m) for the production of composite fuselage panels and hatches for the F-35 Lightning II (Lockheed Martin) programme's production batches 15-20. Deliveries will run until 2027.
- ▶ In June 2022, the Australian Department of Defence awarded Kongsberg an initial contract worth 489m NOK (€51m) for the supply of NSM anti-ship missiles to be integrated on Anzac-class frigates and Hobart-class destroyers from 2024, replacing Boeing's RGM-84 Harpoon missile.
- ▶ Ukraine received its first NASAMS air defence systems in July 2022.

Technology and Innovation

- ▶ Kongsberg Defence & Aerospace's R&D expenditure reached 115m NOK (€11.3m) in 2021, representing 1.1% of the division's revenues.



KOREA AEROSPACE INDUSTRIES (KAI)

Aerospace and defence group, mainly operating in military aviation (T-50 training aircraft, future KF-21 Boramae fighter aircraft). 57th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial and military aircraft
- ▶ Military helicopters
- ▶ Unmanned aerial systems
- ▶ Aerostructures
- ▶ Commercial and military aircraft maintenance and modernisation services
- ▶ Training
- ▶ Space

GOVERNANCE

Chief Executive Officer

Ahn Hyun-ho

Chief Financial Officer

Kim Jung-ho

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	A047810
Listed on	Korea Exchange
Market Cap (KRWbn)	4 459

Major shareholders (as of 15.11.2022)

South Korean State	26,41%
National Pension Service of Korea	10,00%
Hana Financial Investment Co., Ltd. (Private Equity)	4,85%
BlackRock Fund Advisors	1,91%

MAIN JOINT VENTURES AND ASSOCIATES

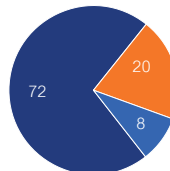
Name	%	Country
KAEMS	66,4%	South Korea
KAI-EC	51%	South Korea

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	2 145	2 383	2 100	1 892
Δ (%) [KRW]*	34,44%	11,63%	-9,16%	-9,30%
Defence (%)	67%	65%	72%	77%
Export (%)	59%	54%	33%	28%
Operating profit/loss	113	211	104	43
Operating margin	5,25%	8,86%	4,94%	2,27%
Net income	44	129	54	39
Order book	14 477	13 037	13 772	13 857
Employees	4 594	4 936	5 028	5 012

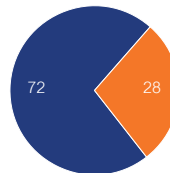
* Variation based on revenue in local currency
See €KRW, p.7

REVENUE BY BUSINESS SEGMENT (%)



■ Domestic business
■ Aerostructure
■ Export of finished aircraft

REVENUE BY REGION (%)



■ South Korea
■ Export markets

KOREA AEROSPACE INDUSTRIES (KAI)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Lockheed Martin	Hanwha Aerospace*	PT Dirgantara Indonesia	Boeing	Hanwha Aerospace	Thales Alenia Space*	Elbit Systems	AAI Corp.**
Military aircraft									
KF-21 Boramae future fighter aircraft***	●	●	●						
KA-1 and FA-50 light fighter aircraft	●								
KT-1 basic trainer aircraft	●								
T-50 advanced trainer aircraft	●	●							
TA-50 lead-in trainer aircraft									
Military helicopters									
Single-turbine future Light Attack Helicopter (LAH)	●	●							
KUH Surion twin-turbine transport helicopter	●	●					●		
Unmanned aerial vehicles									
Night Intruder 600VT (NI-600 VT) future UAV									
Aerostructures									
F-15 fighter aircraft (fuselage, wings) and AH-64 attack helicopter (fuselage)					●				●
F-16 fighter aircraft (fuselage)	●								
Maintenance and modernisation services									
ROKA's UH-60, Lynx and HH-47 helicopters and P-3CK, E-737 AEW&C and C-130H military aircraft maintenance and modernisation									
USAF's F-16 fighter aircraft maintenance	●								
Training solutions									
T-50, TA-50 and FA-50 aircraft simulators									
Space									
Nuri (KSLV-II) launcher		●							
Future observation radar satellites (425 Project)					●	●			

*Hanwha group **Textron group ***KF-X program

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Korea Aerospace Industries (KAI) posted revenues of KRW 2,562bn (€1.9bn) in 2021, down 9.3% in local currency. The group's domestic revenues declined by 3% despite the continuation of various programmes. Still affected by the health crisis, military aircraft exports and aerostructures sales recorded stronger declines over the year (-30% and -18% respectively).
- ▶ However, KAI still ambitions to reach a turnover of KRW 5 trillion (nearly €4bn) by 2025, as was announced in April 2021, meaning a near doubling of revenues over 5 years. To achieve its goal, the group is counting on a gradual revival of military aircraft exports (FA-50 aircraft and KUJH-1 Surion helicopters) and sales of aerostructures for commercial aircraft, thanks to the increase in production rates of Airbus and Boeing.
- ▶ In November 2021, South Korea and Indonesia completed cost-sharing negotiations for the future KF-21 Boramae fighter aircraft programme. Indonesia is to fund 20% of the development costs, estimated at KRW 8.8 trillion (€6.5bn), but has accumulated around KRW 800bn (€600m) in payment arrears since 2017. Under the agreement, South Korea waived approximately KRW 500bn (€370m) in arrears and agreed that 30% of the payments due would be made in kind.

Home market

- ▶ As South Korea's sole aircraft manufacturer, KAI is involved in the main programmes of the Republic of Korea Air Force (ROKAF). The group is in particular in charge of developing the future KF-21 Boramae fighter aircraft (KF-X programme) as well as the future Light Armed Helicopter (LAH).
- ▶ In August 2021, KAI signed a contract worth KRW 49.7bn (€37m) to supply two KUJH-1CG Surion helicopters to the South Korean Coast Guard.
- ▶ In May 2022, KAI sought funding from the South Korean Defense Acquisition Program Administration (DAPA) for the FA-50 light combat aircraft (armed version of the T-50 advanced trainer jet) modernisation programme, in particular to increase the aircraft's range and combat capabilities, for the ROKAF but also for possible export competition.
- ▶ After a first failure in 2021, the Nuri space launcher (KSLV-II), produced by KAI in partnership with other South Korean groups, successfully completed its qualification flight with a dummy payload of 1.5 tonnes in June 2022.

Export markets

- ▶ KAI generated 28% of its revenues from exports in 2021.
- ▶ In November 2021, KAI signed a \$360m (€304m) contract with the Iraqi Ministry of Defence to provide maintenance services for T-50IQ advanced trainer aircraft for three years. The group sold 24 of these aircraft to Iraq in 2013.
- ▶ In April 2022, the Colombian Air Force ordered a 20-aircraft package from KAI for pilot training, consisting of TA-50 advanced trainer and FA-50 Golden Eagle light fighter aircraft, for an estimated \$600m (€555m).
- ▶ In September 2022, the Polish Air Force awarded KAI a \$3bn (€2.8bn) contract for the supply of 48 FA-50PL Golden Eagle light combat aircraft, of which 12 units will be delivered by the end of 2023 and the remaining 36 from 2025.

Technology and Innovation

- ▶ KAI plans to invest KRW 2.2 trillion (€1.6bn) by 2025 in its industrial sites and R&D capabilities to strengthen its technology skills in key areas (drones, electric aircraft, etc.). The space sector, in particular satellite production, should benefit from an investment of KRW 1 trillion (€750m) over five years.



KOREA SHIPBUILDING & OFFSHORE ENGINEERING (KSOE)

Holding company with civil and military activities which gathers three shipyards, including Hyundai Heavy Industries (HHI), one of South Korea's largest military shipbuilders.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial ships
- ▶ Military vessels (surface combatants and submarines)
- ▶ Naval engines and turbines
- ▶ Power and petrochemical plants
- ▶ Offshore plants
- ▶ Civil nuclear energy

GOVERNANCE

Co-Chief Executive Officer and Chairman

Sam-hyun Ka

Co-Chief Executive Officer

Ki-sun Chung

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	009540
Listed on	Korea Exchange
Market Cap (KRWbn)	5 641

Major shareholders (as of 15.11.2022)

HD Hyundai Co. Ltd.	35,05%
National Pension Service of Korea	5,74%
KCC Corporation	3,91%
BAMCO, Inc.	2,52%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Hyundai Heavy Industries	78,02%	South Korea

KEY FIGURES (Fiscal year ended: December 31st)

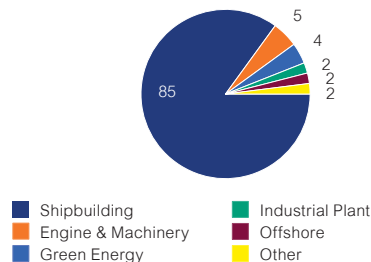
€ millions	2018	2019	2020	2021
Revenue	10 131	11 631	11 076	11 442
Δ (%) [KRW]**	-14,92%	15,36%	-1,84%	3,96%
Defence (%)**	N/A	5%	4%	6%
Export (%)	88%	76%	70%	69%
Operating profit/loss	-371	222	55	-1 023
Operating margin	-3,66%	1,91%	0,50%	-8,94%
Net income***	-376	126	-620	-686
Order book	19 521	21 157	17 496	28 259
Employees	22 443	21 634	20 780	19 990

*Variation based on revenue in local currency
See €KRW, p.7

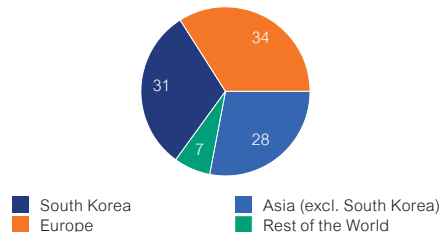
**Naval & Special ships division of Hyundai Heavy Industries

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)*



*Revenue distribution based on total sales excluding eliminations

KOREA SHIPBUILDING & OFFSHORE ENGINEERING (KSOE)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	DSME	Sankang M&T	Hanjin Heavy Industries	tkMS*	Lockheed Martin	GE Aerospace**	Rolls-Royce	Raytheon Technologies***	Thales	Hanwha Systems****	Elta Systems*****	Indra Sistemas*****	Babcock
Surface ships													
Future stealth destroyer (KDDX / KDX-IV)								●		●			
Sejong Daewang-class destroyer (KDX-III)	●			●	●	●	●	●	●	●			
Chungmugong Yi Sun-sin-class destroyer (KDX-II)	●			●	●		●	●	●				
Future Ulsan-class frigate (FFX-III)		●			●			●		●			
Daegu-class frigate (FFX-II)	●				●	●	●			●			
Jose Rizal-class frigate (Philippine Navy)					●				●	●			
HDC-3100 future corvette for the Philippine Navy					●					●	●		
Nampo minelayer								●					
Cheon Wang Bong-class tank landing ship		●						●					
Soyang fast combat support ship													
Aotearoa auxiliary ship (Royal New Zealand Navy)					●								
Hansando training ship													
Sam Bong-class and Tae Pyung Yang-class coast guards ships													
Conventionally-powered attack submarines													
KSS-III Dosan Ahn Chang-ho-class	●							●	●	●			●
KSS-II Son Won-il-class (based on tkMS' Type 214)	●		●					●	●			●	

*Thyssenkrupp Marine Systems (including Atlas Elektronik), thyssenkrupp group

**Formerly GE Aviation

***Merger of Raytheon and UTC

****Hanwha group

*****Subsidiary of Israel Aerospace Industries

STRATEGIC HIGHLIGHTS

Business trends

- ▶ KSOE revenues reached KRW 15,493bn (€11.4bn) in 2021, up 4% year-on-year in local currency. The Shipbuilding division recorded a 6.2% increase during the year. Hyundai Heavy Industries (HHI), the only KSOE shipyard involved in military shipbuilding, posted revenues of KRW 8,311bn (€6.1bn), almost stable compared to 2020.
- ▶ KSOE listed 20.28% of HHI's shares on the Seoul Stock Exchange in September 2021, making the shipyard the 43rd largest market capitalisation on the KOSPI index with KRW 9,980bn (€7.37bn) on the first day of trading. KSOE listed another 1.7% of HHI's shares in May 2022 and since has held only 78.02% of the share capital.
- ▶ In January 2022, the European Commission blocked the planned acquisition by KSOE of its domestic peer DSME. The deal, initiated in 2019, would have granted KSOE a dominant position in the LNG carrier market with a global market share estimated around 70%. The South Korean conglomerate Hanwha, which was not previously involved in shipbuilding, initiated the process of acquiring 49.3% of DSME's capital in the autumn of 2022 and expects to finalise the transaction in the first half of 2023.

Home market

- ▶ HHI is a major supplier to the Republic of Korea Navy, alternating or competing (depending on the programme) with its domestic peer DSME.
- ▶ In turn with DSME, HHI is in charge of the construction of the KSS-III Dosan Ahn Chang-ho-class conventional attack submarines. The Republic of Korea Navy (ROKN) is expected to acquire nine of these submarines by 2029, divided into 3 batches of 3 units each. DSME supplied the first two submarines of the first batch and HHI launched the third unit (SS-086) for sea trials in September 2021, with delivery scheduled for 2024.
- ▶ HHI and DSME also take turns in the construction of eight FFX-II Daegu-class frigates. The third and fourth units (FFG-821 and FFG-822), built by HHI, entered service during 2021, while HHI launched the seventh and eighth units (FFG-826 and FFG-827) in November 2021 and March 2022 respectively, with deliveries scheduled for 2023.
- ▶ HHI and DSME are also competitors in the ROKN's future CVX-class light aircraft carrier programme and have respectively partnered with Babcock and Fincantieri for the design phase. The class is scheduled to enter service in 2033.
- ▶ In November 2021, the South Korean Defense Acquisition Program Administration (DAPA) awarded HHI a contract worth KRW 630bn (€465m) for the construction of the second KDX-III Sejong Daewang-class stealth destroyer of the second batch, to be delivered by 2026. The shipyard launched the first unit in July 2022, with delivery scheduled for November 2024.
- ▶ In April 2022, HHI began construction of the first FFX-III Ulsan-class frigate, to be delivered by 2024.

Export markets

- ▶ HHI has a marginal international presence. Though, the shipyard was awarded two contracts by the Philippine Navy, for a total value of approximately €1bn, for the supply of two HDC-3100 corvettes in December 2021 and six HDP-1500 Neo offshore patrol vessels in May 2022 respectively.
- ▶ HHI is positioned on two tenders, in Saudi Arabia for five escort vessels and in Malaysia for three landing craft transport vessels, and markets its HDF-3800SA and HDL-13000 ships respectively.

Technology and Innovation

- ▶ Self-financed R&D expenditure amounted to KRW 92.4bn (€68m) in 2021, representing 0.6% of revenues.



L3HARRIS TECHNOLOGIES

Aerospace and defence company operating in ISR systems, communication systems and aviation electronics. 6th-largest U.S. defence group and 10th-largest worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ ISR systems
- ▶ Electronic warfare systems
- ▶ Communication systems
- ▶ Avionics
- ▶ Air traffic control
- ▶ Space (payloads)
- ▶ Training

GOVERNANCE

Chairman and CEO	C. E. Kubasik
Chief Financial Officer	M. L. Turner
President Integrated Mission Systems	J. Rambeau

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019**	2020**	2021
Revenue	-	16 158	15 932	15 058
Δ (%) [\$/]*	-	N/A	0,54%	-2,09%
Defence (%)	-	77%	78%	75%
Export (%)	-	22%	20%	22%
Operating profit/loss	-	N/A	2 466	2 414
Operating margin	-	N/A	15,48%	16,03%
Net income***	-	1 192	982	1 561
Order book	-	18 300	17 661	18 665
Employees	-	50 000	48 000	47 000

* Variation based on revenue in local currency
See €/\$, p.7

** Figures restated

*** Net income attributable to shareholders

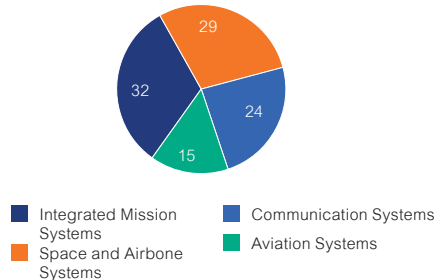
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	LHX
Listed on	NYSE
Market Cap (\$m)	42 125

Major shareholders (as of 15.11.2022)

The Vanguard Group, Inc.	8,48%
Capital Research & Management Co. (World Investors)	8,29%
SSgA Funds Management, Inc.	4,43%
T. Rowe Price Associates, Inc.	4,34%

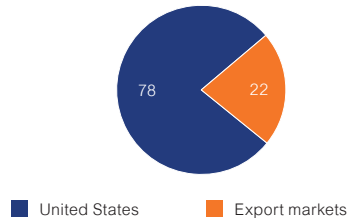
REVENUE BY BUSINESS SEGMENT (%)
































MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Aviation Communication & Surveillance Systems (ACSS)	70%	United States
Global Military Aircraft Systems (GMAS)	49%	United States
AYESAS	40%	United States
IBL	33%	Turkey

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

		Airbus	Boeing	General Dynamics	Lockheed Martin	BAE Systems	Air Tractor	Immarsat	Hill*
Intelligence, Surveillance and Reconnaissance (ISR) systems									
	AT-802U Sky Warden armed ISR aircraft								
	Airborne Pursuit and Exploitation (APEX) small unmanned tactical aircraft system								
	MX-15 optronical and infrared sensors								
	Submarine Universal Modular Mast (UMM)								
	AN/SPS-48G surveillance radar								
Electronic warfare systems									
	Electronic warfare system of the EC-37B Compass Call aircraft								
	AN/ALQ-214 IDECM F/A-18 countermeasure system								
	Advanced Integrated Defensive Electronic Warfare Suite (AIDEWS)								
Communications systems									
	Tactical SATCOM terminals (Panther, Hawkeye, Cheetah)								
	Enhanced Night Vision Goggle - Binocular (ENVG-B)								
	Falcon family of tactical radios								
Avionics									
	F/A-18 and F-35 avionics								
	US Air Force's C-130 Avionics Modernization Programme (AMP)								
Space									
	Xenon ion propulsion system (702SP satellites)								
	Navigation payloads for GPS III satellites								

*Huntington Ingalls Industries

STRATEGIC HIGHLIGHTS

Business trends

- ▶ L3Harris Technologies revenues amounted to \$17.8bn (€15.1bn) in 2021, down 2.1% year-on-year in local currency. The Aviation Systems division (-19.3%) was heavily impacted by declining sales of products and solutions for commercial aviation due to the health crisis and the sale of several activities during the year (military simulation and training, military transmissions and engines, RF amplification products, etc.).
- ▶ Effective January 1, 2022, L3Harris Technologies streamlined its business segments from four to three divisions. The Aviation Systems division no longer exists and its ongoing operations were integrated into the Mission Solutions division (defense aviation, commercial aviation products and commercial pilot training) and the Space & Airborne Systems division (mission networks for air traffic management).
- ▶ In December 2022, L3Harris Technologies announced the signing of an agreement to acquire American rocket engine manufacturer Aerojet Rocketdyne for \$4.7bn (€4.4bn). The deal is expected to close in 2023 but might be blocked by competition authorities, who already opposed the acquisition of Aerojet Rocketdyne by Lockheed Martin.

Home market

- ▶ The U.S. market is crucial to L3Harris Technologies' business (78% of revenues in 2021). The U.S. Department of Defense accounted for approximately 57% of the group's revenues during the year.
- ▶ In October 2021, L3Harris Technologies signed a \$947m (€801m) contract with the U.S. Air Force to supply the AN/ALQ-172 electronic warfare system (used for self-protection against enemy radar threats) designed to equip the B-52 Stratofortress strategic bomber fleet by 2031.
- ▶ In January 2022, the group won a contract worth potentially \$750m (€670m) over 10 years from the U.S. Marine Corps to supply AN/PRC-163 multi-channel communication systems. These systems can be carried by infantrymen or integrated into vehicles.
- ▶ In February 2022, the United States Special Operations Command (SOCOM) awarded L3Harris Technologies a \$297m (€265m) contract to produce AN/PRC-167 multi-channel handheld tactical radios, bringing the total amount received on this programme since 2021 to \$552m (€493m).
- ▶ In March 2022, the U.S. Army selected L3Harris Technologies and Thales to compete in several tenders to strengthen the cryptographic security of SINGGARS (Single Channel Ground and Airborne Radio System) communication systems according to the new NSA (National Security Agency) standards. This modernisation programme, called Combat Net Radio (CNR), has a budget of \$6.11 bn (€5.45 bn) until 2032.
- ▶ In July 2022, SOCOM selected L3Harris Technologies' AT-802U Sky Warden aircraft (offered in partnership with Air Tractor) for its Armed Overwatch programme to acquire 75 armed ISR light aircraft. An initial contract was awarded for the supply of six aircraft of the first batch, with production to begin in 2023.

Export markets

- ▶ 22% of the group's revenues came from exports in 2021, mainly from Australia, Canada and the UK.
- ▶ In March 2022, the group entered into negotiations with Saudi Arabia to supply, in partnership with BAE Systems, a new surveillance and reconnaissance aircraft to replace the Boeing RE-3A TASS (Tactical Airborne Surveillance System) fleet. This future aircraft would be based on the Gulfstream (a General Dynamics subsidiary) G550 AISREW (Airborne Intelligence, Surveillance, Reconnaissance and Electronic Warfare) that L3Harris Technologies already supplied to the Italian Air Force.
- ▶ In April 2022, L3Harris Technologies was awarded a \$482m (€432m) contract by the Royal Canadian Air Force for the four-year maintenance of the CF-18 Hornet fighter aircraft fleet.

Technology and Innovation

- ▶ Self-funded R&D expenditure amounted to \$692m (€585m) in 2021, representing 3.9% of revenues.



LEIDOS

Among the leading providers of digital systems and services in the United States. Major supplier to the DoD, major partner of DARPA and 19th-largest defence contractor.

BUSINESS AREAS

Digital services supplier and systems integrator

- ▶ Cybersecurity
- ▶ Data Science and Data Engineering
- ▶ Digital transformation
- ▶ IT systems maintenance, operation and modernisation services
- ▶ Maintenance and logistic support services

GOVERNANCE

Chairman & CEO	Roger Krone
Co-president, Defense Solutions division	Gerry Fasano
Co-president, Defense Solutions division	Roy Stevens

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	LDOS
Listed on	NYSE
Market Cap (\$m)	14 311

Major shareholders (as of 15.11.2022)

The Vanguard Group, Inc.	10,50%
JPMorgan Investment Management, Inc.	5,70%
SSgA Funds Management, Inc.	4,08%
Wellington Management Co. LLP	4,01%

Name	%	Country
Hanford Mission Integration Solutions	53%	United States
Cardno Tec-Leidos	N/A	United States
Integrated ICBM Support Services (i2S2)	N/A	United States

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	8 632	9 905	10 768	11 612
Δ (%) /\$)*	0,24%	8,83%	10,84%	11,71%
Defence (%)**	57%	57%	60%	58%
Export (%)	9%	8%	8%	8%
Operating profit/loss	634	814	874	974
Operating margin	7,35%	8,22%	8,12%	8,39%
Net income***	492	596	550	637
Order book	18 194	21 451	26 008	30 410
Employees	≈ 32 000	≈ 34 000	≈ 39 000	≈ 43 000

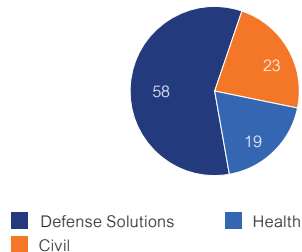
*Variation based on revenue in local currency

See €/\$, p.7

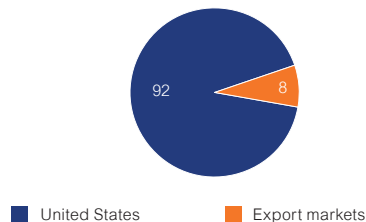
**Defense Solutions division only

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Paramount Group USA	Vertex Aerospace	Vigor Technologies	IBM	Verizon	SAIC	TVS Supply Chain Solutions	Kuehne + Nagel	Agility	Prolix
IT Systems operation, maintenance and modernisation services										
GSM-O II programme (DoD's communication and network modernisation)										
US Navy's NGEN-R SMIT programme				●	●	●				
NASA End-User Services & Technologies programme										
Cybersecurity										
Proven, Analytic-Centric Kill Chain Implementation and Transformation (PACKIT) cyber defense solution										
Logistic support services										
Logistics Commodities and Services Tranformation programme (MoD)							●	●	●	●
ISS Cargo Mission Contract (engineering and logistic support services)										
Airborne platforms										
Bronco II future multirole aircraft	●	●								
Leidos Special Mission Aircraft programme										
Anti-submarine warfare										
ADC MK5 anti-torpedo contermasures system										
Transformational Reliable Acoustic Path System (TRAPS) sonar system										
Unmanned systems										
Seahawk Unmanned Surface Vessel (USV)			●							
Training										
Common Driver Trainer (CDT) virtual training system										

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Leidos posted sales of \$13.7bn (€11.6bn) in 2021, up 11.7% year-on-year in local currency, driven by growth in all three divisions. The Health division recorded a 29.9% increase in revenues, due to the resumption of medical examinations suspended during the health crisis.
- ▶ The Defense Solutions division recorded a 9.4% increase in revenues in local currency in 2021, driven by the ramp-up of various programmes, mainly in the United States (in particular the U.S. Navy's NGEN-R SMIT contract).
- ▶ Pursuing its external growth strategy, initiated with the acquisition of Lockheed Martin's Information Systems and Global Solutions (IS&GS) business in 2016, the group acquired several businesses in 2020-2021: Dynetics, the airport security and industrial automation business of L3Harris Technologies, IT services provider 1901 Group and surface ship design specialist Gibbs & Cox. Leidos also acquired from Cobham the Australian Economic Zone aerial surveillance activity in October 2022.
- ▶ Leidos sold its Aviation & Missile Solutions (AMS) subsidiary to private investors in early 2022 for \$18m (€15m). Based in Huntsville (Alabama) and employing 130 people, the company is a former subsidiary of Dynetics and provides engineering services.

Home market

- ▶ Leidos is the U.S. government's leading provider of digital and telecom services according to Washington Technology's 2022 rankings, ahead of Lockheed Martin and Northrop Grumman.
- ▶ In October 2021, Leidos signed a contract with the National Security Agency (NSA) worth up to \$300m (€260m) over five years to provide IT and technical services to develop and modernise TechSIGINT (Technical Signals Intelligence) capabilities.
- ▶ In November 2021, the Air Combat Command (ACC) awarded Leidos a contract worth \$531m (€449m) to provide ISR mission support services to the U.S. Air Force at 25 locations in the United States. The contract has an initial term of one year with four one-year options.
- ▶ In November 2021, the Dynetics subsidiary signed a contract worth up to \$479m (€405m) over six years with the U.S. Army to develop thermal protection equipment for hypersonic weapon prototypes.
- ▶ In February 2022, the Defense Information Systems Agency (DISA) awarded Leidos the Defense Enclave Services (DES) contract, worth a total of \$11.5 bn (€9.3 bn). The contract has an initial duration of four years and includes three two-year options. Leidos will provide a common platform and various IT services for more than 370,000 users in 22 DoD agencies at more than 500 locations in the United States and abroad.

Export markets

- ▶ Leidos generated 8% of its revenue from exports in 2021. In the defence sector, Australia and the UK are the group's main international customers.
- ▶ In November 2021, Leidos signed a contract with the British Ministry of Defence worth potentially £70m (€81m) over three years. This contract covers the modernisation of various infrastructures at the National Centre for Geospatial Intelligence (NCGI) in the UK, as part of the PICASSO programme.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to \$109m (€92m) in 2021, representing 0.8% of revenues.



LEONARDO

Leading Italian defence contractor and 12th-largest worldwide. Highly export-oriented, particularly to the U.S. market. Acquired a 25.1% stake in Hensoldt in January 2022.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military aircraft and UAV
- ▶ Military and commercial helicopters (formerly AgustaWestland)
- ▶ Sensors, systems and communications
- ▶ Weapon systems (OTO Melara)
- ▶ Space (see also Thales Alenia Space)

GOVERNANCE

Chairman	L. Carta
Chief Executive Officer	A. Profumo
Manufacturing and Program Management Optimisation Director	F. Barsotti

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	LDO
Listed on	Borsa Italiana
Market Cap (€m)	4 414

Major shareholders (as of 15.11.2022)

Italian State	30,20%
The Vanguard Group, Inc.	1,79%
Dimensional Fund Advisors LP	1,77%
Norges Bank Investment Management	1,69%

MAIN JOINT VENTURES AND ASSOCIATES

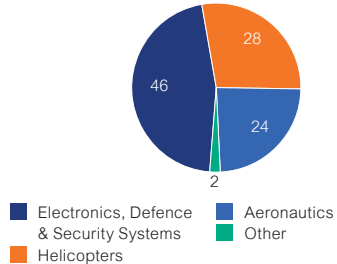
Name	%	Country
Telespazio	67%	Italy
Orizzonte Sistemi Navali	49%	Italy
Thales Alenia Space	33%	France
NHIndustries	32%	France
Elettronica	31,33%	Italy
Avio	29,63%	Italy
Hensoldt	25,1%	Germany
MBDA	25%	France
Eurofighter Jagdflugzeug	21%	Germany

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	12 240	13 784	13 410	14 135
Δ (%)	4,31%	12,61%	-2,71%	5,41%
Defence (%)	N/A	N/A	73%	83%
Export (%)	85%	84%	83%	83%
Operating profit/loss	715	1 153	517	911
Operating margin	5,84%	8,36%	3,86%	6,44%
Net income*	509	821	241	568
Order book	36 118	36 513	35 516	35 534
Employees	46 462	49 530	49 882	50 413

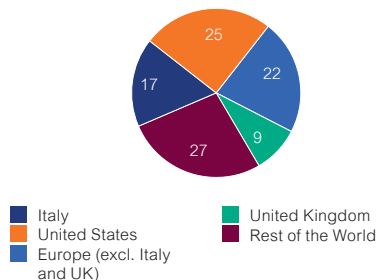
*Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations and revenue from Space Systems division (Telespazio and Thales Alenia Space)

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	PGZ	Boeing	Airbus	Naval Group	Dassault Aviation	Saab	General Dynamics	BAE Systems	Northrop Grumman	Lockheed Martin	Electronica	GKN
Military aircraft and UAV												
Tempest future fighter aircraft (sensors, electronics, avionics)							●			●		
F-35 Lightning II fighter aircraft (wings, assembly* and MRO)								●				
Eurofighter Typhoon fighter aircraft			●				●			●		
M-345 and M346/T-100 advanced trainer aircraft		●										
C-27J Spartan and MC-27J Praetorian tactical transport aircraft		●						●				
nEUROn UCAV demonstrator (smart integrated weapon bay, internal EO/IR sensors, electrical system, etc.)					●							
European MALE RPAS future UAV (Eurodrone programme)			●		●							
Falco Xplorer MALE UAV												
Military helicopters												
AW159 twin-engine multirole helicopter (6 t)						●	●					
AW139M/MH-139 twin-engine multirole helicopter (6 t)		●										
AW249 future twin-engine attack helicopter (8 t)	●											
NH90 twin-engine multirole helicopter (11 t)			●							●	●	
AW101/MCH-101 three-engine transport helicopter (16 t)												
Weapon and artillery systems												
127/64 LW Vulcano naval gun												
Black Shark heavyweight torpedo and MU90 lightweight torpedo				●								
Defence electronics												
Raven ES-05 AESA radar (JAS 39 Gripen E/F)					●							
Kronos family of land and naval radar systems												

*Produced for the Italian Air Force and the Royal Netherlands Air Force

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Leonardo revenues increased 5.4% to €14.1bn in 2021. Growth was mainly driven by the Defence Electronics and Security Systems branches (mainly in Europe), the Military Aircraft division of the Aerospace branch (M-346 trainer aircraft, contribution to the F-35 programme and Typhoon fighter aircraft for Kuwait) and increased new helicopter deliveries.
- ▶ In January 2022, Leonardo completed the acquisition, announced in April 2021, of 25.1% of Hensoldt's capital for €606m from American investment fund KKR. The group will be one of Hensoldt's two reference shareholders alongside the German State (which also holds 25.1% of the capital).
- ▶ The planned divestment of OTO Melara (naval guns and RWS) and WASS (torpedoes and submarine systems), announced in the summer of 2021, was postponed due to uncertainties related to the Russian invasion of Ukraine.
- ▶ In the spring of 2022, U.S. subsidiary Leonardo DRS announced the sale of satellite communications services provider Global Enterprise Solutions to Luxembourg-based SES for \$450m (€408m) and of its stake in the Advanced Acoustic Concepts joint venture to Thales Defense & Security Inc. (a subsidiary of Thales which supplies sonar systems to the U.S. Navy).

Home market

- ▶ Leonardo is one of the main suppliers to the Italian Armed Forces. It is involved in the design and production of Italian military aircraft and helicopters and is a partner of Fincantieri in many naval defence programmes, in particular through their joint subsidiary Orizzonte Sistemi Navali. In 2021, the group generated 17% of its turnover on its domestic market.
- ▶ In October 2021, the AWHero RUAS (Rotary Uncrewed Aerial System) received military certification from the Italian authorities, including embarked operations.
- ▶ In January 2022, the Italian Air Force signed a €380m contract with a consortium consisting of Leonardo, Avio Aero (a GE Aerospace subsidiary) and Lockheed Martin for the supply of technical and logistical support services for the Italian C-130J Super Hercules tactical transport aircraft fleet for five years.

Export markets

- ▶ The group generated 83% of its revenues from exports in 2021, mainly to the United States and the United Kingdom (combined share of 35% of turnover), through its subsidiaries Leonardo DRS and Leonardo US Aircraft on the one hand and Leonardo UK on the other.
- ▶ At the end of 2021, the U.S. Department of Defense exercised options worth \$159m (€134m) for the acquisition of 36 TH-73A helicopters (a variant of the AW119 dedicated to the training of U.S. Navy and U.S. Marine Corps pilots), bringing to 104 the number of aircraft ordered since January 2020 for a total of \$506m (€428m), out of a total target acquisition of 130 helicopters.
- ▶ In March 2022, OTO Melara's 127/64 LW Vulcano naval gun was selected by Damen to equip the German Navy's four future F126 frigates, scheduled for delivery between 2028 and 2031. Leonardo will also supply four guns of the same type to Lockheed Martin for the Royal Canadian Navy's future CSC frigates.
- ▶ In July 2022, Leonardo's wholly-owned Polish subsidiary PZL-Swidnik was awarded a contract worth 8.25bn PLN (€1.76bn) to produce 32 AW149 multirole helicopters for the Polish Armed Forces, with deliveries scheduled between 2023 and 2029.
- ▶ In December 2022, the UK, Italy and Japan announced an agreement for a joint future combat aircraft programme (Global Combat Air Programme or GCAP), with BAE Systems, Leonardo and MHI being in charge of the development of the aircraft.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €584m in 2021, representing 4.1% of revenues.



LIG NEX1

South Korean diversified defence group (missiles, radars, avionics, electronic warfare and communication systems...), and 62nd-largest defence contractor worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Missiles systems and guided ammunition
- ▶ Radar and electro-optic systems
- ▶ Avionics and electronic warfare systems
- ▶ C4I systems
- ▶ Unmanned systems

GOVERNANCE

Chief Executive Officer Kim Ji-chan
 Executive Director Lee Soo-young

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	1 137	1 113	1 189	1 346
Δ (%) [KRW]**	-13,19%	-1,68%	10,16%	13,87%
Defence (%)	100%	100%	100%	100%
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	19	14	47	72
Operating margin	1,63%	1,25%	3,98%	5,33%
Net income	3	2	43	78
Order book	4 422	4 771	5 467	6 170
Employees	3 156	3 103	3 186	3 270

*Variation based on revenue in local currency
 See €KRW, p.7

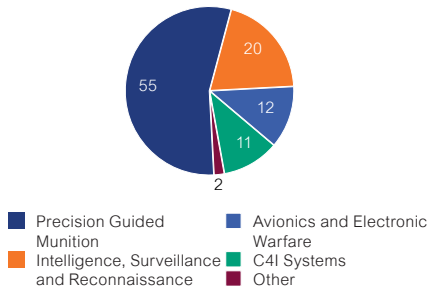
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	079550
Listed on	Korea Exchange
Market Cap (KRW bn)	2 009

Major shareholders (as of 15.11.2022)

LIG Corp.	44,10%
National Pension Service of Korea	13,50%
Employees	3,29%
The Vanguard Group, Inc.	1,27%

REVENUE BY BUSINESS SEGMENT (%)

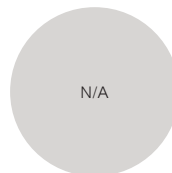


MAIN JOINT VENTURES AND ASSOCIATES*

Name	%	Country

*No information available

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	ADD*	KARI**	Hanwha Systems***	Hanwha Defense***	Korea Aerospace Industries	General Dynamics	Thales	Hyundai Heavy Industries	DSME
Missiles systems and guided ammunition									
LAMD future missile (low-altitude missile defense system)	●								
M-SAM missile (Mid-range Surface-to-Air Missile or Cheongung) Block-I/II	●	●	●						
Hyunmoo-3A/B/C cruise missile	●								
Hyungung (Raybolt) anti-tank missile	●		●						
SAAM surface-to-air missile	●		●						
Haesong (C-Star or Sea Star) anti-ship missile	●								
Blue Shark lightweight torpedo and White Shark / Tiger Shark heavyweight torpedoes	●								
ISR systems									
3D Long Range Radar (LRR)									
IFF interrogators						●			
Sonar systems (KDX-III destroyers and KDDX future destroyers, KSS-III submarines)							●	●	
Components for the KPS system (Korean Positioning System)		●							
Avionics and electronic warfare systems									
Goalkeeper CIWS and future CIWS-II defense systems					●	●			
Avionics (KF-21, T/FA-50, LAH, KUH-1 Surion)				●					
ALQ-200 airborne EW system				●					
SLQ-200 and SONATA shipborne EW systems									
C4I systems									
Submarine combat system (KSS-I and KSS-II)							●	●	
LINCS naval combat system									

* Agency for Defense Development (South Korea) ** Korea Aerospace Research Institute *** Hanwha group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ LIG Nex1 revenues reached KRW 1,822bn (€1.3bn) in 2021, up 13.9% in local currency. The Precision Guided Munitions, Avionics and Electronic Warfare and C4I Systems divisions recorded solid growth.
- ▶ In March 2022, LIG Nex1 signed a letter of intent with Hyundai Heavy Industries to cooperate on the Republic of Korea Navy's future CVX-class light aircraft carrier programme (for which HHI is competing with DSME), scheduled to enter service in 2033.
- ▶ In July 2022, LIG Nex1 and Thales Netherlands agreed to strengthen their cooperation in naval MRO services.

Home market

- ▶ As one of South Korea's main defence groups, LIG Nex1 benefits from a leading position in its main business segments. The group also participates in the KPS (Korean Positioning System) geo-positioning system by supplying various components and solutions (SAR radars, satellite communication terminals, electro-optical equipment, etc.).
- ▶ The group signed two contracts with the South Korean Defense Acquisition Program Administration (DAPA): one for KRW 46bn (€34m) over four years in February 2021 to develop a new long-range air surveillance radar by 2027, and the other for KRW 164bn (€121m) in May 2021 to supply maritime surveillance radars to the Republic of Korea Navy (ROKN) between 2022 and 2026.
- ▶ In July 2021, LIG Nex1 was selected by Hanwha Systems to develop and supply the CIWS-II (Close In Weapon System) anti-missile self-defence system for the ROKN's future ships (FFX-III frigates, KDDX stealth destroyers and CVX light aircraft carriers). The CIWS-II system includes a 30 mm gatling gun, AESA radars and an optronic system. Development is scheduled to be completed in 2027 and the initial order could cover up to 30 units. The cost of the programme is estimated at KRW 320bn (€236m) until 2030.
- ▶ In September 2021, LIG Nex1 signed a KRW 215bn (€158m) contract with DAPA for the mass production of terminals that will be connected to the Republic of Korea Army's ANASIS-II (Army Navy Air-Force Satellite Information System) satellite communication system.
- ▶ LIG Nex1 is involved in the competition for the ROKN's Naval Electronic Warfare-II programme, which provides for the modernisation of the electronic warfare systems in use on ROKN vessels. The cost of the programme is estimated at KRW 720bn (€470m) until 2036.

Export markets

- ▶ Aiming to strengthen its international presence, LIG Nex1 selected nine countries offering significant business prospects in the military sector as its main target markets in the Middle East (United Arab Emirates, Saudi Arabia), Asia (India, Vietnam, Indonesia, Philippines) and South America (Peru, Colombia, Brazil).
- ▶ The sale of M-SAM (mid-range surface-to-air missile) Block-II or Cheongung II missiles to the United Arab Emirates was completed in January 2022. The contract, worth about KRW 4 trillion (€3 bn), represents the largest export order ever won by a South Korean defence group.
- ▶ In March 2022, LIG Nex1 signed a SAR 250m (€62m) contract to supply electro-optical systems to the Royal Saudi Navy. The group also ambitions to sell Cheongung II missiles to Saudi Arabia.

Technology and Innovation

- ▶ In April 2022, LIG Nex 1 conducted a first test of the LAMD (low-altitude missile defence) system. The group expects another seven years of development before a possible deployment of the LAMD with the Republic of Korea Army at the end of the decade.



LOCKHEED MARTIN

World's leading defence contractor, prime contractor for the F-35 fighter aircraft and largest supplier to the U.S. Department of Defense.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Aeronautics (aircraft, helicopters, unmanned aircraft systems)
- ▶ Missile and air defence systems
- ▶ Naval (surface ships, combat systems)
- ▶ Defence electronics and cybersecurity
- ▶ Space (satellites, launchers)

GOVERNANCE

Chairman and CEO	James D. Taiclet
Vice President Aeronautics	Gregory M. Ulmer
Chief Financial Officer	Jesus Malave

KEY FIGURES (Fiscal year ended: December 31st)

M Euros	2018	2019	2020	2021
Revenue	45 522	53 404	57 266	56 673
Δ (%) [\$/]*	7,61%	11,25%	9,34%	2,52%
Defence (%)	94%	95%	96%	96%
Export (%)	28%	28%	25%	28%
Operating profit/loss	6 210	7 629	7 569	7 712
Operating margin	13,64%	14,29%	13,22%	13,61%
Net income	4 273	5 563	5 983	5 338
Order book	113 946	128 211	119 911	119 466
Employees	105 000	110 000	114 000	114 000

*Variation based on revenue in local currency
See €/\$, p.7

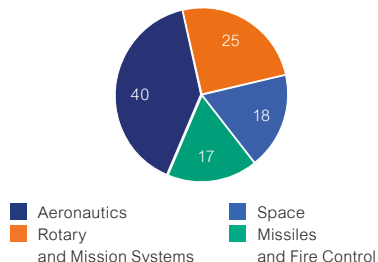
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	LMT
Listed on	NYSE
Market Cap (\$m)	122 454

Major shareholders (as of 15.11.2022)

SSGa Funds Management, Inc.	14,50%
The Vanguard Group, Inc.	8,16%
Capital Research & Management Co. (World Investors)	5,13%
Capital Research & Management Co.	3,14%

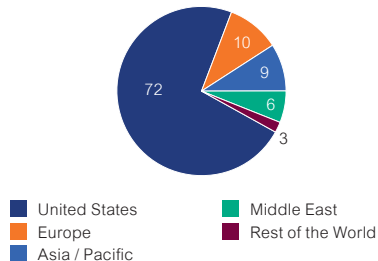
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
MEADS International	58%	United Kingdom
AWE	51%	United States
Raytheon-Lockheed Martin Javelin JV	50%	United States
Tata Lockheed Martin Aerostructures	50%	India
United Launch Alliance	50%	United States

REVENUE BY REGION (%)



LOCKHEED MARTIN

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	TASL	Boeing	Raytheon Technologies*	BAE Systems	Northrop Grumman	GE Aerospace**	Rolls-Royce	Gibbs & Cox***	Leonardo	Fincantieri	MHI
Military aircraft											
F-35 Lightning II fighter aircraft		●	●	●		●		●			●
F-16 Fighting Falcon fighter aircraft	●	●			●						
C-130J Super Hercules tactical airlifter						●					
CH-53K King Stallion three-engine heavy-lift transport helicopter		●			●						
Black Hawk (UH-60/S-70A) and Sea Hawk (SH-60/S-70B) twin-engine multirole helicopters					●						
VH-92A twin-engine transport helicopter					●						
Missile and air defence systems											
Hellfire and Javelin anti-tank missiles		●		●							
Joint Air-to-Surface Standoff Missile (JASSM)				●							
Trident II (D5) Submarine-Launched Ballistic Missile (SLBM)											
PAC-3 and PAC-3 MSE interceptors		●									
THAAD missile defence system		●	●								
Surface ships											
Freedom-class Littoral Combat Ship (LCS) light frigate						●	●		●		
Multi-Mission Surface Combatant (MMSC) future frigate****						●	●		●		
Canadian Surface Combatant (CSC) future frigate*****			●		●	●					
Combat and mission systems											
AEGIS combat system			●							●	●
Space											
Vulcan Centaur future launcher		●		●							

*Merger of Raytheon and UTC **Formerly GE Aviation ***Subsidiary of Leidos ****Based on Freedom-class LCS frigates *****Based on BAE Systems' Type 26 frigates

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Lockheed Martin revenues rose 2.5% year-on-year in local currency to \$67.0bn (€56.7bn) in 2021, driven by growth in its Rotary and Mission Systems (+5.0%) and Missiles and Fire Control (+3.9%) divisions.
- ▶ In September 2021, Lockheed Martin teamed with Airbus to develop the LMXT, a new tanker aircraft based on the European aircraft manufacturer's A330 MRTT, to compete for the U.S. Air Force's KC-Y program to replace Boeing's KC-10 Extender.
- ▶ In February 2022, Lockheed Martin terminated its planned acquisition of American rocket engine manufacturer Aerojet Rocketdyne, which was announced in December 2020. The deal faced opposition from U.S. antitrust regulators, as Lockheed Martin would have gained a dominant position in missile propulsion systems preventing Boeing, Northrop Grumman or Raytheon Technologies from gaining access to critical components for missile production. Aerojet Rocketdyne might now be acquired by L3Harris Technologies under an agreement signed in December 2022 (still pending regulatory approval).

Home market

- ▶ Lockheed Martin is highly dependent on the U.S. market (72% of its revenue in 2021). The U.S. Department of Defense, its largest customer, accounted for 62% of its sales, excluding FMS procedures.
- ▶ In November 2021, the U.S. Air Force granted Lockheed Martin a budget of \$10.86bn (€9.18bn) to upgrade its fleet of F-22 Raptor fighter aircraft by the end of 2031.
- ▶ In February 2022, the U.S. Navy ordered from Sikorsky (a Lockheed Martin subsidiary) the sixth batch of CH-53K King Stallion heavy-lift helicopters, consisting of nine units, for \$685m (€611m). These helicopters are intended for the U.S. Marine Corps and will be delivered from 2025.
- ▶ In June 2022, the U.S. Army awarded Sikorsky a \$2.3bn (€2.1bn) contract for the production of 120 UH-60M Black Hawk multirole helicopters, with options for an additional 135 units bringing the total contract value to \$4.4bn (€3.9bn). Deliveries to the U.S. Army and partner countries under the FMS programme will extend to 2027.
- ▶ In October 2022, NASA awarded Lockheed Martin a \$1.99bn (€1.76bn) contract to produce three Orion spacecraft for the Artemis VI-VIII lunar missions scheduled between 2028 and 2030. NASA could subsequently order an additional six Orion spacecraft.

Export markets

- ▶ In December 2021, Finland selected the F-35 Lightning II fighter aircraft as part of the 64-aircraft HX Fighter procurement programme. Additional orders for the F-35 are also expected in the near future from Canada (88 units) and Germany (35 units).
- ▶ In January 2022, the U.S. Department of State authorised the sale of 12 C-130J-30 Super Hercules tactical airlifters to Egypt for \$2.2bn (€2.0bn).
- ▶ In February 2022, Sikorsky signed a \$624m (€557m) contract with the Philippine Air Force for the supply of 32 S-70i Black Hawk utility and assault helicopters over the 2023-2026 period.
- ▶ In April 2022, the U.S. Department of Defense awarded Lockheed Martin contracts to supply interceptor missiles for the THAAD missile defence system to Saudi Arabia (\$1.43bn, or €1.28bn) and to produce AN/TPQ-53 radars for allied countries under FMS programmes (\$3.26bn, or €2.91bn).
- ▶ By the end of November 2022, the United States had sent over 8,500 Javelin anti-tank missiles to Ukraine.

Technology and Innovation

- ▶ Self-financed R&D expenditure amounted to \$1.5bn (€1.3bn) in 2021, representing 2.2% of total revenues.



MBDA

European leader in missile systems (MdCN naval cruise missile, AKERON MP / LP combat missile, METEOR air-to-air missile, EXOCET anti-ship missile), 27th defence contractor*

*SIPRI rankings (2021 data)

BUSINESS AREAS

Missile manufacturer

- ▶ Air dominance
- ▶ Battlefield engagement
- ▶ Ground based air defence
- ▶ Maritime superiority

GOVERNANCE

Chief Executive Officer	Éric Béranger
Executive Group Director Programmes & CEO of MBDA France	Stéphane Reb
Chief Financial Officer	Peter Bols

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

Airbus	37,5%
BAE Systems	37,5%
Leonardo	25%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Eurosam	66,6%	France
TAURUS Systems	66,6%	Germany
PARSYS	50%	Germany
RAM-System	50%	Germany
Roxel	50%	France
L&T MBDA Missile Systems	49%	India
Inmize	40%	Spain

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 164	3 703	3 592	4 234
Δ (%)	6,10%	17,04%	-3,00%	17,87%
Defence (%)	100%	100%	100%	100%
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income*	244	189	122	610
Order book	17 400	17 500	16 600	17 800
Employees	11 300	11 500	> 12 000	13 000

*Total comprehensive income

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS
AND EXPORT PARTNERSHIPS

	Thales	Safran	Roxel	Avio	Leonardo	Diehl Defence	Hensoldt	Intra Sistemas	Saab	PGZ
Long-range and deep strike										
SCALP EG / STORM SHADOW air-launched cruise missiles	●	●			●					
TAURUS air-launched cruise missile						●		●		
MdCN naval cruise missile	●	●	●		●					
EXOCET AM / MM / SM anti-ship missiles and mobile coastal defence systems	●	●	●							
MARTE / MARTE ER / TESEO Italian anti-ship missiles			●	●	●					
Tactical strike										
ANL/Sea Venom lightweight anti-ship missile	●	●	●		●					
BRIMSTONE and SPEAR Family air-to-ground missiles			●							●
Battlefield engagement										
MMP / MHT anti-tank missiles	●	●	●							
PARS 3 and ENFORCER anti-tank missiles						●				
AKERON MP / LP land combat missile										
Maritime protection and Armed Forces protection										
Sea Ceptor / Land Ceptor / CAMM / CAMM-ER air defence systems	●		●	●						
ASTER and SAMP/T NG air defence systems	●		●	●	●					
VL MICA / VL MICA NG air defence systems	●	●	●							
MISTRAL (MANPADS / SIMBAD / SIMBAD-RC) air defence systems	●	●	●							
SKYWARDEN anti-drone system										
Air dominance										
METEOR beyond-visual-range air-to-air missile	●		●		●			●	●	
MICA / MICA-NG (EM, IR) medium-range air-to-air missiles	●	●	●				●			
ASRAAM short-range air-to-air missile	●		●		●					
DDM-NG missile warning system										

STRATEGIC HIGHLIGHTS

Business trends

- ▶ MBDA revenues reached €4.2bn in 2021, up 17.9% year-on-year, driven in particular by a recovery in exports after the global health crisis.
- ▶ In 2021, new order intake reached €5.1bn (compared to €3.3bn in 2020), thanks in particular to several export contracts, including the acquisition of Rafale fighter aircraft by Egypt and Greece. The order book stood at €17.8bn at the end of the year (representing more than 4 years of activity), a level slightly higher than that observed before the health crisis.
- ▶ In November 2022, MBDA and Safran SED completed the joint acquisition of the 63% stake in CILAS sold by ArianeGroup (the remaining 37% being held by Lumibird). CILAS is the French champion in the field of laser technologies for civil and military applications.

Home markets (France, Germany, United Kingdom, Italy)

- ▶ In February 2022, France and the United Kingdom confirmed the launch of preparatory work for the Franco-British FC/ASW (Future Cruise / Anti Ship Weapon) programme, for which MBDA is the prime contractor.
- ▶ In March 2022, OCCAr awarded Airbus Helicopters and MBDA the contract for the integration of MISTRAL 3 and AKERON LP missile systems on Tiger MkIII helicopters.
- ▶ In the UK, MBDA won contracts to integrate the Meteor air-to-air and air-to-surface missiles on the British F-35 fighter aircraft and the Sea Ceptor anti-aircraft missile system on the British T32 and T45 frigates.
- ▶ In June 2022, the French defence procurement agency (DGA) awarded a contract to CILAS, now a subsidiary of MBDA, for the supply of a first prototype laser system for the identification and neutralisation of mini and micro UAVs, based on the HELMA-P demonstrator.

Export markets

- ▶ MBDA won contracts for its air defence systems (VL MICA, MISTRAL, SIMBAD RC) as well as for the EXOCET system, notably in Egypt and Indonesia.
- ▶ In the United Arab Emirates, MBDA is continuing its partnership with Tawazun for the development of a new generation SMARTGLIDER air-to-ground light weapon, conducted jointly between MBDA and Tawazun teams from the first regional missile engineering centre established in the country.
- ▶ MBDA won significant contracts in 2022 for the armament of the Rafale fighter aircraft sold to the United Arab Emirates and Greece as well as for three Greek Navy's Belharra-class frigates (export version of the French Navy's FDI frigate from Naval Group).

Technology and Innovation

- ▶ MBDA is involved in future major European programmes: European MALE RPAS (the French units being equipped with the AKERON LP system), FCAS, MGCS, etc.
- ▶ MBDA actively participates in EDF (European Defence Fund) projects, in particular the EU BLOS (Beyond Line of Sight) project, which reached a first stage at the end of September 2022 and involves 14 partners from different European countries. MARSEUS (Modular Architecture Solutions for EU States), launched in July 2022, is the natural follow-up of this project. On the other hand, for the HYDEF (European Hypersonic Defence Interceptor) project, the European Commission did not select the HYDIS project proposed by the European consortium led by MBDA, but the competing project of the Spanish group Senar.



MEGGITT

British supplier of components and sub-systems, acquired by American group Parker-Hannifin in September 2022. 82nd-largest defence contractor worldwide.

BUSINESS AREAS

Equipment and sub-systems supplier

- ▶ Aircraft braking systems and wheels
- ▶ Control sub-systems and sensors
- ▶ Polymers and composite structures for the aerospace industry
- ▶ Avionics
- ▶ Defence sub-systems
- ▶ Fuel systems
- ▶ Thermal systems

GOVERNANCE*

Chief Executive Officer

Tony Wood

Chief Financial Officer

Louisa Burdett

*Before the acquisition by Parker-Hannifin

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted player*

Market Cap

Major shareholders (as of 15.11.2022)

Parker-Hannifin

100%

*Delisting of Meggitt shares since September 14, 2022

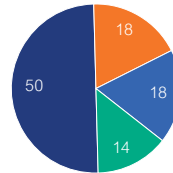
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	2 351	2 592	1 892	1 732
Δ (%) [£]*	4,32%	9,40%	-26,01%	-11,57%
Defence (%)	35%	36%	46%	42%
Export (%)	92%	92%	92%	93%
Operating profit/loss	290	371	-334	74
Operating margin	12,33%	14,29%	-17,65%	4,26%
Net income**	202	254	-353	36
Order intake	2 528	2 811	1 738	1 774
Employees	11 739	12 599	9 280	9 270

*Variation based on revenue in local currency
See € / £, p.7

**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



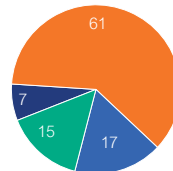
■ Airframe Systems ■ Energy & Equipment
■ Services & Support ■ Engine Systems

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Parkway-HS	70%	United States
Parkway-Hamilton Sundstrand Mexico*	N/A	Mexico

*Owned via Parkway-HS

REVENUE BY REGION (%)



■ United Kingdom ■ Europe (excl. UK)
■ United States ■ Rest of the World

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	BAE Systems	Airbus	Lockheed Martin	Boeing	Leonardo	General Dynamics	Dassault Aviation	GE Aerospace*	Raytheon Technologies**	Northrop Grumman	Textron
Braking systems											
Carbon brakes	●	●	●	●	●	●	●				●
Steel brakes	●	●	●	●	●	●	●		●	●	
Brake control systems	●	●	●	●	●	●	●		●	●	
Composite structures											
Ice protection systems		●	●	●	●						●
Fuel systems											
Fuel tanks	●	●	●	●	●				●	●	
Electrical power systems											
Power conversion systems		●		●							
Thermal systems											
Heat exchangers	●				●		●	●			
Control sub-systems and sensors											
Fluide and pression sensors		●	●	●	●			●	●	●	
Fire detection systems	●	●	●	●	●	●	●		●	●	
Avionics											
Flight displays			●	●	●						●
Defence sub-systems											
AGTS-36 aerial gunny target system, GT-400 glide target and countermeasure systems			●	●				●			
Ammunition handling systems	●		●	●		●					●

* Formerly GE Aviation **Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Meggitt revenues reached £1.5bn (€1.7bn) in 2021, down 11.6% year-on-year in local currency amid a sluggish global air traffic environment.
- ▶ In April 2022, Meggitt sold its Danish subsidiary Meggitt A/S to CTS Ceramics Denmark for £59m (€71m). The company produces high-performance piezoelectric ceramic components for medical and industrial applications.
- ▶ In July 2022, Meggitt announced a €35m investment to modernise its French Avrillé site, which specialises in the production of electric motors for aircraft flight controls or braking systems. Work should begin in the first half of 2023 for an inauguration in early 2025. The site area will increase from 9,500 to 14,500 square metres and the workforce could reach 500 within 10 years, compared with 380 at present.
- ▶ Following the approval of the British anti trust authorities in September 2022, U.S.-based firm Parker-Hannifin (a specialist in motion control technologies and equipment, in particular for the aerospace industry) completed the acquisition of Meggitt, which was renamed Parker Meggitt, for £6.3bn (€7.6bn). According to its commitments, the American group sold its Aircraft Wheel & Brake division to Kaman Corporation shortly after. Parker-Hannifin also signed binding commitments with the British government, including maintaining Meggitt's operational capabilities, manufacturing facilities and headquarters in the UK, and ensuring that the majority of the Board of Directors are British nationals.

Home market

- ▶ Meggitt only generated 7% of its sales in its domestic market in 2021, a share that has remained broadly stable in recent years.
- ▶ Meggitt is involved in several British and European defence programmes. Among others, it supplies various equipment items (wheels, carbon brakes, landing gear, etc.) for the Eurofighter Typhoon combat aircraft, as well as the radome that will protect the future ECRS Mk 2 radar, co-developed by BAE Systems and Leonardo, for the Royal Air Force's Eurofighter Typhoon aircraft. In July 2022, the British Ministry of Defence announced that it would invest up to £2.35bn (€2.8bn) to integrate this new radar on the aircraft.

Export markets

- ▶ The U.S. remain Meggitt's largest market, accounting for 61% of the group's sales in 2021. In defence, 72% of sales were made in the U.S. (compared to 19% for Europe).
- ▶ In the United States, Meggitt is involved in various programmes, including the F-16 Fighting Falcon, F-35 Lightning II (Lockheed Martin) and F/A-18E/F Super Hornet (Boeing) combat aircraft, the V-22 Osprey tilt-rotor helicopter (Bell-Boeing), the Abrams tank and the M1128 Mobile Gun System armoured fire support vehicle (General Dynamics Land Systems).
- ▶ Meggitt is also involved in South Korea's future KF-21 Boramae fighter aircraft programme, for which Korea Aerospace Industries (KAI) is the prime contractor. The British equipment manufacturer is supplying brake control systems, display systems, carbon brakes and wheels.
- ▶ In August 2022, Meggitt won a \$16m (€14m) contract from the American Defense Logistics Agency to supply components for the U.S. Army's AH-6AD Apache helicopters.

Technology and Innovation

- ▶ Meggitt's R&D expenditure amounted to £71m (€83m) in 2021, representing 4.7% of turnover.



MITSUBISHI HEAVY INDUSTRIES (MHI)

Industrial diversified conglomerate, Japan's leading defence contractor (co-production of the Soryu submarines, sub-licensed production of the F-35), and 24th-largest worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Shipbuilding and industrial machinery
- ▶ Energy-related products
- ▶ Commercial aircraft
- ▶ Defence (military aircraft, air defence systems, missile systems, fighting vehicles, surface ships, submarines)

KEY FIGURES (Fiscal year ended: March 31st)

€ millions	2018-19**	2019-20	2020-21	2021-22
Revenue	31 762	33 463	29 899	29 574
Δ (%) [JPY]**	-0,18%	-0,91%	-8,45%	4,33%
Defence (%)	11%	12%	14%	13%
Export (%)	54%	52%	47%	51%
Operating profit/loss	1 454	-244	437	1 228
Operating margin	4,58%	-0,73%	1,46%	4,15%
Net income***	789	721	328	870
Order book	43 346	45 588	39 613	40 604
Employees	80 744	81 631	79 974	78 486

*Variation based on revenue in local currency

See EJYP, p.7

**Figures restated

***Net income attributable to shareholders

GOVERNANCE

Chairman	Shunichi Miyanaga
President and CEO	Seiji Izumisawa
Chief Financial Officer	Hisato Kozawa

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	7011
Listed on	Tokyo Stock Exchange
Market Cap (JPYbn)	1 739

Major shareholders (as of 15.11.2022)

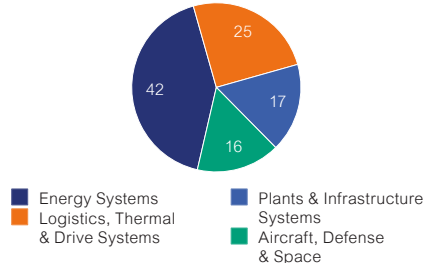
Nomura Asset Management Co., Ltd.	3,66%
Meiji Yasuda Life Insurance Co.	2,37%
The Vanguard Group, Inc.	2,27%
Bank of Tokyo Mitsubishi UFJ Pension Fund	1,93%

MAIN JOINT VENTURES AND ASSOCIATES*

Name	%	Country
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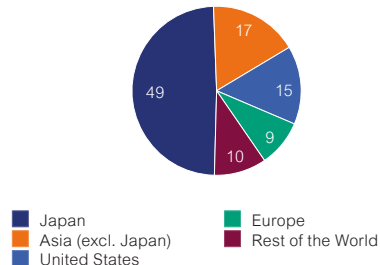
*No information available

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations

REVENUE BY REGION (%)



MITSUBISHI HEAVY INDUSTRIES (MHI)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	NEC	KHI	Lockheed Martin	Raytheon Technologies*	Mitsubishi Electric	Japan Steel Works	ATLA***	Mitsui E&S***	JAXA****
Military aircraft									
F-X future fighter aircraft							●		
F-35 fighter aircraft (sub-licensed production)		●		●					
UH/SH-60 transport helicopter (sub-licensed production)		●							
Missile systems and guided ammunition									
Patriot air defence system (sub-licensed production)		●	●						
Mk41 vertical launch system (sub-licensed production)		●							
ASM-2/ASM-3 anti-ship missiles									
AAM-5 air-to-air missile	●			●		●			
Fighting vehicles									
Type 16 Mobile Combat Vehicle (MCV)							●		
Type 10 main battle tank					●	●			
Surface ships									
30 FFM future frigate (or Mogami-class)							●		
Akizuki-class (19DD) and Asahi-class (25DD) destroyers									
Kunigami-class patrol vessel									
Submarines									
Soryu-class conventionally-powered attack submarine		●							
Taigei-class conventionally-powered attack submarine		●							
Space systems									
H-IIA/H-IIB and H3 rocket engines								●	
HTV/HTV-X transfer vehicle									●

*Merger of Raytheon and UTC **Acquisition Technology and Logistics Agency (Japan) ***Acquired by MHI in 2021
****Japan Aerospace Exploration Agency

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Mitsubishi Heavy Industries (MHI) revenues reached JPY 3,860 bn (€29.6bn) in 2021-2022 (fiscal year ended March 31st), up 4.3% year-on-year in local currency. Only the Aircraft, Defense & Space branch recorded a decline in sales, linked to difficulties in both civil (-38.5%) and military (-5.4%) activities, notably in the aeronautics, missile systems and space divisions. On the other hand, according to the group, revenues increased in naval defence activities.
- ▶ In October 2020, MHI announced the implementation of a new 2021-2024 plan, which provides for the reduction of 2,000 positions abroad and the reassignment of 3,000 employees in Japan. The group intends to give priority to investments in the ecological transition, new forms of mobility, logistics, etc.
- ▶ In August 2021, MHI acquired the military and government ship activities of Mitsui E&S (Engineering & Shipbuilding), a Japanese shipbuilder and provider of maintenance services for auxiliary ships (supply ships, oceanographic research vessels, etc.), mainly for the Japanese government. The entity was renamed Mitsubishi Heavy Industries Maritime Systems Co. Ltd.
- ▶ While Lockheed Martin was chosen at the end of 2020 as MHI's partner for the future Japanese F-X fighter aircraft programme, Japan now favours an alliance with the UK and Italy according to an agreement between the three countries announced in December 2022 (Global Combat Air Programme or CGAP). The development of the future fighter aircraft will be overseen by MHI, BAE Systems (prime contractor for the future Tempest fighter aircraft programme) and Leonardo, while IHI or MHI and Rolls-Royce will cooperate on the future engines.

Home market

- ▶ In March 2021, the Japanese Ministry of Defence awarded MHI an R&D contract for the development of a mine countermeasure solution and the production of a prototype, which is expected to be tested in Japan until 2024 and then in France. MHI signed a subcontract with Thales at the end of 2020, under which Thales will supply its high-frequency SAMDIS sonar to equip MHI's OZZ-5 mine warfare UUVs.
- ▶ In January 2022, the first flight of the Japanese H3 launcher, initially planned for the end of 2020, was postponed again due to recurring problems with the LE-9 main engine (also produced by MHI). The launch is now scheduled for March 2023.
- ▶ In March 2022, the Japan Maritime Self-Defense Force (JMSDF) commissioned the first Taigei-class lithium-ion powered conventional attack submarine, produced by MHI. Production of this new submarine class, successor to the Soryu-class, will be shared with Kawasaki Heavy Industries, which will supply the second unit of the Taigei-class.
- ▶ In June 2022, MHI launched the fifth FFM 30 frigate, or Mogami-class. The JMSDF ordered an initial batch of 8 frigates, including 6 supplied by MHI and 2 by Mitsui E&S (now a subsidiary of MHI). A total of 22 such ships could be ordered. The first unit, built by MHI, was commissioned in April 2022.

Export markets

- ▶ Export sales accounted for 51% of total revenues in 2021-2022, but mostly concerned civil activities. The Aircraft, Defense & Space branch generated 24% of its revenue from exports over the fiscal year.
- ▶ In March 2020, MHI signed a JPY 14.55bn (€120m) contract for the supply of two Multi-Role Response Vessels (MRRV) to the Philippines. Partly financed by the Japanese government, the contract is part of a naval partnership concluded between Japan and the Philippines in 2016.

Technology and Innovation

- ▶ The group's R&D expenditure amounted to 113.6bn JPY (€870m) in 2021-2022, representing 2.9% of revenues.



MTU AERO ENGINES

Aircraft engine manufacturer specialised in the production of aeronautical propulsion parts and sub-systems and a major player in aeronautical maintenance.

BUSINESS AREAS

Engine manufacturer and equipment supplier

- ▶ Aircraft propulsion systems and subsystems
- ▶ Equipment and components
- ▶ Engine and gas turbines MRO

GOVERNANCE

Chairman of the Supervisory Board	Gordon Riské
Chief Executive Officer	Reiner Winkler
Chief Program Officer	Michael Schreyögg

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	4 567	4 628	3 977	4 188
Δ (%)	17,19%	1,34%	-14,07%	5,31%
Defence (%)*	9%	10%	12%	11%
Export (%)	89%	89%	85%	85%
Operating profit/loss	620	706	262	355
Operating margin	13,58%	15,25%	6,59%	8,48%
Net income**	447	478	139	222
Order book	17 573	19 820	18 608	22 237
Employees	9 731	10 660	10 313	10 508

*Military engines division only

**Net income attributable to shareholders

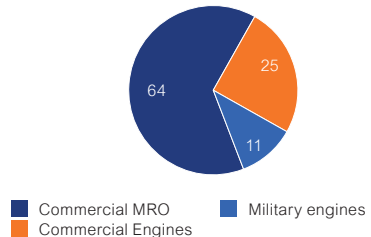
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	MTX
Listed on	XETRA
Market Cap (€m)	9 594

Major shareholders (as of 15.11.2022)

Capital Research & Management Co. (World Investors)	6,14%
BlackRock Investment Management (UK) Ltd.	4,09%
Union Investment Privatfonds GmbH	3,01%
Citadel Advisors LLC	2,82%

REVENUE BY BUSINESS SEGMENT (%)*

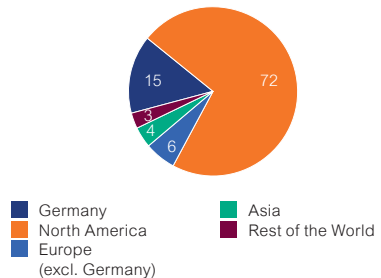


*Revenue distribution based on total sales excluding eliminations

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
EUMET	50%	Germany
Turbo Union	39,98%	Germany
MTU Turbomeca Rolls-Royce	33,33%	Germany
EUROJET Turbo	33%	Germany
EPI Europrop International	28%	Germany
MTU Turbomeca Rolls-Royce ITP	25%	Germany

REVENUE BY REGION (%)



MTU AERO ENGINES

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Safran	ITP Aero	Rolls-Royce	Avio Aero*	GE Aerospace**	Magellan Aerospace**	Praet & Whitney***	Japanese Aero Engines***	GKN Aerospace
Fighter aircraft engines									
NEFE (Next European Fighter Engine, FCAS programme)	●								
F414 (F/A-18E/F, EA-18G, JAS-39E/F)					●	●			●
EJ200 (Eurofighter Typhoon)		●	●	●					
F110 (F-15, F-16)	●			●	●				●
Transport aircraft engines									
TP400-D6 (A400M)	●	●	●						
V2500 (C-390)						●	●		
PW2000 (C-17)				●		●		●	
Helicopter turbines									
T408 (CH-53K)					●				
MTR390-2C/E (Tiger)	●	●	●						
Gas turbines									
LM2500 series		●			●				
LM5000 and LM6000					●				
ASE series									
TF series									
MRO and spare parts									
Larzac 04 engine (Alpha Jet)	●		●						
CF6-50C2 engine (KC-10)	●			●	●				●
Tyne Mk 21/22 engine (C-160, Br 1150 Atlantic)	●		●						
T64 turbine (CH-53G)					●				

*Subsidiary of GE Aerospace **Formerly GE Aviation ***Raytheon Technologies group (merger of Raytheon and UTC)

STRATEGIC HIGHLIGHTS

Business trends

- ▶ MTU Aero Engines revenues rose 5.3% in 2021 to almost €4.2 billion, driven by solid growth in the Commercial MRO division (+8.7%).
- ▶ Sales in the Military engines division, whose main source of revenue is the EJ200 engine for the Eurofighter Typhoon fighter aircraft (within the EUROJET consortium), fell by 0.2% year-on-year. MTU Aero Engines had expected higher revenues in this division from the NEFE engine for the future NGF aircraft (FCAS programme), expectations that came short due to encountered delays. The share of military activities declined further to 11.2% of the group's total revenue, compared to 17.8% in 2010.
- ▶ In 2021, MTU Aero Engines sold its U.S. subsidiary Vericor Power Systems, an industrial gas turbines manufacturer, to the U.S. investment fund CSL Capital Management for \$71m (€60m), as well as its 10% stake in the joint venture SMBC Air Engine Lease to Japanese group Sumitomo Mitsui Finance & Leasing. At the same time, the group took total control of its Dutch subsidiary MTU Maintenance Lease Services by buying out the 20% stake held by Sumitomo Corporation.
- ▶ MTU Aero Engines renewed its governance. Klaus Eberhardt was replaced as Chairman of the Supervisory Board in May 2022 by Gordon Riske, former Managing Director of the civil automobile and ship engine manufacturer Deutz. Managing Director Reiner Winkler, who is to leave the group at the end of 2022, will be replaced by the current Chief Operating Officer, Lars Wagner, as of 1 January 2023.

Home market

- ▶ MTU Aero Engines generated 14.7% of its turnover in Germany in 2021, a share that was stable year-on-year but has been declining in recent years (-3.3 percentage points compared to 2010).
- ▶ As a major partner of the German Air Force, the group is notably responsible for the maintenance of the EJ200 (Eurofighter Typhoon) and RB199 (Tornado fighter) turbojet engines and of the MTR390-2C turboshaft engine (Tiger helicopter). MTU Aero Engines also ambitions to be selected for the maintenance of the F135 turbojet engine powering the F-35 Lightning II fighter aircraft due to enter service with the German Air Force in 2026.
- ▶ MTU Aero Engines is involved in the development of the Next European Fighter Engine (NEFE) for the future NGF European fighter aircraft, in partnership with Safran within the 50-50 joint venture EUMET (European Military Engine Team). The two groups have since been joined by ITP Aero and the industrial load for the development of the NEFE engine will be shared equally between France, Germany and Spain.

Export markets

- ▶ MTU Aero Engines' export sales rose by 5.3% to €3.6bn in 2021, representing 85.3% of the group's total revenues.
- ▶ In December 2021, the Spanish government authorised the financing (approximately €2 billion) of the Halcón programme for the acquisition of 20 Eurofighter Typhoon aircraft. MTU Aero Engines will benefit from this contract through the production of the EJ200 engine.
- ▶ MTU Aero Engines continues to invest in China through the construction of a training centre on the site of the MTU Maintenance Zhuhai joint venture. Operational at the beginning of 2023, the centre will be able to accommodate around one hundred mechanics per year.

Technology and Innovation

- ▶ MTU Aero Engines' total R&D expenditure amounted to €230m in 2021, up 23.7% from the previous year, of which 70% was self-financed. Total R&D spending represented 5.5% of the group's revenue, up from 4.7% in 2020.



NAMMO

Aerospace and defence group equally controlled by the Norwegian State (50%) and Finnish defence company Patria (50%). Mainly operates in the ammunition segment.

BUSINESS AREAS

Ammunition provider, systems integrator/
equipment supplier

- ▶ Ammunition (all calibre)
- ▶ Weapon systems (shoulder fired systems, warheads and fuzes)
- ▶ Explosives and pyrotechnics (hand grenades, initiation systems)
- ▶ Propulsion systems (solid rocket motors for tactical missiles, booster rockets, hybrid rockets)
- ▶ Demilitarization services (conventional ammunition)

GOVERNANCE

Chairman

E. Rautalinko

Chief Executive Officer

M. Brandtzæg

Chief Financial Officer

C. Rykke

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

Norwegian State	50%
Patria	50%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
SN Technologies	50%	Switzerland
Sintef Raufoss Manufacturing	14%	Norway
Komm-In	8%	Norway
Raufoss Industripark Holding	2%	Norway

KEY FIGURES (Fiscal year ended: December 31st)

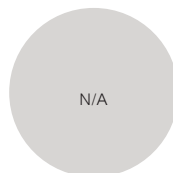
€ millions	2018	2019	2020	2021
Revenue	513	515	563	687
Δ (%) /NOK**	10,26%	3,11%	18,98%	15,61%
Defence (%)	≈ 80%	≈ 80%	≈ 80%	≈ 80%
Export (%)**	80%	77%	76%	69%
Operating profit/loss	38	36	53	66
Operating margin	7,36%	6,94%	9,34%	9,67%
Net income***	25	19	39	45
Order book	584	755	876	1 028
Employees	2 409	2 377	2 523	2 648

*Variation based on revenue in local currency
See € /NOK, p.7

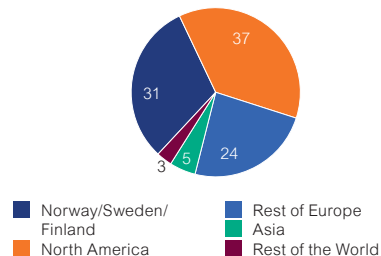
**Revenue excluding Norway/Sweden/Finland

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Saab	PGZ	Boeing	General Dynamics	Raytheon Technologies*	ArianeGroup	Avio	Bertin Technologies	Thales	Diehl Defence	Kongsberg	MBDA
Ammunition												
Small calibre ammunition (4.6 mm - 12.7 mm)												
Medium calibre ammunition (12.7 mm - 57 mm)					●							
Large calibre ammunition (120 mm and 155 mm)			●	●	●							
Mortar rounds (60 mm, 81 mm and 120 mm)												
Weapon systems												
Warheads (M282) and fuzes (D652, Jupiter, Mercury, Venus)												
Shoulder-fired systems (M72 LAW, BDM, SMAW and SMAW-T)		●			●							
Explosives and pyrotechnics												
Hand grenades (fragmentation and smoke grenades)												
Hystrix grenade launch system												
Initiation systems												
Propulsion systems												
Solid propellant rocket motors for missiles (AMRAAM/SLAMRAAM, ESSM, IDAS, IRIS-T/IRIS-T SLM, Martlet, Penguin, Sidewinder)					●			●	●	●		
Auxiliary boost rocket motors (Exocet MM40, NSM)										●	●	
Separation rocket motors (Ariane 5 and Ariane 6 launchers)					●							
Hybrid rocket motors	●					●						
Altair air-launch system (demonstrator)							●					
Demilitarisation services												
Demilitarisation and thermal treatment												●

*Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Nammo revenues jumped 15.6% in local currency to NOK 6,978m (€687m) in 2021. The group's order book also increased significantly (+12.4% compared to 2020). Nammo generates around 80% of its sales in the defence sector, a share that has remained stable in recent years.
- ▶ In June 2022, Boeing and Nammo announced the successful test firing of their future long-range guided artillery projectile, the Ramjet 155 Extended Range Artillery, at the Andøya test centre in Norway. The projectile is powered by a ramjet, allowing for long-range precision strikes, a feature which is a priority of the U.S. Armed Forces.

Home market (Finland, Norway, Sweden)

- ▶ The merger of three Nordic defence companies, Nammo continues to have a strong presence in its domestic markets (Norway, Sweden, Finland), where it generated 31% of its sales in 2021.
- ▶ Nammo is producing 25mm APEX ammunition for the Norwegian Air Force's F-35 Lightning II fighter aircraft (Lockheed Martin) under an agreement with the Norwegian Defence Materiel Agency (NDMA). The group's ambition is to supply these munitions to other countries using the F-35.
- ▶ In November 2021, Nammo signed a letter of intent with Saab and Nordic Shelter to participate in the 250 pound (110 kg) Ground-Launched Small Diameter Bomb (GLSDB) programme. Nammo will be involved in the development of the propulsion system.
- ▶ In April 2022, the Swedish Defence Materiel Administration (FMV) awarded Nammo a contract worth SEK 120m (€12m) for the supply of 12.7mm calibre ammunition until 2029. With all its options, the programme might be worth up to SEK 500m (€48m).

Export markets

- ▶ Nammo generated more than two thirds of its sales from exports in 2021. North America remains the group's largest international market with 37% of its sales during that year.
- ▶ In December 2021, Nammo won a contract worth \$498m (€421m) from the U.S. Army's Single Manager for Conventional Ammunition (SMCA) for the production of M72 FFE (Fire From-Enclosure) portable rocket launchers until the end of 2026. An initial contract worth \$97m (€82m) was awarded with deliveries starting in 2023.
- ▶ In March 2022, the European Space Agency (ESA) selected Nammo to produce the A6 DR_SR separation rocket motors for the P120C rocket engine of the future Ariane 6 launcher, which the group already produced for the Ariane 5 launcher. The contract is worth approximately NOK 500m (€51m) over 20 years. Nammo was already involved in the Ariane 6 programme through the production of the solid rocket motor igniter.

Technology and Innovation

- ▶ Nammo aims to spend 10% of its annual revenues on R&D activities, which include long-range ammunition, medium-calibre ammunition (30 and 40 mm) and ammunition for the F-35 Lightning II.
- ▶ At the South Korean ADEX exhibition (Seoul) in October 2021, Nammo showcased its concept of a portable M72 rocket launcher mounted on a commercial aerial drone to destroy armoured vehicles from a distance, developed since 2017. Nammo has tested this concept on UAVs with a range of 3 to 4 km and hopes to extend the range to 50 km by improving the communication system.



NAVAL GROUP

Leading French and European military shipbuilding company with a solid export activity in first-class frigates and submarines. Ranked 28th-largest defence contractor

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Surface ships
- ▶ Submarines (conventionally and nuclear-powered)
- ▶ Unmanned surface and underwater vehicles
- ▶ Underwater weapons
- ▶ Naval combat and platform systems and equipment
- ▶ Maintenance, modernisation and related services for naval bases
- ▶ Civil nuclear energy

GOVERNANCE

Chairman and CEO

Pierre Éric Pommellet

General Secretary

Géraldine Le Maire

Executive VP Programs

O. de la Bourdonnaye

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

French State	62,25%
Thales	35,00%
FCPE Actionnariat Naval Group	1,58%
Self-owned	1,17%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
SIREHNA	100%	France
Naviris	50%	Italy
Kership	45%	France
Itaguaí Construções Navais (ICN)	41%	Brazil
Boustead DCNS Naval Corporation (BDNC)	40%	Malaysia
TechnicAtome	20,32%	France
Les Chantiers de l'Atlantique	11,7%	France

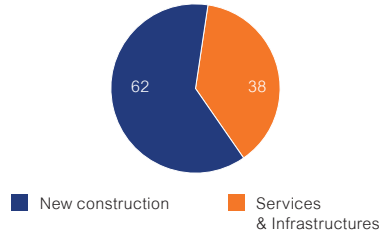
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020*	2021
Revenue	3 608	3 712	3 320	4 053
Δ (%)	12,96%	2,88%	-10,56%	22,08%
Defence (%)	≈ 95%	≈ 95%	≈ 95%	≈ 95%
Export (%)	30%	29%	30%	27%
Operating profit/loss	266	282	86	294
Operating margin	7,37%	7,60%	2,59%	7,25%
Net income**	178	188	62	197
Order book	13 830	15 062	15 153	14 069
Employees	14 860	14 561	15 464	16 028

*Figures restated

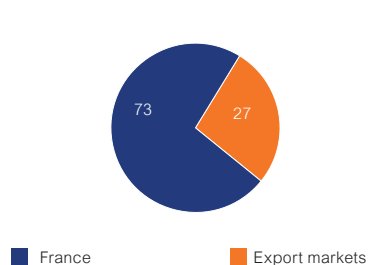
**Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



*Last available data 2020

REVENUE BY REGION (%)



NAVAL GROUP

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	TechnicAtome	Fincantieri	Chantiers de l'Atlantique	Leonardo	Mazagon Dock Limited	Boustead Naval Shipyard	Alexandria Shipyards	Novonor*	Atlas Elektronik***	Princo
Submarines											
SNLE 3G future 3rd-generation nuclear ballistic missile submarine (SSBN)	●	●									
Le Triomphant-class ballistic missile nuclear-powered submarine (SSBN)	●	●									
Suffren-class nuclear-powered attack submarine (SSN) (Barracuda programme)		●									
Scorpene-class conventionally-powered attack submarine (SSK)	●				●	●		●			
Surface ships											
PA-NG future new generation aircraft carrier		●		●							
Future corvette (EPC / MMPC European programme)			●								
Mine Warfare vessels (BE-NL and SLAM-F)	●										●
FREMM ASW/FREMM AAW multi-purpose frigate	●		●		●						
OPV, patrol vessels and corvettes (Gowind, OPV 90, OPV 58, MPV80, B2M)	●					●	●				●
FDI/Belharra-class medium size frigate	●										
BRF logistic support and refuelling ship (FlotLog programme)***	●		●	●							
Underwater weapons											
F21 heavyweight torpedo	●										●
MU90 lightweight torpedo	●				●						
Systems and equipment											
POLARIS, SETIS and SUBTICS combat management systems	●					●	●	●	●		●
Sylver vertical launching system			●								
MRO and services											
Horizon-class air defence frigates mid-life upgrade			●								
MRO of the French Navy's ships and submarines (SSNs, SSBNs, CDG aircraft carrier...)	●	●									

*Formerly Odebrecht **Subsidiary of tkMS, thyssenkrupp group ***Based on Italian Navy's Vulcano-class LSS

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Naval Group revenues increased 22.1% in 2021, to €4.1 billion. Growth was mainly driven by the flow of activity on major national programmes and the delivery of several vessels, including two OPV 87 oceanic patrol vessels for the Argentine Navy, the commissioning of the third and fourth Indian Scorpene submarines in 2021 and, under the FREMM programme for the French Navy, an enhanced air defence capabilities frigate.
- ▶ In December 2021, Fincantieri and Naval Group, through their joint venture Naviris, signed an agreement with Spanish shipbuilder Navantia to cooperate on the European Patrol Corvette (EPC) or Modular Multirole Patrol Corvette (MMPC) military programme. The programme was jointly launched with France at the end of 2019. It is supported by the European Defence Agency with a €60m funding and is overseen by Italy. Other countries (Spain, Greece, Denmark and Norway) subsequently joined the programme.

Home market

- ▶ Naval Group is the prime contractor for the French Navy's main construction and modernisation programmes: the future new generation aircraft carrier (PA-NG), FREMM and FDI frigates, the future third-generation nuclear ballistic missile submarine (SNLE 3G), Suffren-class SSNs, etc.
- ▶ In October 2021, the French defence procurement agency (DGA) awarded Naval Group a contract for the preliminary and detailed design of the French Navy's future oceanic patrol vessels (OP), intended to replace the high sea public service and patrol vessels operating from Cherbourg, Brest and Toulon.
- ▶ The eighth and final FREMM frigate with enhanced air defence capability, named Lorraine, began sea trials. Delivery of the ship is expected in late 2022.
- ▶ In April 2022, Naval Group launched the first logistic support and refuelling ship of the FlotLog programme, named Jacques Chevallier. The ship began sea trials in the second half of 2022 and should be delivered in the first half of 2023.
- ▶ The first FDI frigate of the French Navy, named Amiral Ronarc'h, was launched in November 2022 in Lorient.

Export markets

- ▶ In February 2022, Naval Group and PT PAL signed a Memorandum of Understanding in the field of submarines for the Indonesian Navy, and providing for the opening of a joint R&D centre.
- ▶ In March 2022, Greece signed a contract worth €3bn with Naval Group for the supply of three defence and intervention frigates (FDI), with an option for one additional unit, and their maintenance. The contract also includes the supply of MU90 torpedoes and CANTO countermeasures developed by Naval Group. Named FDI HN (Hellenic Navy), the frigates will be built partly in Greece and partly at Naval Group's Lorient shipyard and will be delivered in 2025-2026.
- ▶ In April 2022, Naval Group and Piriou delivered to Argentina the fourth and final OPV 87 oceanic patrol vessel.
- ▶ In April 2022, the Indian Navy launched its sixth and final Scorpene submarine, locally built by the Indian shipyard Mazagon Dock Limited. On the other hand, in September 2022 the first of the four Scorpene submarines of the Brazilian ProSub programme, named Riachuelo, entered service with the Brazilian Navy.
- ▶ Naval Group is participating in tenders from the Netherlands and the Philippines for the supply of conventional submarines (4 and 2 units respectively).

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €90m in 2021, representing 2.2% of revenues.
- ▶ Naval Group is developing unmanned surface and underwater vehicles (D2O, D2i, Remorina, Sterenn Du), notably with its subsidiary SIREHNA.



NAVANTIA

Spanish leading defence contractor, 100% state-owned. Mainly operates in shipbuilding (military and civil). 72nd-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military shipbuilding (Landing Helicopter Dock (LHD), frigates, corvettes, patrol vessels, submarines)
- ▶ Commercial shipbuilding
- ▶ Naval systems and equipment
- ▶ Propulsion systems
- ▶ MRO and modernisation services
- ▶ Offshore energy

GOVERNANCE

Chairman and CEO

R. Domínguez
García-Baquero

Vice President Shipbuilding

A. Álvarez Blanco

Chief Financial Officer

J. Bagüés Oliver

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

Spanish State (via SEPI) | 100%

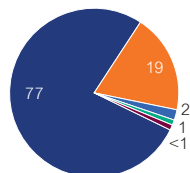
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	1 083	1 213	1 089	1 306
Δ (%)	27,26%	12,00%	-10,22%	19,93%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	38%	61%	62%	51%
Operating profit/loss	-221	-124	-156	-103
Operating margin	-20,41%	-10,22%	-14,33%	-7,89%
Net income	-226	-146	-145	-93
Order book	4 671	8 257	7 816	7 053
Employees	4 953	3 865	3 869	3 984

MAIN JOINT VENTURES AND ASSOCIATES

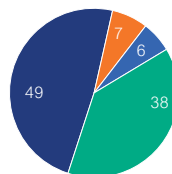
Name	%	Country
SAES Capital	51%	Spain
Sociber	50%	Chile
SAMI Navantia Naval Industries	49%	Saudi Arabia
Inmize Capital	20%	Spain
Surveillance Maritime	10%	Spain

REVENUE BY BUSINESS SEGMENT (%)



- Shipbuilding
- MRO & Modernisation
- Propulsion & Energy
- Systems
- Other

REVENUE BY REGION (%)



- Spain
- Americas
- Europe (excl. Spain)
- Rest of the World

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	SAMI*	MTUF**	Serdeif	Lockheed Martin	General Dynamics	Intra Sistemas	BAE Systems	Avio Aero***	ASC	Raytheon Technologies****	Elbit Systems	GE Aerospace*****	XPAL
Submarines													
S-80 Plus-class conventionally-powered attack submarine				●	●	●		●					
LHD and surface ships													
Juan Carlos I/Canberra-class LHD			●			●	●						●
Alfa 3000 and Alfa 4000/Alfa 4000 MM frigates													
F-110 Bonifaz-class multimission frigate		●		●		●				●			●
F-100 Álvaro de Bazán-class multimission frigate				●		●				●			●
Hobart-class air warfare destroyer				●	●			●		●			●
Avante-class family of corvettes	●	●											
BAM Meteoro-class multipurpose offshore patrol vessel		●				●							
Auxiliary ships													
Cantabria/Supply-class auxiliary logistic support and refuelling ship													
LCM-1E-class amphibious landing craft													
Systems and equipments													
SCOMBA naval combat management system (Juan Carlos I LHD, F-100-class frigates, BAM-class patrol vessels)				●									
DORNA fire control system				●									
Propulsion systems													
MTU series 396, 956, 1163 and 4000 marine engines (sublicensed production)		●											
Weapon systems													
Tizona 30 mm turret (VCR 8x8)												●	●

*Saudi Arabian Military Industries **MTU Friedrichshafen, Rolls-Royce group ***Subsidiary of GE Aerospace ****Merger of Raytheon and UTC *****Formerly GE Aviation

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Navantia revenues increased 20% to €1.3bn in 2021, mostly due to increased activity in the two main divisions (Shipbuilding; MRO and modernisation). However, despite a restructuring plan initiated in July 2017 and a significant reduction in headcount, Navantia still recorded operating losses of €103m in 2021 (a loss ratio of -7.9%), in particular due to an estimated cost overrun of between €1.5bn and €1.8bn on the Spanish Navy's S-80 Plus-class submarine programme.
- ▶ In December 2021, Navantia signed an agreement with Fincantieri and Naval Group, through their joint venture Naviris, to cooperate on the European Patrol Corvette (EPC) or Modular Multirole Patrol Corvette (MMPC) military programme. The programme was jointly launched with France at the end of 2019. It is supported by the European Defence Agency with a €60m funding and is overseen by Italy. Other countries (Spain, Greece, Denmark and Norway) subsequently joined the programme.
- ▶ While Navantia generates the majority of its sales in the defence sector, the company has been pursuing a diversification strategy to grow its footprint in the civilian sector, in particular in the field of marine renewable energy (offshore wind turbines, etc.).

Home market

- ▶ Navantia remains heavily dependent on orders from the Spanish Navy, with two programmes running until the end of the decade (S-80 Plus-class submarines and F-110-class frigates). The group's domestic revenues increased 55.5% in 2021 and accounted for 49% of total sales.
- ▶ In November 2021, Navantia signed a €167m contract with the Spanish Navy for the supply of an underwater intervention vessel (Buque de Acción Marítima de Intervención Subacuática, BAM-IS). This vessel will replace the current Neptuno ship and will be used for various missions including rescue, wreck recovery, surveillance, etc. The expected delivery time is three and a half years from the signing of the contract.
- ▶ In April 2022, Navantia started construction of the lead vessel of the F-110 frigate programme (Álvaro de Bazán-class, 5 units ordered in 2019) at the Ferrol shipyard. The first frigate is now scheduled to enter service in 2027.
- ▶ In May 2022, the first S-80 Plus-class submarine (S-81, named Isaac Peral) began sea trials. Its delivery to the Spanish Navy is now scheduled for April 2023 and delivery of three sisterships between 2024 and 2028.

Export markets

- ▶ The group's export revenues decreased 1.6% in 2021. Nevertheless, export sales accounted for 51% of the group's revenue in 2021 (+13 percentage points compared to 2018), following recent contracts signed with Saudi Arabia and Australia.
- ▶ In January 2022, Navantia signed a contract with the Norwegian Ministry of Defence to modernise the Navantia-made Fridtjof Nansen-class (F-310) frigates, four of which are still in service. The group plans to cooperate with Kongsberg, one of its main subcontractors when building the ships.
- ▶ In July 2022, Navantia delivered to Saudi Arabia the second of the five Al Jubail corvettes (based on the Avante 2200 family) ordered in 2018. Production of the remaining units has already started at the Cadiz shipyard, with delivery of the last vessel scheduled for 2024. In November 2022, the group concluded an agreement with the Saudi government for the supply of five additional multi-mission combat vessels (a contract is expected to be signed in 2023).
- ▶ The Team Resolute consortium, which includes Navantia and British companies BMT and Harland & Wolff, was selected in November 2022 by the Royal Navy for the Fleet Solid Support (FSS) programme providing for the supply of three logistic support and refuelling ships (budget of £1.6bn, or €1.8bn).

Technology and Innovation

- ▶ Navantia's total R&D expenditure amounted to €73m in 2021, representing 5.6% of revenue.



NORTHROP GRUMMAN

Aerospace and defence company with a diversified defence portfolio (mainly aviation and space). Fourth-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer, systems integrator/
equipment supplier

- ▶ Military aircraft and unmanned aircraft systems
- ▶ Defence electronics and C4ISR systems
- ▶ Missile and weapon systems
- ▶ Space (equipment, payloads)
- ▶ Cybersecurity
- ▶ Modernisation and logistic services

GOVERNANCE

Chairman and CEO	K. J. Warden
President Aeronautics Systems	Thomas H. Jones
Chief Financial Officer	Dave Keffer

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	25 483	30 215	32 223	30 150
Δ (%) / \$*	15,73%	12,45%	8,74%	-3,08%
Defence (%)	84%	85%	85%	88%
Export (%)	15%	15%	14%	14%
Operating profit/loss	3 201	3 544	3 560	4 777
Operating margin	12,56%	11,73%	11,05%	15,84%
Net income	2 734	2 007	2 792	5 921
Order book	46 725	57 738	65 989	67 119
Employees	85 000	90 000	97 000	88 000

*Variation based on revenue in local currency
See €/\$, p.7

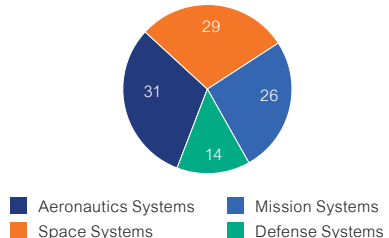
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	NOC
Listed on	NYSE
Market Cap (\$m)	77 746

Major shareholders (as of 15.11.2022)

Capital Research & Management Co.	20,40%
SSgA Funds Management, Inc.	9,21%
Capital Research & Management Co. (International Investors)	7,94%
The Vanguard Group, Inc.	7,41%

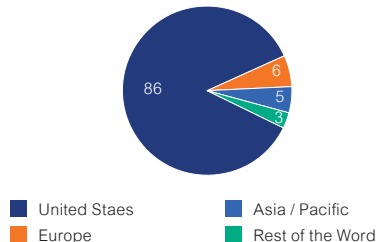
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Deep Space Transport	50%	Unites States
EuroHawk	50%	Germany
Longbow	50%	United States

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Boeing	GE Aerospace*	Rolls-Royce	Lockheed Martin	Raytheon Technologies**	Beii***	L3harris Technologies***	Kawasaki Technologies****	Honeywell	BAE Systems	MBDA	PGZ
Military aircraft												
B-21 Raider future strategic bomber				●						●		
B-2 Spirit strategic bomber	●	●		●								
E-2C/D Hawkeye surveillance aircraft			●	●	●		●	●		●		
E-8C Joint Surveillance Target Attack Radar Systems (JSTARS) surveillance aircraft	●			●								
F-35 Lightning II (fuselage, radar, etc.)			●							●		
F/A-18E/F Super Hornet (fuselage) and EA-18G Growler (electronic warfare suite)	●											
Unmanned aircraft systems (UAS)												
RQ-4 Global Hawk HALE UAS			●	●	●							
MQ-4C Triton HALE UAS			●	●	●				●			
MQ-8 Fire Scout VTOL UAS		●	●	●	●	●	●		●			
C4ISR systems												
Integrated Air and Missile Defense Command System (IBCS) command and control (C2) system	●		●							●	●	
Battlefield Airborne Communications Node (BACN) system				●	●							
Missile and weapon systems												
LGM-35A Sentinel future intercontinental ballistic missile (GBSD programme)												
AGM-88E AARGM and AARGM-ER air-launched tactical missile systems										●		
Bushmaster cannons (M242, Mk44, M230)									●			
Space												
Advanced Extremely High Frequency (AEHF) payloads			●									

*Formerly GE Aviation **Merger of Raytheon and UTC ***Textron group ****Merger of L3 Technologies and Harris Corporation

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Northrop Grumman revenues fell 3.1% in local currency to \$35.7bn (€30.2bn) in 2021, as activity contracted in the Aeronautics Systems (-7.5%) and Defense Systems (-23.4%) divisions. On the other hand, revenues in the Space Systems division rose 21.3%, driven by increased activity on missile programmes: the future LGM-35A Sentinel intercontinental ballistic missile and protection systems based on NGI (Next Generation Interceptor) missiles and Next-Gen OPIR (Overhead Persistent InfraRed) early warning satellites.
- ▶ In October 2021, Northrop Grumman teamed up with South Korean companies Huneed and LIG Nex1 to compete for the Joint Surveillance Target Attack Radar System-Korea (JSTARS-K) programme to provide the Republic of Korea Air Force (ROKAF) with four to eight surveillance aircraft from 2023. If selected, the group would supply a C2 airborne combat management system (BMC2) installed on a Gulfstream G550 business jet (General Dynamics).
- ▶ In July 2022, the James Webb Space Telescope, a programme led by Northrop Grumman, sent its first images. It was launched in late 2021 by an Ariane 5 launcher.

Home market

- ▶ The U.S. remain Northrop Grumman's main market, accounting for 86% of its revenues in 2021. The group is one of the main national players in the surveillance aircraft (E-2C/D Hawkeye) and military UAV (of which MQ-4C Triton) segments.
- ▶ In December 2021, NASA awarded Northrop Grumman a \$3.19bn (€2.70bn) contract for the production of rocket boosters for the SLS (Space Launch System) heavy-lift space launchers to be used for future Artemis IV to VIII lunar missions, and for the development of an upgraded version of the boosters for the future Artemis IX mission (Booster Obsolescence and Life Extension programme) by 2031.
- ▶ In January 2022, Northrop Grumman delivered to the U.S. Navy the last of 51 E-2D Advanced Hawkeye surveillance aircraft under the Multi-Year Procurement 1 (MYP 1) contract. Deliveries under the Multi-Year Procurement 2 contract will begin during 2022.
- ▶ In May 2022, the U.S. Air Force announced that the first flight of the future B-21 Raider strategic bomber (Long-Range Strike Bomber programme) is expected in 2023. Northrop Grumman is currently producing or testing six prototypes. At the same time, the group is continuing to modernise the U.S. B-2 Spirit bomber fleet (integration of the AGM-158 JASSM cruise missile, new targeting system, etc.).
- ▶ In August 2022, the American Missile Defense Agency (MDA) awarded Northrop Grumman a \$3.3bn (€2.9bn) contract for the development of an intercontinental ballistic missile defence system under the Ground-based Midcourse Defense (GMD) Weapon System (GWS) programme.

Export markets

- ▶ The group generated 14% of its revenues from exports in 2021, a share that has increased by 6 percentage points since 2011.
- ▶ Following an agreement between the French and U.S. governments, the U.S. Navy awarded Northrop Grumman a \$354m (€292m) contract in December 2021 for the production of three E-2D Advanced Hawkeye surveillance aircraft for the French Navy. Assembly work will begin in 2024 with delivery scheduled in 2028.
- ▶ In July 2022, Northrop Grumman delivered to the Polish Armed Forces the first of six operations centres equipped with the Integrated Air and Missile Defense Battle Command System (C2 IBCS) ordered in 2018 under the WISLA programme.

Technology and Innovation

- ▶ The group's self-funded R&D expenditure amounted to \$1.1bn (€930m) in 2021, representing 3.1% of revenue.



OHB

Leading German and third-largest European company in the space industry. In charge of the SAR-Lupe/SARah satellite systems and supplier to the Ariane 6 programme.

BUSINESS AREAS

Platform manufacturer, systems integrator/
equipment supplier

- ▶ Space systems (development and production of satellites and payloads)
- ▶ Production of structures, components and propulsion systems

GOVERNANCE

Chairman of the Supervisory Board	Robert Wethmar
Chief Executive Officer	Marco R. Fuchs
Chief Financial Officer	Kurt Melching

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	OHB
Listed on	XETRA
Market Cap (€m)	532

Major shareholders (as of 15.11.2022)

Marco Romed Fuchs*	34,60%
VOLPAIA Beteiligungs-GmbH*	21,40%
Christa Fuchs*	8,03%
Mayrhofer Romana Fuchs*	7,89%

*Fuchs Family

MAIN JOINT VENTURES AND ASSOCIATES

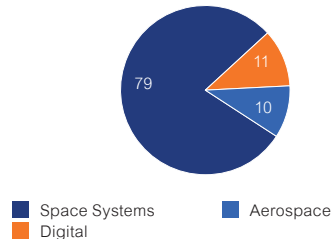
Name	%	Country
MT Aerospace Holding	70%	Germany
COSMOS Space Systems	66,7%	Germany
Rocket Factory Augsburg	55,6%	Germany
Antares	24%	Italy
Arianespace Participation	5,8%	France

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	1 000	1 030	901	917
Δ (%)	16,28%	3,00%	-12,52%	1,78%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	66%	62%	62%	67%
Operating profit/loss	48	49	42	47
Operating margin	4,80%	4,76%	4,66%	5,13%
Net income*	25	26	21	27
Order book	2 399	1 840	2 632	2 121
Employees	2 769	2 933	3 029	2 962

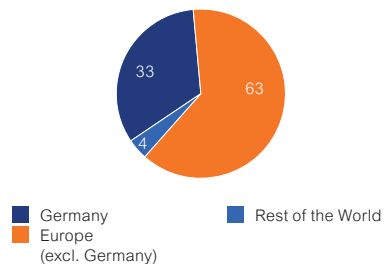
*Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations

REVENUE BY REGION (%)*



*Distribution based on sales by geographical areas. The difference between sales by geographical areas and revenue reached €11.5m in 2021.

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Tesat-Spacecom*	Airio	ArianeGroup	Surrey	Satellite Technology*	Collins Aerospace**	Thales Alenia Space	Beyond Gravity***	Stemme	Leonardo	Boeing
Space launch												
RFA One small-lift launch vehicle project												
Satellites												
SARah satellite-based reconnaissance system	●											
SAR-Lupe satellite-based reconnaissance system	●	●					●	●				
European Data Relay System (EDRS-C)	●	●	●									
Electra communications satellite	●					●						
Heinrich Hertz communications satellite (H2Sat)		●										
National Advanced Optical System (NAOS) reconnaissance satellite												
Sentinel Earth observation satellites (Copernicus programme)	●						●					
PRISMA Earth observation satellite										●		
Galileo European global navigation satellite system	●			●			●					
Structures, components and propulsion systems												
Structures, parts and components for launchers (Ariane 5, Ariane 6, SLS)			●	●								●
Propulsion systems (cold-gas, electrical, monopropellant and bipropellant)			●									●
Antennas and mechatronics (ALMA programme)							●					
Components for aircrafts (A400M)	●											
Airborne systems												
OMCoSS multimission communication and surveillance system									●			
Aerial Reconnaissance Data System (ARDS)	●											

*Subsidiary of Airbus **Raytheon Technologies group (merger of Raytheon and UTC) *** Formerly RUAG Space

STRATEGIC HIGHLIGHTS

Business trends

- ▶ OHB revenues increased 1.8% to €917m in 2021. Activity in the Space Systems division was supported by the Galileo (34 satellites supplied by OHB for a total of approximately €1.3bn), SAR-Lupe / SARah and Meteosat Third Generation (MTG) satellites programmes. On the other hand, the Aerospace division continued to suffer from delays in the Ariane 6 programme.
- ▶ OHB is a key supplier to the European Space Agency (ESA), its largest customer, and to Germany, through its two main subsidiaries OHB System and MT Aerospace.
- ▶ The group is responsible for several satellite programmes for the German Space Agency and the German Armed Forces (SAR-Lupe / SARah, Heinrich Hertz, EnMAP, etc.). OHB also supplies the satellites for the European Galileo positioning system as well as around 10% of the structures and components of the Ariane 6 space launcher (second-largest industrial supplier behind ArianeGroup).
- ▶ In February 2022, OHB acquired German company GEOSYSTEMS, a specialist in the analysis and processing of data from Earth observation satellites, which will be integrated into the Digital division. This acquisition enables the group to strengthen its activities in downstream services and data analysis.

Home market

- ▶ OHB generated 33% of its revenues in Germany in 2021, down by 5 percentage points year-on-year.
- ▶ In November 2021, OHB subsidiary Rocket Factory Augsburg signed a contract with Ukrainian nano-satellite manufacturer Lunar Research Service (LRS) for the maiden flight of its RFA One mini-launcher, now scheduled for late 2023 from the island of Andøya in Norway. The launcher will place LRS's 3U satellite into low orbit. OHB has also committed to five launches per year with the RFA One launcher.
- ▶ In March 2022, OHB Digital Connect, a subsidiary of OHB, and Atos Deutschland signed a contract with Germany's Federal Office of Bundeswehr Equipment (BAAINBw) to equip the space situation centre in Uedem (Germany) with a new IT system. The facility, which has been part of the German Armed Forces' new space command centre since 2021, will provide space location services (monitoring of near-Earth orbiting objects to assess collision risks).
- ▶ The EnMAP Earth observation satellite, designed and produced by OHB for the German Space Agency (DLR), was launched by a Falcon 9 rocket (SpaceX) from Cape Canaveral Air Force Station (Florida) in April 2022.
- ▶ In November 2022, MT Aerospace signed a €35m contract with ArianeGroup for the development of the Phoebus demonstrator of the future upper stage of the Ariane 6 rocket, made of composite materials. The OHB subsidiary brings its expertise in carbon fibre-based structures and tanks.

Export markets

- ▶ OHB's export sales amounted to €606m in 2021, up 19.8% year-on-year, and are almost exclusively related to space programmes. The share of export sales has exceeded 60% since 2014.
- ▶ In March 2022, MT Aerospace, a subsidiary of OHB, signed a contract with Boeing to supply structural components for the SLS (Space Launch System) heavy-lift launch vehicle, which made its maiden flight in November 2022 after several delays. Among others, MT Aerospace will produce the dome segments for the cryogenic hydrogen tank of the launcher's upper stage.
- ▶ In September 2022, OHB Italia signed a €54.5m contract with the Italian Space Agency (ASI) for the production of four Flyeye telescopes, used to monitor asteroids and space debris.

Technology and Innovation

- ▶ OHB's total R&D expenditure reached €19.3m in 2021, representing 2.1% of revenues.



OSHKOSH DEFENSE

Designer and manufacturer of tactical and logistic military vehicles. Defence subsidiary of the Oshkosh Corporation, and 46th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Wheeled armoured vehicles
- ▶ Tactical and logistic vehicles
- ▶ Armoured vehicle propulsion systems
- ▶ MRO and modernisation services

GOVERNANCE

President	John Bryant
Chief Operating Officer	Don Bent
Vice President, Finance	Tim Bleck

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted subsidiary
Market Cap	

Major shareholders (as of 15.11.2022)

Oshkosh Corporation	100%
---------------------	------

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Oshkosh Al Tadrea Manufacturing (OTM)	N/A	Saudi Arabia

KEY FIGURES (Fiscal year ended: September 30th)

€ millions	2017-18	2018-19**	2019-20	2020-21
Revenue	1 537	1 859	2 062	2 113
Δ (%)*	0,48%	14,69%	10,20%	9,26%
Defence (%)	100%	100%	100%	100%
Export (%)**	12%	4%	5%	7%
Operating profit/loss	189	184	168	166
Operating margin	12,32%	9,91%	8,14%	7,83%
Net income	N/A	N/A	N/A	N/A
Order book	1 602	2 287	2 425	2 902
Employees	N/A	N/A	N/A	N/A

*Variation based on revenue in local currency
See €/\$, p.7

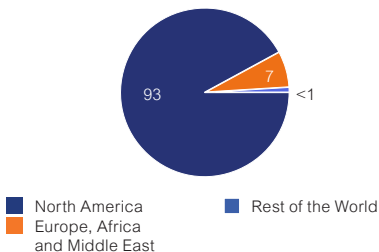
**Figures restated

***Revenue excluding North America

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Piasan	Northrop Grumman	Leonardo	Collins Aerospace*	MTU**	EOS
Light tactical vehicles						
Joint Light Tactical Vehicle (JLTV)						
Light Combat Tactical All-Terrain Vehicle (LATV)	●					
Special Purpose All-Terrain Vehicle (S-ATV)						
Medium tactical vehicles						
FMTV and FMTV A2 families of tactical trucks						
4x4 and 6x6 MTT family of medium tactical trucks						
6x6 MTRV family of medium tactical vehicle replacement						
Heavy tactical vehicles						
8x8 HEMTT A4 tactical truck					●	
8x8 Heavy Equipment Transporter (HET)						
8x8 Logistics Vehicle System Replacement (LVSr)			●			
10x10 Palletised Load System (PLS)						
Wheeled Tanker						
Highly protected armoured vehicles						
MRAP M-ATV family of multi-purpose vehicles	●	●				●
Vehicle systems and equipment						
TAK-4 and TAK-4 new generation independent suspension systems						
TerraMax unmanned ground vehicle technology				●		
ProPulse hybrid propulsion system						

*Formerly Rockwell Collins, Raytheon Technologies group (merger of Raytheon and UTC)

**Rolls-Royce group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ In 2020-2021, Oshkosh Defense's business accounted for nearly one-third of the consolidated sales of Oshkosh Corporation, a U.S group specialising in the manufacture of trucks and truck bodies for defence, industrial and fire-fighting applications. The snow removal vehicle sales activities were transferred from the Fire & Emergency division to the Defense division in 2021.
- ▶ In January 2021, Oshkosh Corporation completed the acquisition of American company Pratt Miller for \$115m (€94m). Pratt Miller produces land vehicles and has particularly improved its capabilities in the fields of artificial intelligence, robotics and autonomous and electric vehicles.
- ▶ Oshkosh Defense revenues reached \$2.5bn (€2.1bn) in 2020-2021, up 9.3% in local currency, thanks to increased activity on the JLTV (joint light tactical vehicle designed to replace AMG's Humvee) and FHTV (family of heavy tactical vehicles) programmes and to the integration of Pratt Miller.

Home market

- ▶ In late 2021, the U.S. Army awarded Oshkosh Defense a contract to supply 1,669 Joint Light Tactical Vehicles (JLTVs) and 868 trailers and related kits for a total of \$591.6m (€495.1m). 125 JLTVs will be delivered to NATO member states (Lithuania, Montenegro and Slovenia) or U.S. partners (including Brazil).
- ▶ In March 2022, the U.S. Postal Service (USPS) announced an initial order for 50,000 new mail delivery vehicles (Next Generation Delivery Vehicle - NGDV) for \$2.98bn (€2.49bn). Oshkosh Defense was selected for this contract in February 2021, under which up to 165,000 vehicles might be orderer over 10 years for a total of \$6bn (around €5bn).
- ▶ In July 2022, Oshkosh Defense received a new \$216m (€203m) order to supply 513 Joint Light Tactical Vehicles (JLTVs) and 1,152 trailers to the U.S. Armed Forces (U.S. Army, U.S. Air Force, U.S. Navy and U.S. Marine Corps) and allied countries (Montenegro, Brazil and Lithuania). The contract award for the production of over 15,000 additional vehicles until 2034, is expected in the first quarter of 2023.
- ▶ In August 2022, Oshkosh Defense delivered to the U.S. Army the first Stryker infantry transport vehicle (a wheeled armoured vehicle produced by GDLS Canada) upgraded with a 30mm weapon system (based on Rafael's SAMSON turret family), under a six-year contract awarded in June 2021. Since then, the division has received orders worth \$356m (€335m) to upgrade 269 vehicles.
- ▶ In September 2022, the U.S. Army Tank-Automotive and Armament Command (TACOM) awarded Oshkosh Defense a \$263.2m (€247.4m) five-year contract for the production of 466 EHETS (Enhanced Heavy Equipment Transporter System) trailers, including an initial order for 73 units worth \$37.6m (€35.3m).

Export markets

- ▶ Oshkosh Defense generated 7% of its revenues from exports in 2020-2021.
- ▶ In September 2020, Belgium ordered 322 CLVs (Command and Liaison Vehicles), based on the JLTV and equipped with Belgian communication systems, for €134.7m (including technical support for the vehicles). Delivery of the first vehicles (produced in the United States) is expected in 2023. Oshkosh Defense was competing with Thales Australia (which proposed the Australian Hawkei vehicle), KMW, GDELS-Mowag and Spain's UROVESA.

Technology and Innovation

- ▶ In January 2022, Oshkosh Defense unveiled an hybrid electric version of its JLTV, the eJLTV. Equipped with a 30 kWh lithium-ion battery, the eJLTV is expected to achieve 20% fuel savings compared to the standard version.



PATRIA

Aerospace and defence company majority-owned by the Finnish State (50.1%), mainly involved in the production of wheeled armoured vehicles and weapons systems.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Armoured wheeled vehicles
- ▶ Weapon systems (remote controlled weapon stations, mortar systems)
- ▶ C4ISTAR systems (ELINT systems, network management systems)
- ▶ Aerostructures
- ▶ Training, MRO and logistics support

GOVERNANCE

Chairman	Panu Routila
Chief Executive Officer	Esa Rautalinko
Chief Financial Officer	Ville Jaakonsalo

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

Finnish State	50,1%
Kongsberg Defence & Aerospace	49,9%

MAIN JOINT VENTURES AND ASSOCIATES

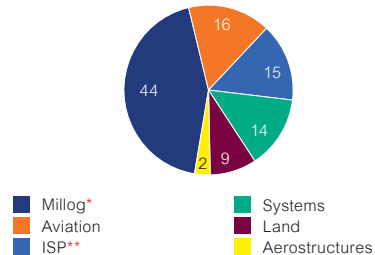
Name	%	Country
Defence Partnership Latvia	70%	Latvia
Millog	61,8%	Finland
Senop	61,8%	Finland
Milworks	60%	Estonia
Nammo	50%	Norway
Kongsberg Aviation Maintenance Services (ex-AIM Norway)	49,9%	Norway

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	476	508	534	548
Δ (%)	1,90%	6,60%	5,24%	2,55%
Defence (%)	92%	92%	93%	92%
Export (%)	27%	26%	25%	28%
Operating profit/loss	36	8	40	61
Operating margin	7,54%	1,54%	7,55%	11,17%
Net income*	25	-0	27	45
Order book	687	649	1 508	1 550
Employees	2 816	3 055	2 939	3 097

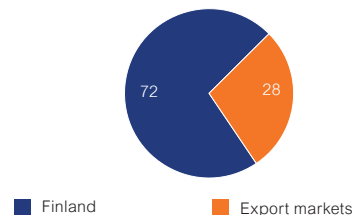
*Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



*Subsidiary company specialised in maintenance of platforms and equipment for the Finnish Defence Forces, 61.8% owned by Patria and 38.2% by the Finnish Insta Group **International Support Partnerships (maintenance of equipment, platforms and military aircraft engines for international customers)

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Saab	Kongsberg	LMT Defense	Gorenje	Rotis	PGZ	Djuro Djakovic	Denel	Konstrukta Defence	EVPU	BAE Systems	Bell	Leonardo	Airbus	NHI
Armoured wheeled vehicles															
6x6 armoured vehicle (Common Armoured Vehicle System programme)															
8x8 AMVXP and AMV armoured vehicles	●	●	●	●	●	●	●	●	●				●		
Weapon systems															
NEMO turreted remote-controlled 120 mm mortar system		●													
Advanced MOrtar System (AMOS) turreted 120 mm mortar system										●					
C4ISTAR															
Sonac DTS anti-submarine warfare sonar	●														
Compact Airborne Networking Data Link (CANDL)															
Aerostructures															
Composite components (A400M, 2000 Erieye, NH90)	●													●	●
Training, MRO and logistics support															
Military pilot training															
MRO for aircraft (F/A-18C/D, Hawk Mk51/51A/66, Grob 115 E/EA) and helicopters (NH90, 412, AW101, AW169)		●								●	●	●	●	●	
Aircraft engines MRO (F100, F135, F404, RTM322)															
Military vehicles MRO (XA 6x6 Pasi, AMV 8x8, CV90, Bv 206)										●					
Automatic weapons MRO			●												
Hamina-class fast attack craft MRO	●														

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Patria revenues increased 2.5% to €547m in 2021. Growth was mainly driven by the Land division and the Common Armoured Vehicle System (CAVS) programme for 6x6 wheeled armoured vehicles. Defence activities accounted for 92% of the group's sales in 2021. The group in particular provides training for aircraft pilots, as well as maintenance services for F/A-18C/D Hornet fighter aircraft, G 115E training aircraft and armoured vehicles of the Finnish Army. In addition to its activities in armoured vehicles, turrets, pilot training and MRO services, Patria also operates in the ammunition segment via Nammo, in which it holds a 50% stake alongside the Norwegian state.
- ▶ In December 2021, Finland selected Lockheed Martin's F-35 Lightning II offer for the HX Fighter procurement programme of 64 fighter aircraft at a cost of around €10 billion, with offsets worth at least 30% of the contract value. Patria will participate as a subcontractor in the production of aerostructures and is also expected to be involved in the supply of parts for other F-35 customer countries.
- ▶ In July 2022, the FAMOUS (European Future Highly Mobile Augmented Armoured Systems) consortium, led by Patria and involving 18 other European defence groups (including Arquus, Diehl Defence, Indra Sistemas, John Cockerill Defense, KNDS, etc.) received €95m from the European Defence Fund for the design phase of the next generation of armoured vehicles.

Home market

- ▶ With almost three quarters of its sales generated in Finland in 2021, Patria remains highly dependent on its domestic market.
- ▶ Finland ordered 160 6x6 wheeled armoured vehicles from the CAVS programme in January 2022, with the three first prototypes to be delivered in summer 2022.
- ▶ Senop, a Millog subsidiary, was selected in February 2022 to develop the driver's night vision system for the 6x6 wheeled armoured vehicles of the CAVS programme.
- ▶ In September 2022, Patria delivered the fourth and final Hamina-class fast attack craft to the Finnish Navy after its mid-life upgrade.

Export markets

- ▶ The group's export markets mainly include European countries (Norway, Sweden, Estonia, Latvia, Poland, Belgium and the Netherlands), the United Arab Emirates and South Africa.
- ▶ In February 2022, the Swedish Defence Materiel Administration (FMV) awarded Patria a SEK 300m (€29m) contract for the mid-life upgrade of the fleet of 168 XA 202/203 (Patgb 202/203) 6x6 wheeled armoured vehicles by the end of 2025. Among others, the engine, chassis, and electrical and hydraulic systems will be upgraded.
- ▶ In March 2022, the Slovak Army selected Patria's AMVXP 8x8 wheeled armoured vehicle for its procurement programme of up to 500 vehicles at a cost of €2.7bn, of which about 40% is to be supplied by Slovak manufacturers (BOV 8x8 programme). An initial contract worth €447m was awarded for the supply of 76 vehicles, logistics services and ammunition, with deliveries starting in 2023. These vehicles will be equipped with the Turra-30 remote controlled weapon station, armed with a 30 mm calibre gun and produced by Slovak company EVPU.
- ▶ In addition to Finland and Latvia, which ordered 200 vehicles in August 2021, the CAVS programme includes Estonia and Sweden and could also welcome Germany, which signed a letter of intent in June 2022.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €12m in 2021, representing 2.3% of revenues.



POLSKA GRUPA ZBROJENIOWA (PGZ)

Holding company encompassing more than 50 Polish companies operating in various fields of the defence industry. 70th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Tracked and wheeled armoured vehicles
- ▶ Weapon and artillery systems
- ▶ Missile systems
- ▶ Aeronautics (JAS, components for helicopters, MRO, modernisation)
- ▶ Military shipbuilding and naval MRO
- ▶ Defence electronics
- ▶ Energy and offshore (platform modules and metallic structures)

GOVERNANCE

President
of the Supervisory Board
President
of the Management Board
Vice President
of the Management Board

Wojciech Dabrowski

Sebastian Chwałek

Krzysztof Sola

OWNERSHIP STRUCTURE

Symbol

Listed on

Market Cap

Unlisted group

Major shareholders (as of 15.11.2022)

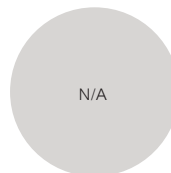
Polish Department of the Treasury	44,26%
Polski Holding Obronny sp. z.o.o	28,84%
Agencja Rozwoju Przemysłu S.A.	26,90%

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	1 298	1 377	1 452	≈ 1 530
Δ (%) [PLN]*	11,12%	6,94%	8,99%	N/A
Defence (%)	N/A	N/A	N/A	73%
Export (%)	12%	13%	11%	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	9	-142	43	N/A
Order book	N/A	N/A	N/A	N/A
Employees	≈ 17 500	≈ 18 000	> 18 000	N/A

*Variation based on revenue in local currency
See €/PLN, p.7

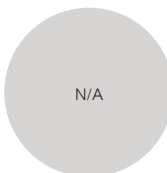
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Zakłady Mechaniczne Bumar - Labezy	93,69%	Poland
Mesko	88,9%	Poland
Huta Stalowa Wola	83,24%	Poland
Cenzin	72,7%	Poland

REVENUE BY REGION (%)



POLSKA GRUPA ZBROJENIOWA (PGZ)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Patria	Rheinmetall	Hanwha Defense*	Raytheon Technologies**	Lockheed Martin	Northrop Grumman	WB Electronics	Kongsberg	Babcock	Rafael	Saab
Armoured vehicles											
Borsuk future infantry fighting vehicle						●					
KTO Rosomak 8x8 armoured wheeled vehicle	●					●					
KTO Rosomak 6x6 armoured wheeled vehicle		●									
Armoured vehicle MRO and modernisation (Leopard 2A4/2A5, T-72, BWP-1 Puma, Tumak-4)		●									
Weapon and artillery systems, missiles											
Krab 155 mm self-propelled tracked howitzer		●	●			●					
Rak 120 mm self-propelled mortar system						●					
Wisla air defence system (based on the Patriot system) (including PAC-3 MSE interceptors)			●	●	●						
Naval Strike Missile (NSM)							●				
Grom-M/Piorun man-portable air-defence system											
Spike-LR anti-tank missile (under licence)									●	●	
Aeronautics											
PGZ-19R tactical UAV (Orlik programme)											
Aircraft and turbofan engine MRO and modernisation (Su-22, MiG-29, F-100, F-16)			●	●							●
Naval shipbuilding											
Miecznik-class coastal defence frigate								●			
Kormoran II-class mine warfare vessel											
Defence electronics											
TRS-15 3D surveillance radar											

*Hanwha group **Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ PGZ revenues reached approximately PLN 7bn (€1.53 bn) in 2021, 73% of which from defence activities. By 2030, the group aims to achieve sales of around PLN 12bn (€2.6 billion).
- ▶ In May 2022, PGZ created the Ottokar-Brzoza consortium with its subsidiaries Huta Stalowa Wola, Mesko and Wojskowe Zakłady Elektroniczne to develop a tracked armoured anti-tank vehicle, which would be equipped with eight Brimstone missiles from MBDA UK. The missiles might be produced locally by PGZ under licence. In July 2022, the Polish Armament Agency awarded the consortium a contract to start production with a first delivery expected in 2023.
- ▶ In September 2022, the Polish Ministry of National Defence selected the Boeing AH-64 Apache helicopter, against to the Bell AH-1Z Viper, for its Kruk attack helicopter procurement programme. PGZ will be involved in the programme through the production and/or maintenance of the aircraft.

Home market

- ▶ The group remains highly dependent on its domestic market (between 85% and 90% of revenues) and is a key partner for foreign players wishing to enter the Polish defence market.
- ▶ In December 2021, PGZ subsidiary PIT-Radwar delivered the last nine of 79 Poprad very short-range air defence systems ordered by the Polish Army in 2015 at a cost of PLN 1,083m (€225m).
- ▶ In December 2021, the Polish Ministry of National Defence announced that PGZ subsidiary Huta Stalowa Wola delivered 96 Krab 155 mm self-propelled howitzers, as part of a contract worth over PLN 4.6bn (nearly €1.1bn) signed in 2016 for the supply of 120 units by 2024.
- ▶ The Polish Ministry of National Defence announced in February 2022 that it was delaying the programme for the Ratonik submarine rescue ship being built by PGZ and ordered in June 2022 three Kormoran II-class minehunters from PGZ and Remontowa Shipbuilding for PLN 2.5bn (€540m), to be delivered in 2026-2027. The Ratonik ship might be completed after the delivery of the three Kormoran II-class ships.
- ▶ In March 2022, the Polish Armament Agency selected Babcock's Arrowhead 140 frigate for its procurement programme for three Miecznik-class coastal defence frigates. The ships will be built in Poland from 2023 by the PGZ-Miecznik consortium comprising PGZ, Remontowa Shipbuilding, Babcock, MBDA UK and Thales UK, at a cost of approximately PLN 8bn (€1.7bn).
- ▶ In April 2022, the PGZ-Narew consortium, consisting of PGZ and several of its subsidiaries, and MBDA UK signed a PLN 1.5bn (€324m) contract with the Polish Armament Agency for the supply of two batteries of the Narew short-range air defence system, with deliveries from September 2022. PGZ supplies the Sola radar and the fire control system, while MBDA UK provides the CAMM interceptor missile. Up to 23 batteries could be ordered.

Export markets

- ▶ South America, the Middle East and South East Asia are target markets for the group.
- ▶ In June 2022, the Polish government signed a contract with its Ukrainian counterpart for the supply of 50 to 60 Krab 155mm self-propelled howitzers by 2023 at a cost of around PLN 3bn (€648m).

Technology and Innovation

- ▶ In April 2022, the Polish Army ordered four additional prototypes of the Borsuk tracked armoured infantry fighting vehicle to continue the test and qualification campaign. Series deliveries are expected to begin in 2023.



QINETIQ

Technology company mainly operating in the field of defence and security (engineering services, aeronautics systems, etc.). 64th-largest defence contractor worldwide.

BUSINESS AREAS

Engineering support services and systems integrator

- ▶ Aerospace (aerostructures, propulsion systems)
- ▶ Engineering services and naval systems development/integration
- ▶ Site and test centre management
- ▶ C4ISR
- ▶ Robotics
- ▶ Cybersecurity

GOVERNANCE

Chairman	Neil Johnson
Chief Executive Officer	Steve Wadey
Chief Financial Officer	Carol Borg

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	QQ.
Listed on	LSE
Market Cap (£m)	1 991

Major shareholders (as of 15.11.2022)

AML Global Ltd.	10,00%
Schroder Investment Management Ltd.	9,98%
GLG Partners LP	4,99%
BlackRock Investment Management (UK) Ltd.	4,98%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
BQ Solutions	49%	Qatar
Houbara Defence & Security	49%	United Arab Emirates
QinetiQ Dar Massader	49%	Saudi Arabia
Redu Space Services	48%	Belgium

KEY FIGURES (Fiscal year ended: March 31st)

€ millions	2018-19	2019-20	2020-21**	2021-22
Revenue	1 033	1 226	1 431	1 553
Δ (%) [£]**	9,38%	17,76%	19,14%	3,30%
Defence (%)	92%	93%	76%	83%
Export (%)	30%	31%	33%	27%
Operating profit/loss	130	134	122	138
Operating margin	12,60%	10,96%	8,50%	8,90%
Net income***	129	121	136	106
Order book	3 652	3 504	3 456	3 344
Employees	6 061	6 787	6 890	6 915

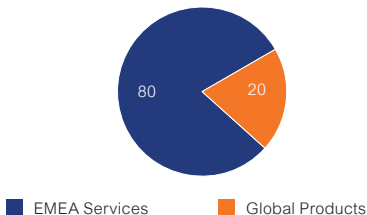
*Variation based on revenue in local currency

See f/£, p.7

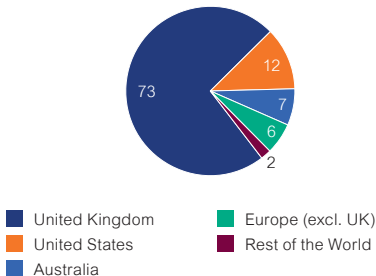
**Figures restated

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	BAE Systems	General Atomics	Beyond Gravity*	Lockheed Martin	L3Harris Technologies**	Sierra Nevada Corp.	UMS SKELDAR***	Leonardo	Thales	SES
Military aircraft										
Tempest future fighter aircraft	●									
Skeldar V-200 surveillance UAS (Canadian Armed Forces' programme)				●		●	●			
Avionics (Royal Air Force's Typhoon and F-35 fighter aircraft)	●		●							
Naval platforms and systems										
Queen Elizabeth-class aircraft carrier (electronic systems)	●									
Naval systems integration (C4ISR and combat systems)	●		●						●	
Paramarine, SeaWeigh and Survive naval architecture softwares	●									
Electromagnetic Aircraft Launch System (EMALS)		●								
Advanced Arresting Gear (AAG)	●									
Services										
Aerospace services (engineering, test centre, training)										
Naval Combat Systems Engineering Course	●								●	
Aerial (Banshee, Rattler), land and naval target systems										
C4ISR										
OBSIDIAN counter drone system										
Modular Electronic Warfare System (MEWS)				●						
Space systems										
International Berthing and Docking Mechanism (IBDM) for the ISS			●		●					
Communications satellite systems and ground-based equipment management										●
Robotics										
Reconnaissance and counter-IED operation UGVs (Dragon Runner, MAARS, Spartacus, TALON)										

*Formerly RUAG Space **Merger of L3 Technologies and Harris Corporation ***Joint venture between Saab and UMS AERO

STRATEGIC HIGHLIGHTS

Business trends

- ▶ QinetiQ revenues grew 3.3% in local currency to £1,320m (€1,553m) in 2021-2022. The group, which mostly operates in defence and security, generated nearly 75% of its revenue from the UK and U.S. governments.
- ▶ In August 2022, QinetiQ announced the acquisition of American software development and data analytics company Avantus Federal for \$590m (€528m). Avantus Federal posted revenues of \$298m (€267m) in 2021-2022 and employs 1,150 people. The deal, which requires regulatory approval, is expected to close in late 2022.

Home market

- ▶ The UK government is the group's largest customer. QinetiQ is a partner of BAE Systems on various programmes, including the Royal Navy's Queen Elizabeth-class aircraft carriers and Type 26 frigates, as well as on the Royal Air Force's proposed Tempest fighter aircraft.
- ▶ In November 2021, the BEQ consortium (consisting of Babcock, Elbit Systems UK and QinetiQ) was awarded a \$100m (€112m) 13-year contract by the Royal Navy to develop a sensor suite and C2 system under the Maritime Electronic Warfare System Integrated Capability (MEWSIC) Increment 1 programme. This is the first phase of the £500m (€660m) Maritime Electronic Warfare Programme (MEWP) aiming to develop a new electronic warfare system to be installed on the Royal Navy's Type 26, Type 31 and Type 45 frigates and Queen Elizabeth-class aircraft carriers.
- ▶ In May 2022, QinetiQ and its subsidiary Inzpire provided an anti-surface warfare training scenario for the Royal Navy's Type 23 Lancaster (F229) frigate.
- ▶ In July 2022, QinetiQ announced that its Banshee Jet80+ aerial target system will be deployed by the end of the year on the Royal Navy's Prince of Wales aircraft carrier to conduct training exercises in the identification and classification of enemy aircraft and missiles.

Export markets

- ▶ QinetiQ generated 27% of its revenues from exports during fiscal year 2021-2022, a share that the group aims to increase to 50%.
- ▶ In May 2022, the Royal Australian Navy renewed its contract with QinetiQ for the supply of maintenance and engineering services for a mine warfare training system at the Waterhen naval base for a period of five years.
- ▶ In July 2022, QinetiQ and Thales Alenia Space signed an R&D contract with the European Space Agency to build the Skimsat multi-mission, low earth orbit (<300 km) small satellite demonstrator, which aims to reduce the costs of Earth observation missions while improving the quality of the data provided, thanks to a low altitude.
- ▶ In August 2022, QinetiQ was awarded a \$45m (€40m) one-year contract by the Development Command (DEVCOM) C5ISR to develop, produce and integrate a multi-functional sensor suite.

Technology and Innovation

- ▶ QinetiQ's total R&D expenditure amounted to £302m (€355m) during fiscal year 2021-2022, representing 22.9% of revenue. Self-funded R&D expenditure represented 1.1% of revenues.
- ▶ At the Singapore Airshow in February 2022, QinetiQ and French company Texelis presented a first electric hub drive system (Hub Drive technology) mounted on an 8x8 wheeled armoured vehicle from ST Engineering. The two companies have been partners on this research project since May 2021.



RAFAEL ADVANCED DEFENSE SYSTEMS

Defence technology company mainly operating in the field of missiles and air defence systems (Iron Dome, Barak-8, Spike). 41st-largest defence company worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Missile systems, air and naval defence systems
- ▶ Unmanned systems
- ▶ C4ISR systems
- ▶ Land and naval weapon and artillery systems
- ▶ Defence electronics (countermeasure and protection systems)
- ▶ Space (microsatellites, propulsion systems, structures)
- ▶ Cybersecurity

GOVERNANCE

Chairman

Yozv Landau

President & CEO

Yoav Har-Even

OWNERSHIP STRUCTURE

Symbol

Listed on

Unlisted group

Market Cap

Major shareholders (as of 15.11.2022)

Israeli State

100%

MAIN JOINT VENTURES AND ASSOCIATES

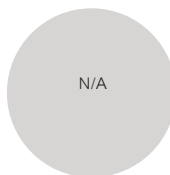
Name	%	Country
Shilat Optronics	50%	Israel
Opgal Optronic Industries	49,9%	Israel
Kalyani Rafael Advanced Systems (KRAS)	49%	India
GESPI Defense Systems	40%	Brazil
EuroSpike	20%	Germany
Astra Rafael Comsys	N/A	India
Raytheon RAFAEL Area Protection Systems	N/A	United States
Varley Rafael Australia (VRA)	N/A	Australia

KEY FIGURES (Fiscal year ended: December 31st)

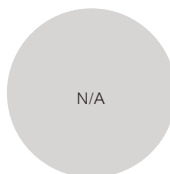
€ millions	2018	2019	2020	2021
Revenue	2 195	2 431	2 405	2 599
Δ (%) /\$*	14,79%	5,05%	0,84%	11,98%
Defence (%)	≈ 100%	≈ 100%	≈ 100%	≈ 100%
Export (%)	45%	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	113	99	82	112
Order book	5 921	6 387	5 800	6 267
Employees	≈ 7 500	≈ 8 000	≈ 8 000	≈ 8 000

* Variation based on revenue in U.S. dollars
See €/\$, p.7

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



RAFAEL ADVANCED DEFENSE SYSTEMS

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	IAI	Lockheed Martin	BAE Systems	Northrop Grumman	Raytheon Technologies*	Diehl Defence	Rheinmetall	Ebit Systems	Kalvari	Strategic Systems	General Dynamics	PGZ	Leonardo
Missile and defence systems													
Iron Beam future laser air defence system								●					
David's Sling air defence system and Stunner and SkyCeptor interceptors				●									
Iron Dome short-range air defence system				●									
Tamir and SkyHunter interceptors (Iron Dome)	●			●									
SPYDER family of air defence systems	●												
Barak-1 and Barak-8 naval air defence systems	●								●				
C-Dome naval defence system													
Spike family of missiles (Spike ER/LR and ER2/LR2 anti-tank missiles, Spike NLOS multi-purpose missile system)		●			●	●							
SPICE family of guided bombs (250/1000/2000)		●			●								
Trophy Active Protection System (APS)	●									●			●
Drone Dome Counter Unmanned Aircraft Systems (C-UAS)													
C4ISR systems													
TopLite electro-optical system													●
Litening advanced targeting pod				●									
Unmanned system													
Protector USV		●	●										
Weapon and artillery systems													
SAMSON family of remote controlled weapon stations										●			

*Merger of Raytheon and UTC

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Rafael Advanced Defense Systems (Rafael) reported sales of \$3.1bn (€2.6bn) in 2021, up 12% year-on-year in U.S. dollars terms. New order intake amounted to \$4.7bn (€4bn).
- ▶ In June 2022, Rafael, through its subsidiary Rafael USA, completed the acquisition of PVP Advanced EO Systems (PVP AEO), a U.S. company specialising in the development, production and support of electro-optical systems for land, air and naval applications.
- ▶ In September 2022, Rafael acquired Pearson Engineering, a British manufacturer of military land vehicles and equipment (crossing systems, mine countermeasures, earthmoving equipment, etc.). The company is involved in the British Ministry of Defence's Challenger 3 programme by supplying the turrets for the future battle tanks (which will be equipped with Rafael's Trophy system).

Home market

- ▶ Rafael is a key partner of the Israeli Ministry of Defense. The group is the third-largest Israeli defence company, behind Elbit Systems and IAI.
- ▶ In March 2022, the Israeli Minister of Defence announced funding of an undisclosed amount for the development and production of Rafael's future Iron Beam laser air defence system (based on a high-energy laser), in partnership with Elbit Systems. According to Rafael, the system could be operational within 2 to 3 years and be integrated into the Iron Dome air defence system.

Export markets

- ▶ In September 2021, the Czech Republic signed a contract worth CZK 13.7bn (€534m) for the acquisition of four SPYDER air defence systems, to be delivered by 2026. Local manufacturers will participate in the programme, for about 30% of the contract value.
- ▶ In September 2021, Rafael signed a \$80m (€68m) three-year contract with an unspecified Asian country to supply a naval warfare suite, most likely for the Philippine Shaldag V-class fast patrol boats (Israel Shipyards). The group was also selected in January 2022 by an unspecified Asian country to supply BNET SDR software defined radios for installation on land vehicles.
- ▶ In June 2022, the U.S. Army conducted field tests of the Iron Dome system, of which two units were acquired for evaluation (a \$373m, or €333m, contract signed in 2019). Iron Dome is considered an intermediate solution during the development of the Indirect Fires Protection Capability (IFPC) programme. Rafael and Raytheon Technologies proposed an enhanced version of the Iron Dome for the IFPC programme, but the \$237m (€200m) development contract was awarded to Dynetics (a subsidiary of Leidos) in September 2021. The U.S. Marine Corps also tested the Tamir interceptor in July 2022 for integration into the Medium-Range Intercept Capability (MRIC) prototype.
- ▶ In the context of Russia's invasion of Ukraine, several European states (including Cyprus and Romania) expressed interest in the Iron Dome system, designed to destroy rockets and short-range missiles in flight.

Technology and Innovation

- ▶ In June 2022, Rafael presented a new version of the Spike NLOS missile, which can be launched in a salvo of four missiles. The range was extended to 32 km when launched from land and naval platforms and to 50 km from a helicopter. Rafael, which plans to start production in 2023, is partnering with Lockheed Martin to market the missile in the U.S.
- ▶ In July 2022, the group unveiled the Ice Breaker air-to-ground cruise missile, with a range of 300 km and capable of autonomously identifying targets, like the Sea Breaker anti-ship missile presented in 2021.



RAYTHEON TECHNOLOGIES

Aerospace and defence company created by the merger between Raytheon and UTC on 3 April 2020. Currently the world's second-largest defence contractor.

BUSINESS AREAS

Missile manufacturer, systems integrator/
equipment supplier and engine manufacturer

- ▶ Missiles and shells
- ▶ Integrated defence systems (radar systems, air defence systems)
- ▶ C5ISR systems
- ▶ Commercial and military aircraft propulsion systems
- ▶ Commercial and military aerostructures and aircraft equipment
- ▶ Space systems

GOVERNANCE

Chairman & CEO

Gregory J. Hayes

**President of Raytheon
Missiles & Defense**

Wesley D. Kremer

Chief Financial Officer

Neil G. Mitchell

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	RTX
Listed on	NYSE
Market Cap (\$m)	140 817

Major shareholders (as of 15.11.2022)

SSgA Funds Management, Inc.	8,77%
The Vanguard Group, Inc.	7,89%
Capital Research & Management Co. (Global Investors)	5,07%
Capital Research & Management Co.	3,94%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Collins Elbit Vision Systems	50%	United States
NetFires	50%	United States
Range Generation Next	50%	United States
Raytheon-Lockheed Martin Javelin JV	50%	United States
TRS AMDC2	50%	France

KEY FIGURES (Fiscal year ended: December 31st)

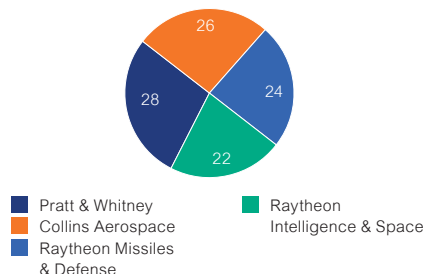
€ millions	2019 (Raytheon)	2019 (UTC)	2020** (Raytheon Technologies)	2021 (Raytheon Technologies)
Revenue	26 050	68 791	49 551	54 428
Δ (%) [\$/]*	7,80%	15,90%	N/A	13,80%
Defence (%)	95%	17%	61%	65%
Export (%)	29%	61%	39%	38%
Operating profit/loss	4 263	8 005	-1 654	4 191
Operating margin	16,36%	11,64%	-3,34%	7,70%
Net income***	2 984	4 944	-3 081	3 226
Order book	43 412	118 166	122 346	137 688
Employees	70 000	243 200	181 000	174 000

*Variation based on revenue in local currency
See €/\$, p.7

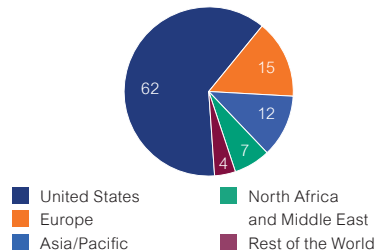
**12 months data of former UTC activities and 9 months data (April to December) of former Raytheon activities

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Raytheon	UTC	Rafael	Nammo	L3-harris technologies*	Northrop Grumman	BAE Systems	General Dynamics	Lockheed Martin	Kongsberg	Diehl Defence	Thales	MHI	GKN
Weapon systems														
AGM-181 LRSO future nuclear ballistic missile (Long Range Stand Off Weapon programme)	■													
Tomahawk cruise missile	■													
AIM-9 Sidewinder family of air-to-air missiles	■		●							●			●	
AIM-120 AMRAAM air-to-air missile	■		●	●	●		●							
NSM/JSM anti-ship missiles	■		●						●					
FMG-148 Javelin anti-tank missile	■							●						
BGM-71 TOW anti-tank missile	■											●		
Excalibur M982 advanced precision guided artillery shell	■		●			●								
Integrated defence systems														
AN/SPY-6 (AEGIS) AESA naval radar	■				●			●						
AN/TPY-2 (THAAD) early warning radar	■							●						
Patriot air defence system (integrator)	■							●					●	
David's Sling long-range air defence system and Stunner interceptor	■		●											
Military aircraft propulsion systems														
F135 turbofan engine (F-35)	■													●
F100 turbofan engine (F-15, F-16, X-47B)	■													●
PT6A turboprop engine (EMB 314, T-6, PC-21, HeronTP)	■													
Aircraft systems														
Landing gears (F-15, F-16, F-35, C-17, AH-64)	■													
Propeller systems** (A400M, C-130)	■													

*Merger of L3 Technologies and Harris Corporation **Produced by its French Ratier-Figeac subsidiary

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Raytheon Technologies revenues reached \$64.4bn (€54.4bn) in 2021, 65% of which from defence activities. The group is the world's second-largest defence company by revenues, behind Lockheed Martin, and the third-largest aerospace company (civil and military), behind Boeing and Airbus.
- ▶ Of the group's four branches, two are derived from Raytheon and generate more than 95% of their revenues in the defence sector: Raytheon Missiles & Defense and Raytheon Intelligence & Space. On the other hand, the two branches that emerged from UTC only generate around 35% of their sales in defence: Collins Aerospace (aerospace components) and Pratt & Whitney (aircraft engines).
- ▶ In June 2022, NASA announced funding for Raytheon's branch Collins Aerospace, in partnership with Oceanering and ILC Dover, and Axiom Space to develop a new spacesuit for use on the International Space Station (ISS), for the Artemis lunar missions and on the Gateway space station, as well as for future missions to Mars (Exploration Extravehicular Activity Services, xEVAS).

Home market

- ▶ Raytheon Technologies generated 62% of its revenue from the U.S. market in 2021. The group is a preferred partner of the U.S. Department of Defense, along with Lockheed Martin and Boeing.
- ▶ In October 2021, Raytheon Missiles & Defense signed two contracts worth a total of \$1.64bn (€1.39bn) with the U.S. Navy to produce 724 RIM-162 ESSM Block 2 missiles for the U.S. and 11 other NATO members and to provide engineering services.
- ▶ In December 2021, the U.S. Navy awarded Raytheon Missiles & Defense a \$578m (€489m) contract to produce Standard Missile-2 (RIM-66 Standard) surface-to-air missiles: 54 of the Block IIIA version for the U.S. and 215 of the Block IIIA and IIIB versions for seven other countries.
- ▶ In the spring of 2022, Raytheon Missiles & Defense signed two contracts worth a total of \$1.07bn (€959m) with the U.S. Navy to produce AN/SPY-6 radars for various types of ships (Arleigh Burke-class destroyers, aircraft carriers and amphibious ships).
- ▶ In August 2022, the U.S. Air Force awarded Raytheon Missiles & Defense a \$972m (€868m) contract to produce AIM-120C8/D3 AMRAAM air-to-air missiles for the U.S. Air Force, the U.S. Navy and 19 partner countries.
- ▶ In September 2022, Raytheon Missiles & Defense, in partnership with Northrop Grumman, won a \$985m (€880m) contract from the U.S. Air Force to develop an aircraft-launched hypersonic missile by 2027 (Hypersonic Attack Cruise Missile or HACM programme).

Export markets

- ▶ Export sales accounted for 38% of total revenues in 2021 and mostly concerned civil activities. In the military sector, the group is benefiting from international demand for Patriot air defence systems and F135 engines for the F-35 Lightning II fighter aircraft.
- ▶ In June 2022, the Royal Australian Navy selected the S-100 Camcopter from Raytheon Australia and Schiebel Pacific for its SEA 129 Phase 5 maritime UAS programme, and could order around 40 units initially.
- ▶ In July 2022, the Royal Norwegian Air Force selected the GBU-53/B StormBreaker precision-guided bomb from Raytheon Missiles & Defense to equip its fleet of F-35 fighter aircraft.
- ▶ By the end of November 2022, the United States had sent over 8,500 Javelin anti-tank missiles and 1,600 Stinger anti-aircraft missiles to Ukraine.

Technology and Innovation

- ▶ Self-financed R&D expenditure amounted to \$2.7bn (€2.3bn) in 2021, representing 4.2% of revenues.



RHEINMETALL

German industrial conglomerate. Germany's leading defence group, one of Europe's leading players in land systems, and 29th-largest defence contractor.

BUSINESS AREAS

Platform manufacturer, systems integrator/
equipment supplier

- ▶ Military vehicles (armoured tracked and wheeled vehicles, military trucks, etc.)
- ▶ Cannons, turrets and weapon systems
- ▶ Ammunition
- ▶ Air defence systems
- ▶ Defence electronics and C4ISR systems
- ▶ Simulation and training solutions

GOVERNANCE

Chairman of the Supervisory Board

Ulrich Grillo

Chief Executive Officer

Armin Papperger

Chief Financial Officer

Helmut P. Merch*

*Replaced by Dagmar Steinert from January 2023

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	RHM
Listed on	XETRA
Market Cap (€m)	7 680

Major shareholders (as of 15.11.2022)

Harris Associates LP	11,60%
Wellington Management Co. LLP	5,08%
Capital Research & Management Co. (World Investors)	5,05%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
ARTEC	64%	Germany
Rheinmetall BAE Systems Land	55%	United Kingdom
Rheinmetall MAN Military Vehicles	51%	Germany
Projekt System & Management	50%	Germany
Supashock	49%	Australia
EuroSpike	40%	Germany

KEY FIGURES (Fiscal year ended: December 31st)

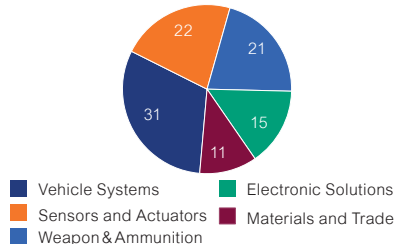
€ millions	2018	2019	2020*	2021
Revenue	6 148	6 255	5 405	5 658
Δ (%)	4,27%	1,74%	N/A	4,68%
Defence (%)**	52%	56%	70%	67%
Export (%)	72%	69%	64%	66%
Operating profit/loss	518	512	398	608
Operating margin	8,43%	8,19%	7,36%	10,75%
Net income***	305	335	-27	291
Order book****	8 577	10 399	14 397	15 727
Employees	22 899	23 780	23 268	23 945

*Figures restated **Since 2021, defence activities are no longer isolated in a Defence division

***Net income attributable to shareholders

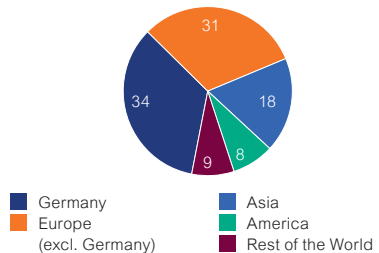
****Defence activities' backlog

REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	KMW*	Nexter*	MAN	Supashock	Raytheon Technologies**	General Dynamics	Supracat***	BAE Systems	UAC	Eurofighter	Airbus	NHIndustries	Denel
Military vehicles													
Main Ground Combat System (MGCS) future french-german main battle tank****	●	●											
Lynx armoured infantry fighting vehicle				●	●								
Puma armoured infantry fighting vehicle	●												
8x8 Boxer armoured infantry fighting vehicle	●		●			●	●						
6x6 Fuchs / Fox armoured personnel carrier			●										
4x4 AMPV light armoured vehicle	●												
HX and SX high mobility logistic vehicles			●	●									
Guns and turret systems													
L52 155 mm gun (PzH 2000 self-propelled howitzer)	●												
L44 and L55 120 mm guns (Leopard 2 and M1 Abrams tanks)	●				●								
LANCE and LANCE RC turret systems													
Ammunition													
Large-caliber artillery projectiles (120 mm and 155 mm) and medium-caliber ammunition (20 mm, 25 mm, 27 mm and 30 mm)													●
Air defence systems													
Oerlikon Skyshield / MANTIS air defence system													
Simulation and training solutions													
Flight simulators (MiG-29K, Typhoon, A400M, NH90, Tigre, etc.)								●	●	●	●		
Future soldier systems													
Gladius / Argus soldier systems													

*KNSD group **Merger of Raytheon and UTC ***SC Group ****The sharing of the industrial workload is still under discussion

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Rheinmetall revenues reached €5.7bn in 2021, up 4.7% year-on-year. Of the three branches that now comprise the group's defence activities (67% of total sales in 2021), Weapon and Ammunition recorded the strongest growth (+2.8%), driven by service activities, while revenues in the Vehicle Systems and Electronic Solutions branches grew 2.0% and 0.1% respectively.
- ▶ In November 2022, Rheinmetall announced the acquisition of Spanish explosives and ammunition manufacturer Expal Systems from Maxam (owned by Rhone Capital) for €1.2bn. The deal is subject to approval of the anti-trust authorities and is expected to be completed in 2023. It is intended to enable Rheinmetall to increase its ammunition production capacity, broaden its range and gain access to the Spanish market.

Home market

- ▶ Germany is an important market for Rheinmetall, accounting for 34% of sales in 2021, with an even higher share for defence activities (42% in 2021). The group is expected to benefit from the announced increase in German military spending (annual investment of more than 2% of GDP in defence from 2023).
- ▶ Launched in May 2020, the System Architecture Definition Study - Part 1 (SADS-1) of the MGCS future French-German main battle tank has been extended until early 2023. Work is ongoing in 2022 to complete the industrial organisation between KNDS (KMW / Nexter) and German group Rheinmetall.

Export markets

- ▶ Rheinmetall has a strong international presence (66% of total sales and 58% of military sales in 2021).
- ▶ In March 2022, the Hungarian Ministry of Defence ordered a range of ammunition (30 mm ammunition, 120 mm ammunition for tanks, 155 mm shells, 40 mm and 76 mm cartridges for countermeasure systems, etc.) from Rheinmetall for several hundred million euros. Deliveries are scheduled between 2023 and 2031.
- ▶ In April 2022, the British Ministry of Defence exercised an option with ARTEC, a joint venture between Rheinmetall and KMW, for the supply of 100 additional Boxer armoured vehicles in three versions (troop transport, command and ambulance).
- ▶ In July 2022, Rheinmetall won a contract worth €65m with an unspecified country for the supply of Oerlikon Skyguard 3 air defence systems (equipped with a GDF009 twin cannon and AHEAD ammunition, also produced by the group), to be delivered by 2024.
- ▶ In August 2022, American Rheinmetall Vehicles and GM Defense joined forces to compete for the U.S. Army's Common Tactical Truck (CTT) programme. Up to 5,700 vehicles might be ordered for a total amount of \$5bn (€4.5bn). Prototype selection is expected in December 2022.
- ▶ In November 2022, Rheinmetall announced the supply of 15 Leopard 2 A4 battle tanks to Slovakia and Marder 1A3 tanks to Greece, to replace equipment supplied by these countries to Ukraine.

Technology and Innovation

- ▶ The group's total R&D expenditure amounted to €337m in 2021 (6.0% of revenues), of which €168m from defence activities (4.2%).
- ▶ During the Eurosatory exhibition in June 2022, Rheinmetall showcased a new heavy battle tank, the KF51 Panther. The vehicle is armed with a self-loading 130 mm smoothbore gun developed by the group, dubbed Future Gun System (FGS), and can be equipped with a remote controlled weapon station armed with a machine gun.



ROHDE & SCHWARZ

Electronics equipment and systems manufacturer for commercial and defence. A specialist of software radios and secured communications, part of FCAS programme.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Communication systems for ground, air and naval forces
- ▶ ISR and defence electronics
- ▶ Cybersecurity
- ▶ Test and measurement systems
- ▶ Broadcast solutions

GOVERNANCE

President and CEO Christian Leicher

President and Chief Operating Officer Peter Riedel

OWNERSHIP STRUCTURE

Symbol Listed on Market Cap Unlisted group

Major shareholders (as of 15.11.2022)

Founding families and employees | 100%

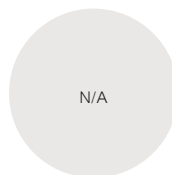
MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
RRS-MITCOS	25,1%	Germany
DICOM	N/A	Czech Republic

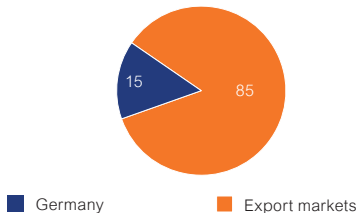
KEY FIGURES (Fiscal year ended: June 30)

€ millions	2017-18	2018-19	2019-20	2020-21
Revenue	≈ 2 040	≈ 2 140	≈ 2 580	≈ 2 280
Δ (%)	4,62%	4,90%	20,56%	-11,63%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	N/A	N/A	≈ 85%	≈ 85%
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	11 500	12 100	12 300	13 000

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Diehl Defence	ESG	MESIT	Hensoldt	Airbus	Naval Group	Rheinmetall
Software defined radios							
German Armed Forces' joint radio system (SVFuA programme)							●
SOVERON VR tactical radio for vehicular and semi-mobile communications		●					
SOVERON AR software defined airborne radio		●					
R&S SDAR software defined airborne radio (CH-47)							
R&S M3SR Series4100 radio family for stationary and shipborne communications							
R&S M3AR VHF/UHF transceiver family for airborne communications (Eurofighter, NH90)							
R&S MR6000A transceiver (A400M)							
Shipboard communication systems							
NAVICS system for internal and external communications							
RIFAN 2 IP network for the French Navy					●	●	
ISR and defence electronics							
R&S Wideband Processing Unit (WPU) 2000 next-generation ELINT processor							
R&S RAMON COMINT/CESM softwares							
NGWS' defence electronics (FCAS programme)	●	●		●			
Encryption system							
ELCRODAT 4-2 encryption system							
Anti-UAV system							
R&S ARDRONIS solution for automated radio-controlled drone protection (part of the GUARDION anti-UAV system)	●	●					
Message handling systems							
R&S STANAG 5066 and R&S MMHS message handling systems							

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Rohde & Schwarz posted revenues of around €2.28bn in 2020-2021, down almost 12% year-on-year. Solid growth was nevertheless recorded in several defence-related areas, such as NAVIS naval and SOVERON land secure communication systems, CERTIUM air traffic control systems and cyber security solutions.
- ▶ On 1 July 2021, Rohde & Schwarz announced the acquisition of Zurich Instruments, a Swiss specialist in the development of test and measurement solutions for 6G and autonomous driving technologies.
- ▶ In November 2021, Rohde & Schwarz announced the merger of its Aerospace & Defence Security and Broadcast & Media divisions into a new division called Technology Systems. The group's three new divisions are involved in both military and civil activities, although the Test & Measurement division is predominantly civilian-oriented.

Home market

- ▶ Rohde & Schwarz is involved, as an electronic equipment manufacturer, in various programmes of the German Armed Forces (Quadriga project for the acquisition of 38 Typhoon combat aircraft, replacement of the Sea King Mk.41 helicopter fleet, D-LBO programme for the digitalisation of land-based operations, etc.). It also teamed in June 2019 with Diehl Defence, ESG and Hensoldt within the FCMS (Future Combat Mission System) consortium to participate on the defence electronics part of the Future Combat Air System (FCAS) programme.
- ▶ In September 2021, Thales awarded Rohde & Schwarz a contract to supply the KORA system used to detect, identify and track radar emissions and communications transmissions. The system will be integrated on the German Navy's future F126 frigates being built by Lürssen (under Damen prime contractorship).
- ▶ In January 2022, the German Navy selected Rohde & Schwarz's SOVERON VHF/UHF airborne communications transceiver to equip its 31 NH90 MRFH maritime helicopters currently being produced by NHIndustries. Each helicopter is equipped with three transceivers.

Export markets

- ▶ Rohde & Schwarz generates around 85% of its revenues from exports.
- ▶ In September 2021, Rohde & Schwarz was awarded a contract by the Canadian Department of National Defence to replace HF receivers installed at several Canadian Armed Forces sites over a 5-year period. The group will supply its M3SR Series4100 HF receivers.
- ▶ In November 2021, Rohde & Schwarz signed a contract with the Royal Thai Air Force to supply the M3AR communication system to equip the T-6C Texan II (Beechcraft) training aircraft.
- ▶ At the end of 2021, the group was selected by an unspecified Persian Gulf country Navy to provide the NAVICS naval communication system for future corvettes currently under construction.
- ▶ In May 2022, BAE Systems Australia selected Rohde & Schwarz to design and produce the integrated communication system for the Royal Australian Navy's future Hunter-class frigates currently under construction. This system will be derived from Rohde & Schwarz's NAVICS system chosen to equip the Royal Navy's Type 26 frigates (on which the Hunter-class frigates are based).

Technology and Innovation

- ▶ In addition to its core areas of expertise, Rohde & Schwarz is conducting research projects in the fields of artificial intelligence, industrial Internet of Things (IIoT), 6G, cloud solutions and quantum technology.



ROLLS-ROYCE

Aerospace and marine propulsion manufacturer, one of the world's top three producers of engines for civil and military aircraft, and the world's 27th-largest defence company

BUSINESS AREAS

Engine manufacturer

- ▶ Aeronautics propulsion systems
- ▶ Naval propulsion systems (gas turbines, nuclear reactors, diesel engines)
- ▶ Distributed generation systems
- ▶ MRO and logistic support

GOVERNANCE

Chainwoman	Anita Frew
Chief Executive Officer	Warren East
President, Defence	Tom Bell

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	RR
Listed on	LSE
Market Cap (£m)	7 280

Major shareholders (as of 15.11.2022)

Causeway Capital Management LLC	8,05%
Harris Associates LP	4,99%
Hargreaves Lansdown Stockbrokers Ltd.	3,43%
The Vanguard Group, Inc.	3,23%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
LHTEC	50%	United States
MTU Turbomeca Rolls-Royce ITP	50%	Germany
TAEC Ucak Motor Sanayi	49%	Turkey
EUROJET Turbo	46%	Germany
Europrop International	44%	Germany
Airtanker Services	23,5%	United Kingdom

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020****	2021
Revenue*	17 025	17 597	12 843	12 729
Δ (%) [£]**	10,21%	2,54%	-26,02%	-4,23%
Defence (%)	23%	24%	32%	33%
Export (%)	90%	89%	90%	87%
Operating profit/loss*	696	920	-2 256	481
Operating margin*	4,09%	5,23%	-17,57%	3,78%
Net income***	336	344	-3 562	140
Order book	70 503	71 563	58 843	60 238
Employees	54 500	51 700	43 700	40 000

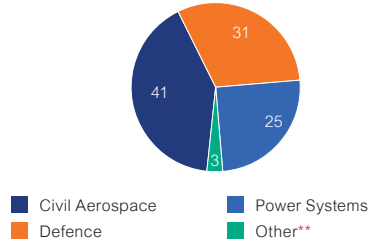
*Excluding investments and equity affiliates

**Variation based on revenue in local currency

See €:£, p.7

Net income attributable to shareholders *Figures restated

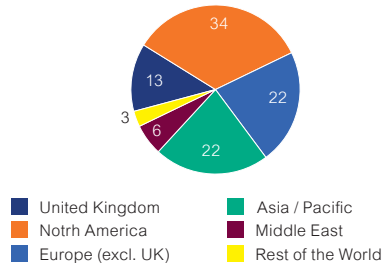
REVENUE BY BUSINESS SEGMENT (%)*



*Revenue distribution based on total sales excluding eliminations

**New markets and Other businesses divisions

REVENUE BY REGION (%)*



*Revenue distribution based on total sales excluding eliminations

ROLLS-ROYCE

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Safran	MTU Aero Engines	Avio Aero*	Praet & Whitney**	ITP Aero	Honeywell	StandardAero	Reaction Engines	Turkish Aerospace	BAE Systems	HAL***
Aircraft engines											
EJ200 turbojet engine (Eurofighter Typhoon)		●	●								
LiftSystem for F-35B Lightning II fighter aircraft				●							
Adour turbojet engine (Jaguar, Hawk / T45)	●								●	●	
TP400-D6 turboprop engine (A400M)	●	●									
T56 and AE2100 turboprop engines (C-130)							●				
AE3007 turbojet engine (Embraer ERJ / Legacy)							●				
Trent 700 turbojet engine (A330 MRTT)											
Engine for the Tempest future fighter aircraft										●	
Hypersonic propulsion systems project							●		●		
Helicopter engines											
MTR390-E turboshaft engine (Tiger)	●	●		●							
CTS800 turboshaft engine (Lynx / Super Lynx, AW159 Wildcat)					●			●			
AE1107 turboshaft engine (V-22 Osprey)							●				
M250 turboshaft engine (OH-58, AH-6, MQ-8 Fire Scout)							●				
UAS propulsion systems											
AE3007 turbojet engine (RQ-4 Global Hawk, MQ-4C Triton)											
Naval and submarine propulsion systems											
MT30 gas turbine (Queen Elizabeth-class aircraft carriers, T26-class frigates, Hunter-class frigates, Daegu-class frigates)										●	
PWR2 (Vanguard SSBN, Astute SSN) and PWR3 (Dreadnought SSBN) nuclear reactors										●	
MTU Series 4000 / 8000 diesel engines											

*Subsidiary of GE Aerospace (formerly GE Aviation) **Raytheon Technologies group (merger of Raytheon and UTC)

***Hindustan Aeronautics Ltd

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Rolls-Royce revenues fell 4.2% in local currency to £10.9bn (€12.7bn) in 2021 (excluding investments and equity associates). The Civil Aerospace division, down 10.5% year-on-year, was again affected by the health context and the difficulties encountered by Boeing, one of its main customers. On the other hand, revenues in the Defence division rose 0.4%, thanks to higher sales in Asia and the Middle East.
- ▶ Rolls-Royce completed the sale of its Norwegian subsidiary Bergen Engines to British company Langley Holdings for €91m in December 2021 and of its 23.1% stake in the AirTanker Holdings consortium for £189m (€220m) in February 2022. However, Rolls-Royce retained a 23.5% stake in AirTanker Services.
- ▶ Following approval from the Spanish government, Rolls-Royce completed the sale of its Spanish subsidiary ITP Aero in September 2022. ITP Aero was sold for €1.6bn to U.S. investment fund Bain Capital (85% of the capital) and the Spanish companies JB Capital (10%) and SAPA (5%).

Home market

- ▶ Rolls-Royce generated only 13% of its revenues in its domestic market in 2021. However, the group is the leader in the naval engines and turbines segment in the UK, and also has a monopoly position in submarine nuclear propulsion.
- ▶ In March 2022, Rolls-Royce signed a £105m (€126m) 11-year contract with the British Ministry of Defence to provide maintenance services for the Adour Mk151 and Mk951 engines, which power the TMk1 and TMk2 Hawk trainers respectively.
- ▶ In May 2022, the British Ministry of Defence awarded BAE Systems and Rolls-Royce contracts worth over £2bn (€2.4bn) to continue the construction of the first Dreadnought-class ballistic missile submarine. The programme, which total cost is estimated at £31bn (€36bn), comprises four submarines, the first two of which are currently being built by BAE Systems. Rolls-Royce will supply the nuclear reactors for all four submarines.

Export markets

- ▶ The U.S., which accounted for 31% of revenue in 2021, remain the group's largest market. Rolls-Royce is a major supplier of propulsion systems for military aircraft and ships to the U.S. Department of Defense.
- ▶ In September 2021, Rolls-Royce was selected by the United States to supply 650 F130 engines (military version of the BR700 engines) for the U.S. Air Force's B-52 Stratofortress bomber fleet renovation programme. The contract has an initial value of \$500m (€423m) and could reach a total of \$2.6bn (€2.2bn).
- ▶ In March 2022, through their joint venture TAEC, Rolls-Royce and its Turkish partner Kale relaunched work to develop an engine to power the future Turkish TF-X fighter aircraft (MMU programme - National Combat Aircraft - for which Turkish Aerospace is the prime contractor). The aircraft is scheduled to make its maiden flight in 2026 and enter service in 2029.
- ▶ In August 2022, Rolls-Royce was awarded two contracts by the U.S. Naval Air Systems Command (NAVAIR): one worth \$854m (€755m) over five years for the maintenance of AE2100D3 turboprop engines on the U.S. Marine Corps' and Kuwaiti Armed Forces' C-130J transport and KC-130J tanker aircraft, and the other worth \$1.01bn (€893m) over five years to provide maintenance and logistics services for 210 F405-RR-401 Adour turbojet engines powering the T-45 Goshawk trainer aircraft.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to £813m (€945m) in 2021, representing 10.8% of revenues.



SAAB

Group mainly operating in the defence sector (Gripen fighter aircraft, A26 submarine).
Leading supplier to the Swedish Armed Forces and 35th-largest defence contractor.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Military aircraft
- ▶ Naval platforms and systems
- ▶ Missile and weapon systems
- ▶ Defence electronics
- ▶ C4ISR and early warning systems
- ▶ Information security and system integration
- ▶ Simulation solutions

GOVERNANCE

Chairman	M. Wallenberg
Chief Executive Officer	M. Johansson
Head of Aeronautics division	J. Hjelm

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	SAAB B
Listed on	NASDAQ OMX Stockholm
Market Cap (SEK m)	49 568

Major shareholders (as of 15.11.2022)

Investor AB (Investment Company)	28,90%
Wallenberg Investments AB	8,87%
Swedbank Robur Fonder AB	5,38%
AllianceBernstein LP	4,25%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
SN Technologies	50%	Switzerland
UMS SKELDAR	47%	Switzerland
Akaer Participações	42,2%	Brazil
TAURUS Systems	33%	Germany

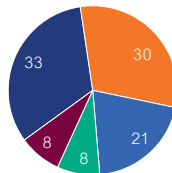
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	3 232	3 346	3 266	3 859
Δ (%) [SEK]**	4,71%	6,87%	-0,01%	10,51%
Defence (%)	85%	85%	91%	92%
Export (%)	59%	63%	64%	62%
Operating profit/loss	221	277	121	285
Operating margin	6,83%	8,29%	3,71%	7,38%
Net income**	128	187	99	190
Order book	9 964	8 930	9 948	10 261
Employees	17 096	17 420	18 073	18 153

*Variation based on revenue in local currency
See €/SEK, p.7

**Net income attributable to shareholders

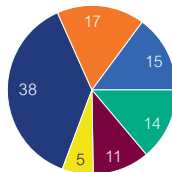
REVENUE BY BUSINESS SEGMENT (%)*



- Surveillance
- Aeronautics
- Dynamics
- Kockums
- Combitech

*Revenue distribution based on total sales excluding Corporate division and eliminations

REVENUE BY REGION (%)



- Sweden
- Europe (excl. Sweden)
- Latin America
- Asia
- North America
- Rest of the World

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Thales	MBDA	Embraer	Dassault Aviation	Bombardier	Leonardo	AEL Sistemas*	Military Technical Institute	BAE Systems	UMS Aero Group	Diehl Defence	Boeing
Military aircraft												
JAS 39 Gripen E/F fighter aircraft	●	●	●			●	●					
T-7A Red Hawk trainer aircraft (aft fuselage)												●
2000 Erieye AEW&C surveillance aircraft			●									
GlobalEye surveillance aircraft (radar) and Swordfish Maritime Patrol Aircraft (MPA) (embedded system)				●								
Skeldar V-200 VTOL UAV									●			
nEUROn UCAV demonstrator (landing gear doors, main fuselage, avionics, etc.)				●								
Missile and weapon systems												
AT4 and Carl-Gustaf M4 man-portable shoulder-fired systems												
NLAW Light Anti-tank Weapon missile system												
RBS 70 NG very short-range ground-based air defence system												
RBS 15 Mk3 anti-ship missile system												●
IRIS-T short-range air-to-air missile												●
METEOR beyond visual range air-to-air missile		●										
TAURUS KEPD 350 cruise missile		●										
Defence and security solutions												
Giraffe and Sea Giraffe family of radars (75, AMB, 1X, 4A, 8A)								●				
Submarine												
Future A26-class attack submarine												
Defence electronics												
BOL advanced countermeasure dispenser								●				
Integrated Defensive Aids System (IDAS)												

*Elbit Systems group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Saab revenues reached SEK 39.2bn (€3.9bn) in 2021, up 10.5% year-on-year in local currency. Growth was driven by increased deliveries (notably on the Gripen fighter aircraft and Swedish submarine support services programmes by the Aeronautics and Kockums divisions).
- ▶ After its reorganisation in July 2021, Saab now has five divisions: Surveillance, Aeronautics, Dynamics, Kockums and Combitech (a subsidiary that provides technical consulting services).
- ▶ The group generated 92% of its revenues in defence in 2021. With the exception of the mainly commercial market-oriented Combitech branch, defence activities account for more than 80% of revenues at each of Saab's divisions, and even between 95% and 100% for the Aeronautics, Dynamics and Kockums divisions.
- ▶ In May 2022, Saab completed the sale of its defence laser rangefinder business to French laser technology specialist Lumibird. A new company, called Lumibird Photonics Sweden and based in Gothenburg (Sweden), will be set up and employ around 30 people.

Home market

- ▶ Saab generated 38% of its revenues in Sweden in 2021. The group is the preferred partner of the Swedish Defence Materiel Administration (FMV), particularly for combat aircraft and naval defence, and is to deliver 60 JAS 39 Gripen E aircraft ordered by Sweden in 2014.
- ▶ In March 2022, FMV awarded Saab a contract worth SEK 1.1bn (€104m) for the mid-life upgrade of the third Gotland-class submarine, named HMS Halland, which was commissioned in 1996.
- ▶ In May 2022, Saab was awarded a contract worth around SEK 800m (€76m) by FMV to supply ammunition for Carl-Gustaf rocket launchers, to be delivered between 2023 and 2025. The order includes new HE 448 programmable explosive ammunition, which improves the accuracy and range of shots.
- ▶ In June 2022, Saab signed a SEK 7.3bn (€694m) contract with FMV for the production of two GlobalEye surveillance aircraft, to be delivered by 2027. The contract includes options for two additional units.

Export markets

- ▶ Saab's export sales amounted to SEK 24.3bn (€2.4bn) in 2021, accounting for 62% of total sales.
- ▶ Saab delivered to Boeing the first three rear fuselage sections for the future U.S. Air Force T-7A Red Hawk trainer aircraft (in April, July and October 2021). The first aircraft for the U.S. Air Force was presented by Boeing in April 2022.
- ▶ In January 2022, the Hungarian government and FMV completed negotiations for the upgrade of Hungary's 14 Gripen C/D fighter aircraft to the MS20 Block 2 standard, which will be carried out by Saab. The upgraded aircraft could be armed with IRIS-T and Meteor missiles and GBU-49 laser guided bombs.
- ▶ In April 2022, the first two Gripen E series aircraft made their maiden flight in Brazil, which ordered 36 units in 2014 as the F-39 Gripen.
- ▶ In August 2022, Boeing awarded Saab a \$71m (€64m) subcontract for the production of rear fuselages for the T-7A Red Hawk trainer aircraft, with deliveries starting in 2023.
- ▶ AT4 and Carl-Gustaf M4 rocket launchers and NLAW light anti-tank systems were supplied to Ukraine by several countries, including Sweden, the UK and Canada.

Technology and Innovation

- ▶ Saab's total R&D expenditure amounted to SEK 6,9bn (€680m) in 2021, representing 17.6% of revenues. Self-financed expenditure represented 5.1% of group revenues.

BUSINESS AREAS

Engine manufacturer, systems integrator/
equipment supplier

- ▶ Aircraft and helicopter engines, satellite and missile propulsion systems
- ▶ Aircraft systems and equipment
- ▶ Optronics, avionics, navigation systems, defence electronics and critical softwares
- ▶ Unmanned aircraft systems (UAS)
- ▶ Security systems

GOVERNANCE

Chairman	Ross McInnes
Chief Executive Officer	Olivier Andriès
President, Safran Electronics & Defense	Martin Sion
President, Safran Aircraft Engines	Jean-Paul Alary

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	SAF
Listed on	Euronext Paris
Market Cap (€m)	47 544

Major shareholders (as of 15.11.2022)

French State	11,23%
Employees	7,01%
Capital Research & Management Co. (World Investors)	3,71%
TCI Fund Management Ltd.	3,36%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
ArianeGroup	50%	France
CFM International	50%	France
Initium Aerospace	50%	United States
Lynred (ex-Sofradir)	50%	France
Roxel	50%	France
EuroProp International	32,2%	Germany

KEY FIGURES* (Fiscal year ended: December 31st)

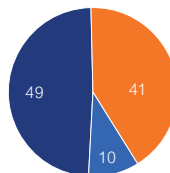
€ millions	2018	2019	2020	2021
Revenue	21 050	24 640	16 498	15 257
Δ (%)	31,95%	17,05%	-33,04%	-7,52%
Defence (%)**	≈ 17%	≈ 16%	≈ 25%	≈ 28%
Export (%)	84%	80%	77%	78%
Operating profit/loss	2 908	3 833	1 220	1 400
Operating margin	13,81%	15,56%	7,39%	9,18%
Net income***	1 981	2 665	844	760
Order book	N/A	N/A	N/A	N/A
Employees	92 639	95 443	78 892	76 765

*Figures adjusted

**Estimated

***Net income attributable to shareholders

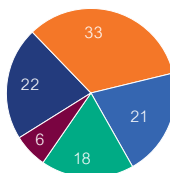
REVENUE BY BUSINESS SEGMENT(%)*



- Aerospace propulsion
- Aircraft equipment, Defence & Aerosystems
- Aircraft Interiors

*Figures adjusted, excluding Holding & others division

REVENUE BY REGION (%)*



- France
- Americas
- Europe (excl. France)
- Asia / Océania
- Africa / Middle East

*Figures adjusted

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	ITP	Aero	Piaggio Aerospace	Rolls-Royce	MBDA	Diehl Defence	Ecarlys*	MTU Aero Engines	Hensoldt	Madses	Nexter***	HAL***	Thales
Aircraft engines													
Next European Fighter Engine (NEFE, FCAS programme)	●						●						
M88 afterburning turbofan engine (Rafale)													
TP400 turboprop engine (A400M)	●		●				●						
Ardiden 3TP future turboprop engine	●	●											
RTM322 turboshaft family (NH90, EH101, AH Mk.1)													
Ardiden turboshaft family (Druh, LCH, LUH, Ka-62, AC352)												●	
MTR390-2C (Tiger HAP, ARH, UHT) and MTR390-E (Tiger HAD) turboshaft engines	●		●				●						
Arrano 1A turboshaft engine (H160M)													
Space propulsion systems													
Plasma propulsion (PPS 1350-G, PPS 1350-E, PPS 5000, TMA)													
Missile propulsion systems													
TR 60-30 (Apache, STORM SHADOW / SCALP EG) and TR 50 (MdCN / SCALP Naval) turbojet engines				●									
Missile systems and weapon systems													
Missile seekers (MICA IR, Mistral, MMP)				●									
HUSSAR future air-to-ground missile					●								
MHT / MAST-F future air-to-ground tactical missile				●								●	
Navigation and optronics systems													
Geonx™ inertial navigation system											●		
Euroflir 610 future gyrostabilized electro-optical system								●	●				
Unmanned aircraft systems													
Patroller tactical unmanned air vehicle						●							

*Subsidiary of Stemme **KNDS group ***Hindustan Aeronautics Ltd

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Safran adjusted revenues reached €15.3bn in 2021, down 7.5% year-on-year due to the impact of the health crisis on global air traffic. Safran generated around 28% of its business in defence over the year, up 3 percentage points from 2020, as defence activities have been relatively more resilient since the beginning of the health crisis (with higher deliveries of military engines in 2021, for example).
- ▶ In response to the upturn in business and to meet the increase in production rates, Safran planned to hire 12,000 people worldwide in 2022, including 3,000 in France.
- ▶ In June 2022, Eramet signed the contract to sell its subsidiary Aubert & Duval to a holding company equally owned by Airbus, Safran and French equity firm Tikehau Ace Capital, with Safran taking charge of industrial management. Completion of the deal, still subject to regulatory approval, is expected in the first quarter of 2023. Aubert & Duval (revenues of €500m, 3,600 employees) is a specialist of upscale metallurgy for the aerospace and defence industries.
- ▶ In early November 2022, Safran Electronics & Defense (SED) and MBDA completed their joint acquisition of the 63% stake in CILAS sold by ArianeGroup (the remaining 37% being held by Lumibird). A major global player in optronic and laser systems for civil and military applications, CILAS has three sites in France, in Aubagne (Bouches-du-Rhône), Le Barp (Gironde) and Orléans (Loiret).

Home market

- ▶ Safran indirectly benefits from several orders in the frame of French defence programmes, including 12 Rafales for the French Air Force, 7 Dassault Falcon 2000 LXS Albatros aircraft for the French Navy, 356 VBMR Griffon and 88 EBRC Jaguar armoured vehicles for the French Army, and 10 NH90 multirole helicopters for the French special forces.
- ▶ In March 2022, OCCAr awarded Safran a contract to supply 85 Eurofibr 510 optronic sights to upgrade the French and Spanish Armies' Tiger attack helicopters to the Mark III standard.
- ▶ In April 2022, the French Aerospace Maintenance Agency (DMAé, Direction de la Maintenance Aéronautique) awarded Safran the Saturne contract (Soutien avancé des turbines de l'État, Advanced Support for State Turbines) for the 10-year maintenance of the 1,600 helicopter engines in service with the French Army, the French Air Force, the French Navy, the Civil Security, the Gendarmerie, Customs and DGA Essais en vol.
- ▶ In June 2022, Airbus Helicopters selected Safran to supply SkyNaute navigation systems for the French Army's 169 future H160M Guépard helicopters.

Export markets

- ▶ Safran generated 78% of its revenue from exports in 2021, in particular via CFM International (its joint venture with GE Aerospace).
- ▶ As part of the creation of a joint venture called Helicopter Engines MRO (HE-MRO), which should be operational by the end of 2023, Safran and Hindustan Aeronautics Ltd (HAL) are building an MRO centre in India dedicated to the TM333 and Shakti engines powering HAL's helicopters.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €924m in 2021, representing 6.1% of sales.
- ▶ Following successful field trials of the FURIOUS robot system, the French defence procurement agency (DGA) awarded Safran a new contractual phase in June 2022 to optimize the system's architecture and increase its performance.

SOPRA STERIA

French digital services company, among the top five players in Europe and the top three players in the French cybersecurity market

BUSINESS AREAS

Digital services supplier and systems integrator

- ▶ Cybersecurity
- ▶ Digital transformation
- ▶ Information systems integration
- ▶ Development of technology-specific solutions
- ▶ IT and cloud infrastructure management

GOVERNANCE

Chairman	Pierre Pasquier
Chief Executive Officer	Cyril Malargé
Deputy CEO	Laurent Giovachini

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	SOP
Listed on	Euronext Paris
Market Cap (€m)	3 008

Major shareholders (as of 15.11.2022)

Sopra GMT	19,60%
Amundi Asset Management	5,83%
Norges Bank investment Management	2,44%
Oddo BHF Asset Management	2,16%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Shared Services Connected Ltd (SSCL)	75%	United Kingdom
Axway Software	32%	France
CS Group	9,8%*	France

*As of 1 April 2022. In July 2022, Sopra Steria announced the acquisition of an additional 65,26% of the capital of CS Group, bringing its stake to 75,06%. The deal is expected to be completed in the first quarter of 2023.

KEY FIGURES (Fiscal year ended: December 31st)

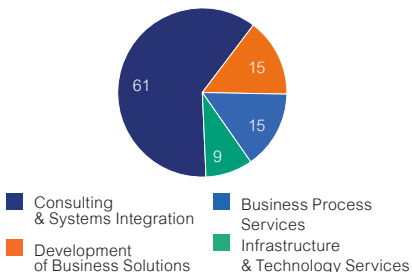
€ millions	2018	2019	2020	2021
Revenue*	4 095	4 434	4 263	4 683
Δ (%)	6,89%	8,28%	-3,86%	9,85%
Defence (%)**	17%	17%	16%	16%
Export (%)	51%	51%	52%	53%
Operating profit/loss	227	283	202	303
Operating margin	5,53%	6,39%	4,75%	6,48%
Net income***	125	160	107	188
Order book	N/A	N/A	N/A	N/A
Employees	44 114	46 245	45 960	47 437

*Excluding Cybersecurity activities

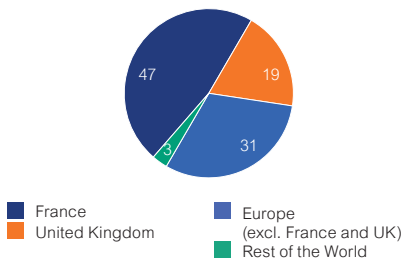
**Aerospace, Defence & Security activities

***Net income attributable to shareholders

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Atos	Capgemini	CS Group	Dassault Aviation	Naval Group	Thales	Safran
Cyber Defence Systems & Intelligence								
Defensive computer warfare software	●	●					●	
Metropolitan intelligence information system		●						
Sovereign security monitoring software suite								
Command systems								
Joint software for digital operations command, intelligence and logistics	●	●	●	●	●		●	
Simulation and numerical modelling software			●					
Physical simulation and testing software								
Support for the experiments of the Technico-Operational Laboratory								
Support for experimentation and development of laboratory software tools for OICS*								
Support systems								
Pay information system for military and civilian personnel								
Unified support calling platform								
Logistics systems & MRO								
Software for aeronautical maintenance				●				
Information system for land systems MRO activities								
Information systems for health product supply, commissioning logistics management and oil logistics management								
Artificial Intelligence and Big Data								
Artemis programme (Architecture for processing and massive exploitation of multi-source information)	●	●	●				●	
Confiance.ai programme	●	●				●		●

*Operational Information and Communication Systems

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Sopra Steria revenues reached €4.6 billion in 2021, up 9.8% (+6.4% at constant scope and exchange rates).
- ▶ In October 2021, Sopra Steria entered into a partnership with Navblue, an Airbus subsidiary providing digital products and services on the ground and on board all types of civil and military aircraft. Sopra Steria will contribute to the modernisation and acceleration of the development of new products offered by Navblue.
- ▶ In December 2021, Sopra Steria completed the acquisition of EVA Group, a French cybersecurity and information systems performance specialist with 240 consultants in seven offices (Paris, Lyon, Toulouse, New York, Toronto, Hong Kong and Singapore). This operation allowed Sopra Steria to become one of the top three players in the French cybersecurity market.
- ▶ In July 2022, the group announced the acquisition of 65.26% of the capital of French company CS Group, in which Sopra Steria already held a 9.80% stake. CS Group is active in the defence, space, aerospace, nuclear and cybersecurity sectors and generated revenues of €237 million in 2021, with approximately 2,500 employees. Completion of the deal is expected in the first quarter of 2023.

Home market

- ▶ France is the group's largest market (47% of revenues in 2021).
- ▶ Sopra Steria has been working since February 2021 with the French defence procurement agency (DGA) and the French Aerospace Maintenance Agency (DMAé, Direction de la Maintenance Aéronautique) to implement a new single information system for aerospace in-service support, called Brasidas. This system aims to improve the availability of aircraft, helicopters and UAVs in service with the French Armed Forces by gathering all the information on maintenance activities of the various aircraft fleets in a single digital tool.
- ▶ Sopra Steria is one of the 13 French industrial and academic players involved in the Confiance.ai programme since July 2021. Led by the SystemX technological research institute and with a budget of €45m over the 2021-2024 period, this programme aims to ensure the reliability of artificial intelligence algorithms used in critical industrial applications in various sectors (defence, aerospace, automotive, energy, maritime, etc.).

Export markets

- ▶ Sopra Steria generated 53% of its revenues from exports in 2021. The group has a strong presence in the United Kingdom, where it was awarded a £300m (€340m) seven-year contract by the Ministry of Defence, through its 75%-owned subsidiary Shared Services Connected Ltd (SSCL), for the integration of a new management information system designed to improve the British Armed Forces' access to administrative, payroll, pension and human resources services. In addition, Share Services Connected Ltd operates cloud services to better structure data and offer new services based on artificial intelligence.
- ▶ In July 2021, the British Ministry of Defence awarded Sopra Steria and Pinnacle Group a contract to develop a centralised housing management platform for British Armed Forces' personnel. This platform is intended to optimise the occupancy rate of accommodation and the processing of reported problems.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €137m in 2021, representing 2.9% of revenues.



TECHNICATOME

A major player in naval nuclear propulsion, also active in civil nuclear energy (including SMRs), resulting from the nationalisation of Areva TA in March 2017

BUSINESS AREAS

Compact nuclear reactors designer

- ▶ Naval nuclear propulsion
- ▶ Support engineering for defence infrastructure
- ▶ Design and production engineering
- ▶ Reactors simulation and modelisation of physical phenomena
- ▶ MRO and services
- ▶ Civil nuclear energy

GOVERNANCE

Chairman & CEO	Loïc Rocard
Deputy CEO	Olivier Huet
Director of Defence Reactors	Bernard Gauducheau

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

Major shareholders (as of 15.11.2022)

French State Holdings Agency (APE)	50,32%
Naval Group	20,32%
CEA	20,32%
EDF	9,03%

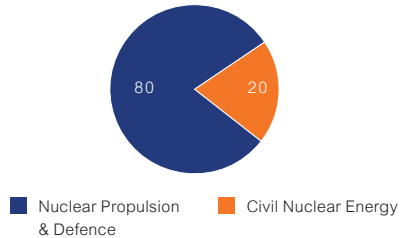
MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Arcys	51%	France

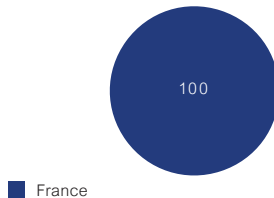
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	398	420	400	452
Δ (%)	6,99%	5,53%	-4,76%	13,00%
Defence (%)	≈ 80%	≈ 75%	≈ 80%	≈ 80%
Export (%)	0%	0%	0%	0%
Operating profit/loss	57	72	76	88
Operating margin	14,32%	17,14%	19,00%	19,47%
Net income	41	51	57	65
Order book	≈ 1 000	≈ 1 000	1 049	1 621
Employees	1 613	1 702	1 756	1 845

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	CEA*	Naval Group	Thales	Safran	MBDA	Chantiers de l'Atlantique	ArianeGroup	EDF
Naval nuclear propulsion								
PA-NG future new generation aircraft carrier	●	●	●		●	●		
SNLE 3G future 3rd-generation nuclear ballistic missile submarine (SSBN)	●	●	●				●	
Suffren-class nuclear-powered attack submarine (SSN) (Barracuda programme)	●	●	●	●	●			
RES programme (shore-based nuclear test reactor for French naval propulsion and its related facilities construction and operation)	●							
MRO and services								
Operational maintenance for steam supply systems on nuclear-powered vessels		●						
Support engineering for defence infrastructure								
Assistance with the infrastructure transformation of Toulon and Brest naval bases								
Operational maintenance of the infrastructure of Brest and Île Longue naval bases								
Assistance with the engineering and operation of Laser MegaJoule	●							
Civil nuclear energy								
Small Modular Reactor (SMR, NUWARD project)	●	●						●
Jules Horowitz research Reactor (JHR)	●							

*Alternative Energies and Atomic Energy Commission

STRATEGIC HIGHLIGHTS

Business trends

- ▶ TechnicAtome revenues reached €452m in 2021 (+13% year-on-year), of which approximately 80% from defence activities. The group recorded a profitability level of 14% and had an order book of €1.6bn at the end of the year, representing 3.6 years of sales.
- ▶ The group is a major player in nuclear marine propulsion (submarines and Charles de Gaulle and planned new-generation PA-NG aircraft carriers for the French Navy).
- ▶ TechnicAtome is involved in the Nuward Small Modular Reactor (SMR) project, in partnership with the French Alternative Energies and Atomic Energy Commission (CEA), EDF, Framatome and Naval Group. This project plans for series production of SMRs from 2030 onwards for use in both the civilian and military logistics sectors (energy production for isolated sites for example).

Home market

- ▶ TechnicAtome is involved in the Barracuda programme for the construction of six new-generation Suffren-class nuclear attack submarines (SSNs) by 2030. The group is in charge of the design, production and maintenance of the nuclear boiler rooms, their support system and their fuel. TechnicAtome is also involved in project management assistance for the infrastructures of the Toulon and Brest naval bases. In particular, the group conceives the programme to adapt the ports' basins.
- ▶ In January 2021, TechnicAtome began inspection and upgrading work on more than 200 items of equipment on the nuclear boiler room of the SSBN Le Terrible as part of its first scheduled downtime for maintenance and repair. Arcys (a joint venture 51%-owned by TechnicAtome and 49%-owned by Framatome) is involved in the maintenance of the control and command system and power electronics.
- ▶ In March 2021, the French Ministry of Armed Forces awarded the preliminary design contract (estimated at €200m) for the new generation PA-NG aircraft carrier. The programme involves Naval Group (overall architect), Chantiers de l'Atlantique (responsible for construction) and TechnicAtome (design and construction of the nuclear boilers, related support system, and fuel).
- ▶ In March 2021, the French Ministry of Armed Forces also launched the construction phase of the programme for four third-generation nuclear-powered ballistic missile submarines (SSBN 3G) to replace the fleet of Le Triomphant-class SSBNs from 2035. Naval Group is the prime contractor for the overall construction of the submarines, in partnership with TechnicAtome, which will build the nuclear boilers. A first contract, covering in particular the development studies, was awarded in 2021.
- ▶ The first new-generation SSN, named Suffren, entered operational service in the French Navy in June 2022.

Technology and Innovation

- ▶ Led by TechnicAtome, SEDI-ATI, EDF, Photonics Bretagne and iXblue, the 3F2E (French fibre industry for extreme environment) collaborative project was selected in November 2021 to benefit from the France Relance recovery plan (nuclear section). With a budget of €1.8m over three years, this project aims to develop metallic and/or carbon coatings on special optical fibres to enable the use of sensors in extreme nuclear environments.
- ▶ The ARQANE research project (Actions for realisation and qualification in additives for nuclear power) was officially launched in April 2022. Led by EDF, this project aims to demonstrate the level of industrial maturity of additive manufacturing for the nuclear industry. TechnicAtome is involved in the project by carrying out process validation tests.



TELEDYNE TECHNOLOGIES

Civil and military equipment manufacturer. Supplier of subsystems and components for the defence sector. 83rd-largest defence contractor since the acquisition of FLIR Systems in May 2021

BUSINESS AREAS

Systems integrator and components supplier

- ▶ Aerospace systems and components
- ▶ Sub-systems and components for missile, defence and combat systems
- ▶ Naval Systems
- ▶ Unmanned systems

GOVERNANCE

Chairman & CEO	R. Mehrabian
President, Aerospace & Defense Electronics	G. C. Bobb III
Chief Financial Officer	Susan L. Main

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	TDY
Listed on	NYSE
Market Cap (\$m)	19 370

Major shareholders (as of 15.11.2022)

T. Rowe Price Associates, Inc. (Investment Management)	13,50%
The Vanguard Group, Inc.	10,70%
Select Equity Group LP	5,08%
SSgA Funds Management, Inc.	3,89%

MAIN JOINT VENTURES AND ASSOCIATES*

Name	%	Country
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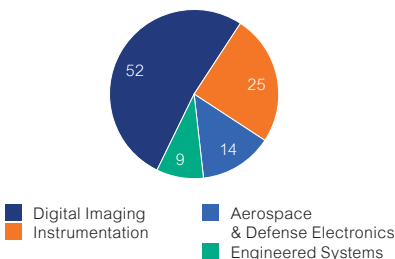
*No information available

KEY FIGURES (Fiscal year ended: December 31st)

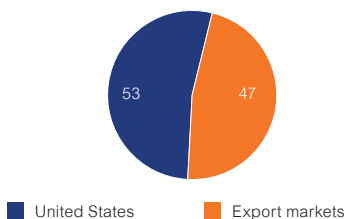
€ millions	2018	2019	2020	2021
Revenue	2 457	2 825	2 702	3 901
Δ (%) [\$/]**	11,44%	9,02%	-2,45%	49,51%
Defence (%)	N/A	N/A	N/A	19%
Export (%)	47%	44%	45%	47%
Operating profit/loss	353	439	420	543
Operating margin	14,36%	15,54%	15,56%	13,92%
Net income	283	359	352	376
Order book	1 370	1 513	1 386	N/A
Employees	10 850	11 790	10 670	14 500

*Variation based on revenue in local currency
See €/\$, p.7

REVENUE BY BUSINESS SEGMENT (%)



REVENUE BY REGION (%)



TELEDYNE TECHNOLOGIES

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Elbit Systems	Raytheon	Technologies*	L3Harris Technologies**	Lockheed Martin	Martin-Baker	United Launch	Northrop Alliance***	Aerojet Grumman	Rocketdyne	Thales	Alenia Space	Boeing
Aircraft systems and components													
Sub-systems and components of the Joint Helmet Mounted Cueing System (JHMCS) (F-15, F-16, F/A-18)	●	●											
Fiber optic quad transceiver products for the F-35 fighter aircraft			●										
Ejection seat sequencers for fighter aircraft (F-15, F-16, F/A-18, F-22, F-35)		●			●								
Sub-systems and components for missile, defence and combat systems													
Surface-to-Surface Missile Module (SSMM) (LCS frigates)		●											
Cooling Equipment Units (CEU) of the AN/TPY-2 early warning radar system		●											
Zombie family of realistic-threat ballistic target missiles (TACRAM programme)		●											
Traveling Wave Tubes (TWT) of the AEGIS combat system				●									
Naval systems													
Slocum G3 autonomous underwater glider (LBS-G programme)													
Gavia, Osprey and SeaRaptor AUVs													
Mk11 Shallow Water Combat Submersible (SWCS) manned combat submersible vehicle													
Space													
Launch Vehicle Stage Adaptor (LVSA) of the Space Launch System (SLS)						●	●	●				●	
Image detectors for the Sentinel future observation satellites (Copernicus programme)									●				
Unmanned systems													
R80D SkyRaider and SkyRanger R70 advanced multi-mission UAS													
Reconnaissance and counter-IED operation UGVs (Centaur, PackBot)													

*Merger of Raytheon and UTC **Merger of L3 Technologies and Harris Corporation ***Joint venture between Boeing and Lockheed Martin

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Teledyne revenues reached \$4.6bn (€3.9bn) in 2021, up nearly 50% in local currency year-on-year. Growth was mainly driven by the integration of FLIR Systems in May 2021. On a like-for-like basis, the group's sales increased 8.2%. The Engineered Systems division generates nearly 90% of its revenue with the U.S. government (Department of Defense, NASA, etc.). The group's other defence activities are distributed among the other three divisions (Digital Imaging, Instrumentation and Aerospace & Defense Electronics).
- ▶ In May 2021, Teledyne acquired U.S.-based technology company FLIR Systems for \$8.2bn (€6.8bn). Active in defence, security and thermal imaging, FLIR Systems posted revenues of \$1.9bn (€1.7bn) in 2020, 40% of which from defence. It supplies systems for border surveillance, maritime patrol, threat detection, search and rescue, and other areas (airborne systems, UAVs, land systems, radars, thermal imaging, CBRNE detectors, etc.), and has around 4,000 employees. Its activities are now integrated into Teledyne's Digital Imaging division and the company was renamed Teledyne FLIR Defense.

Home market

- ▶ The group generated 53% of its sales on the U.S. market in 2021. Sales to the U.S. Department of Defense, Teledyne's largest customer in its domestic market, accounted for 19% of the group's total revenues.
- ▶ Teledyne is involved in several major defence programmes. Among others, the group supplies components and subsystems for the Joint Helmet-Mounted Cueing System (JHMCS) helmet-mounted display for pilots of F-15, F-16 and F/A-18 fighter aircraft, as a subcontractor to Elbit Systems and Collins Aerospace (Raytheon Technologies). Teledyne is also involved in the F-35 programme, as a subcontractor to L3Harris Technologies, which is responsible for the electronic and communication systems of the fighter aircraft.
- ▶ In May 2022, the U.S. Army awarded Teledyne subsidiary FLIR Defense a \$500m (€446m) five-year contract for the production of thermal imaging systems to be mounted on individual infantry weapons as part of the Family of Weapons Sights-Individual (FWS-I) programme.
- ▶ In July 2022, Teledyne FLIR Defense signed a \$62m (€55m) contract with the U.S. Army to supply nearly 500 Centaur reconnaissance and demining unmanned ground systems (UGVs) under the Man Transportable Robot System Increment II (MTRS Inc. II) programme, bringing the total contract value to over \$250m (€222m) since 2020.

Export markets

- ▶ Teledyne generated 47% of its revenues from exports in 2021. China, the United Kingdom, Germany, Japan and France are the group's main foreign markets and accounted for approximately 20% of total revenues. Most of the group's revenues in these markets comes from the civil sector.
- ▶ In January 2022, Teledyne FLIR Defense and its Danish partner Precision Technic Defence Group won a contract worth potentially \$100m (€89m) over seven years with the Danish Defense Acquisition and Logistics Organization (DALO) to supply various surveillance systems for air, sea and land applications.
- ▶ In June 2022, Teledyne FLIR Defense signed a NOK 475m (€50m) contract with the Norwegian Defence Materiel Agency (NDMA) for the supply of Black Hornet aerial reconnaissance nano-drones over a four-year period.
- ▶ In the summer of 2022, Teledyne FLIR Defense completed the delivery of 127 PackBot 525 land reconnaissance and mine clearing robots to the German Army.

Technology and Innovation

- ▶ The group's areas of innovation in defence mainly include missile systems, naval systems and semi-conductors.



TEXTRON

Civil and military industrial conglomerate mainly operating in military aeronautics (V-22 Osprey tiltrotor aircraft, UH-1Y and AH-1Z helicopters). 39th-largest defence contractor worldwide.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial and military helicopters
- ▶ Military aircraft and business jets
- ▶ Unmanned systems (JAS, USV, RCV)
- ▶ Weapon systems
- ▶ Training solutions
- ▶ Industrial sector (E-Z-GO, Greenlee, Jacobsen, Kautex)

GOVERNANCE

Chairman & CEO

Scott C. Donnelly

President & CEO,
Textron Aviation

Ron Draper

President & CEO, Bell

Mitch Snyder

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	11 831	12 170	10 202	10 467
Δ (%) / \$*	-1,59%	-2,45%	-14,52%	6,27%
Defence (%)**	24%	24%	30%	26%
Export (%)	38%	34%	32%	31%
Operating profit/loss	1 073	1 134	658	959
Operating margin	9,07%	9,32%	6,45%	9,16%
Net income	1 035	728	271	631
Order book	7 945	8 751	7 743	8 945
Employees	≈ 35 000	≈ 35 000	≈ 33 000	≈ 33 000

*Variation based on revenue in local currency
See €/\$, p.7

**Sales to the U.S. Government only

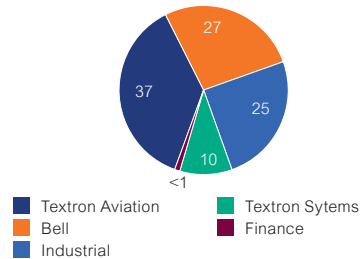
OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	TXT
Listed on	NYSE
Market Cap (\$M)	14 645

Major shareholders (as of 15.11.2022)

T. Rowe Price Investment Management	11,00%
The Vanguard Group, Inc.	10,80%
T. Rowe Price Associates, Inc. (Investment Management)	4,35%
SSgA Funds Management, Inc.	4,29%

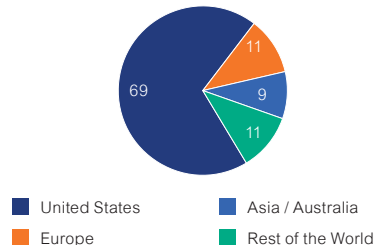
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
TFS/Tri-Star	80%	Taiwan
Bell-Boeing	50%	United States
Textron Airland	50%	United States
Cessna-AVIC Aircraft (Shijiazhuang)	N/A	China
Cessna-AVIC Aircraft (Zhuhai)	N/A	China

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Boeing	Lockheed Martin	Raytheon Technologies*	L3Harris Technologies**	AirLand Enterprises	Rolls-Royce	FLJR Systems	Northrop Grumman***	Spirit Aero Systems	GE Aerospace****	Pilatus
Bell (Helicopters)											
V-22 Osprey tiltrotor aircraft	●					●					
UH-1Y Venom utility helicopter							●		●		
AH-1Z Viper attack helicopter		●	●				●		●		
V-280 Valor future utility helicopter	●							●	●		
360 Invictus (Future Attack Reconnaissance Aircraft programme)			●	●					●		
Textron Aviation (Cessna, Beechcraft, Scorpion)											
T-6C Texan II trainer aircraft			●								●
AT-6 Wolverine light attack aircraft		●	●	●							●
King Air 350 ISR aircraft			●								
Special mission-configured Citation Latitude aircraft (ISR missions, flight inspection)											
Scorpion light attack/ISR aircraft					●						
Textron Systems (Air, naval and land systems)											
Shadow Block III tactical UAS											
Aerosonde HQ Small Unmanned Aircraft System (SUAS)											
Common Unmanned Surface Vehicle (CUSV)											
Ship-to-Shore Connector (SSC)				●		●					
Ripsaw M5 Robotic Combat Vehicle (RCV)							●				
Textron Systems (Weapon systems and training solutions)											
U.S. Air Force's Adversary Air Services (ADAIR) training programme											
6.8 MM Rifle and 6.8 MM Automatic Rifle											

*Merger of Raytheon and UTC **Merger of L3 Technologies and Harris Corporation ***Subsidiary of Teledyne ****Formerly GE Aviation

STRATEGIC HIGHLIGHTS

Business trends

- ▶ After three years of decline, Textron revenues increased 6.3% in local currency to \$12.4bn (€10.5bn) in 2021.
- ▶ Growth was driven by the Textron Aviation (+14.9%) and Industrial (+4.3%) divisions, which were the most affected by the health crisis in 2020. The group's performance also improved in 2021, with the net margin returning to its 2019 level (6.0% of revenue).

Home market

- ▶ The U.S. are Textron's largest market, accounting for 69% of sales in 2021. The group is a key partner of the U.S. Army, in particular thanks to its monopoly in tiltrotor military aircraft with the V-22 Osprey (produced in partnership with Boeing).
- ▶ In January 2022, the Bell-Boeing joint venture signed a \$1.64bn (€1.45bn) contract to provide maintenance services for 228 U.S. V-22 Osprey aircraft (Marine Corps MV-22B, US Navy CMV-22 and US Air Force CV-22 versions) over a five-year period.
- ▶ In June 2022, the U.S. Navy's Naval Air Systems Command (NAVAIR) extended the contract awarded to Textron Systems in 2018 to deploy its Aerosonde UAS aboard the USS Hershel « Woody » Williams (ESB-4). The contract value could reach \$18m (€17m) if all options are exercised.
- ▶ In July 2022, the U.S. Marine Corps selected the Cottonmouth 6x6 amphibious reconnaissance vehicle, developed by Textron Systems in partnership with Elbit Systems, and an unspecified platform from General Dynamics Land Systems to compete for the Advanced Reconnaissance Vehicle (ARV) programme. A six-month evaluation period of both prototypes is planned in 2023 and a decision is expected by year-end.
- ▶ In December 2022, Bell, a Textron subsidiary, was selected for the Future Long Range Assault Aircraft (FLRAA) programme to supply the U.S. Army's future utility and assault helicopter. Bell's V-280 Valor tiltrotor aircraft was competing with the Defiant X featured by Sikorsky (Lockheed Martin), in partnership with Boeing. In the meantime, Bell's 360 Invictus is still competing with Sikorsky's Raider X on the U.S. Army's Future Assault and Reconnaissance Aircraft (FARA) programme.

Export markets

- ▶ Textron generated 31% of its revenues from exports in 2021, mainly in Europe and Asia-Pacific.
- ▶ In November 2021, Textron Aviation signed a \$143m (€121m) contract with the Royal Thai Air Force for the supply of eight AT-6 Wolverine light attack aircraft (AT-6TH version), to be delivered in 2024, and various equipment and services (ground support, spare parts, training, etc.).
- ▶ After starting production of UH-1Y Venom utility and assault helicopters in 2021, Bell launched the construction of AH-1Z Viper attack helicopters for the Czech Republic. The country ordered eight UH-1Ys and four AH-1Zs in 2019 for about CZK 14.5bn (€565m), with delivery expected by 2023.
- ▶ In April 2022, the U.S. State Department authorised the possible sale of 12 Bell AH-1Z Viper attack helicopters to Nigeria. The deal, worth a total of \$997m (€921m), includes the supply of 2,000 APKWS (Advanced Precision Weapons System) laser-guided rockets.
- ▶ In May 2022, South Korea selected the Bell 505 helicopter as its training helicopter for Army and Navy pilots. The contract, worth KRW 170bn (€127m), includes the supply of 40 helicopters, to be delivered between 2023 and 2025, and eight locally produced simulators.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to \$619m (€523m) in 2021, representing 5.0% of revenues.



THALES

Aerospace, defence and security group specialising in complex electronic systems, ranked 16th-largest defence company worldwide.

BUSINESS AREAS

Systems integrator/equipment supplier

- ▶ Aerospace equipment and systems
- ▶ Sensors, systems and communications
- ▶ Weapon systems and ammunition
- ▶ Training and simulation
- ▶ Space (see also Thales Alenia Space)
- ▶ Cybersecurity

GOVERNANCE

Chairman and CEO	Patrice Caine
General Secretary	Isabelle Simon
Executive VP, Defence Mission Systems	Philippe Duhamel

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	HO
Listed on	Euronext Paris
Market Cap (€m)	25 054

Major shareholders (as of 30.06.2022)

French State	25,67%
Dassault Aviation SA	24,62%
Employees	3,00%
Self-owned	0,71%

MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Thales Alenia Space	67%	France
Athea*	50%	France
Lynred (ex-Sofradir)	50%	France
TRS AMDC2	50%	France
Diehl Aerospace	49%	Germany
Naval Group	35%	France
Elettronica	33%	Italy
Telespazio	33%	Italy
AirTanker	15%	United Kingdom

*Joint venture between Thales and Atos established in May 2021

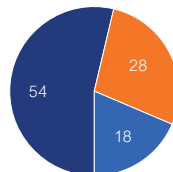
KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018*	2019	2020*	2021
Revenue	15 855	18 401	15 371	16 192
Δ (%)	4,12%	16,06%	-16,47%	5,34%
Defence (%)	50%	45%	51%	51%
Export (%)	75%	76%	73%	72%
Operating profit/loss	1 685	2 008	1 248	1 649
Operating margin	10,63%	10,91%	8,12%	10,18%
Net income**	1 178	1 405	937	1 361
Order book	32 329	33 839	30 512	34 744
Employees	66 135	82 718	80 569	80 995

*Figures restated

**Net income attributable to shareholders

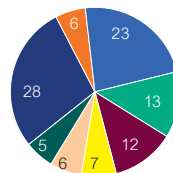
REVENUE BY BUSINESS SEGMENT (%)*



■ Defence & Security ■ Aerospace ■ Digital Identity & Security

*Excluding Others division, eliminations and non-allocated and excluding Transport division (classified as discontinued operations)

REVENUE BY REGION (%)



■ France ■ North America
 ■ United Kingdom ■ Near & Middle East
 ■ Europe (excl. France and UK) ■ Australia & New Zealand
 ■ Asia ■ Rest of the World

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Elbit Systems	Airbus Helicopters	Dassault Aviation	Raytheon Technologies*	Indra Sistemas	Hensoldt	Naval Group	Nexter**	Boeing	MBDA
Combat systems and embedded electronics										
SPECTRA electronic warfare suite		●								●
RBE-2 AESA radar		●								
Targeting Long-range Identification Optronic System (TALIOS)		●								
Defence electronics for the future NGF aircraft (FCAS programme)				●	●					
TopOwl and Scorpion helmet mounted displays	●									
Man Machine Teaming advanced study programme		●								
Mission and surveillance systems										
CONTACT and SYNAPS software defined radios										
Watchkeeper WK450 ISTAR UAV	●									
Falcon 8X Archange future intelligence aircraft (payload sensor)		●								
Radar and sonar systems										
Ground Master and Ground Fire radar systems			●							
Sea Fire radar						●				
Missile, weapon systems, ammunition										
RAPIDFire and RAPIDFire Naval air defence systems							●			
Missile guidance systems (Aster, MICA)									●	
SAMP/T surface-to-air missile defence system									●	
Military vehicles										
4X4 Bushmaster armoured vehicle										
4X4 Hawkei light tactical vehicle								●		

*Merger of Raytheon and UTC **KNDS group

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Thales revenues reached €16.2bn in 2021, up 5.3% year-on-year (excluding the Transport division, classified as discontinued operations). Revenues in the Defence & Security division, which accounted for almost 54% of the group's revenues, increased 6.8% year-on-year. Eight of the 14 product lines recorded growth above 10%, in particular in integrated systems for airspace protection, submarine systems and cyber defence solutions.
- ▶ At the end of 2021, the group's order book reached a record €34.7bn, including over €26bn in the Defence & Security division. Among the major contracts signed during the year were the contract for the French Armed Forces for the support of the Command and Control System for Aerospace Operations over a 10-year period (worth €1.5 billion) and a new phase of the CONTACT programme for new-generation tactical communications. As a supplier of equipment for the Rafale fighter aircraft, Thales also benefits from several orders placed with Dassault Aviation by the United Arab Emirates, Egypt, Greece and France (Balzac programme for the so-called verticalization of the Mirage 2000 support).
- ▶ In August 2021, Thales announced the sale of its Transport division (notably rail signalling solutions) to Japanese company Hitachi Rail. The deal, valued at €1.66bn, is expected to be completed in early 2023.
- ▶ In May 2022, Thales completed the acquisition of RUAG Simulation & Training, which employs 500 people and posted revenues of approximately €90m in 2021. Thales is now one of the leading European suppliers of training and simulation solutions with 1,400 employees in six countries, including France, Germany and the UK.

Home market

- ▶ Thales, which generates about a quarter of its sales in France, is a key industrial partner of Dassault Aviation (Rafale fighter aircraft, Falcon 8X Archange intelligence aircraft, etc.) and Naval Group (FDI and FREMM frigates, etc.).
- ▶ Thales, Arqus and Nexter (KNDS) are jointly in charge of the Scorpion programme for the supply of wheeled armoured vehicles to the French Army. A total of 1,872 Griffon VBMR multirole armoured vehicles and 300 Jaguar EBRC armoured reconnaissance and combat vehicles are to be delivered by 2030, half of which by 2025. 119 Griffon vehicles were delivered in 2021, while deliveries of Jaguar vehicles started in the first half of 2022.
- ▶ In May 2022, the French defence procurement agency (DGA) awarded Thales, Arqus and Nexter the conditional tranche 4 of the EBMR (Armoured Multi-Role Vehicle) contract under the Scorpion programme. This contract, worth €1,257m, corresponds to an order for 356 VBMR Griffon and 88 EBRC Jaguar vehicles.
- ▶ In April 2022, Thales obtained type certification for its SpyRanger 330 mini-UAS system from the French defence procurement agency's airworthiness authority, allowing the French Army to use this system for instruction, training and operational deployments without requiring specific flight approvals.

Export markets

- ▶ Thales generates about 75% of its revenues from exports.
- ▶ In March 2022, Thales signed a cooperation agreement with the PGZ-Miecznik consortium, led by PGZ, to provide air and missile defence capabilities (based on the Thales Tacticsos integrated combat system) for the Polish Navy's future Miecznik-class frigates.
- ▶ In May 2022, the U.S. Army awarded Thales a contract worth up to \$6bn (€5.7bn) over five years to supply tactical radios based on the AN/PRC-148 IMBITR system.

Technology and Innovation

- ▶ The group's self-financed R&D expenditure amounted to €1bn in 2021, representing 6.3% of revenues.



THALES ALENIA SPACE

French-Italian aerospace manufacturing company majority-owned by Thales. A global leader in satellites, space infrastructure and space navigation systems.

BUSINESS AREAS

Platform manufacturer, systems integrator/
equipment supplier

- ▶ Satellite platforms (satellite buses)
- ▶ Ground control segment
- ▶ Electronics, propulsion systems, recovery systems
- ▶ Payloads
- ▶ Manned space systems
- ▶ Space transport systems

GOVERNANCE

Chief Executive Officer Hervé Derrey

Chief Operating Officer Bertrand Maureau

Chief Financial Officer Éric Manzon

OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted group
Market Cap	

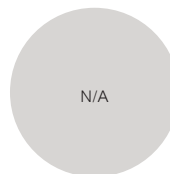
Major shareholders (as of 15.11.2022)

Thales	66,66%
Leonardo	33,33%

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018	2019	2020	2021
Revenue	≈ 2 500	≈ 2 150	≈ 1 850	≈ 2 150
Δ (%)	≈ -3,8%	≈ -14%	≈ -14%	≈ -16,2%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	N/A	N/A	N/A	N/A
Operating margin	N/A	N/A	N/A	N/A
Net income	N/A	N/A	N/A	N/A
Order book	N/A	N/A	N/A	N/A
Employees	≈ 8 000	≈ 7 700	≈ 7 700	≈ 8 000

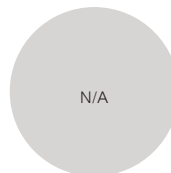
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Altec	63,75%	Italy
LeoStella	50%	United States
Pyxalis	15,53%	France
NorthStar Earth and Space	12,5%	Canada
RASCOMSTAR	12,36%	Mauritius
AirStar Aerospace	8,61%	France

REVENUE BY REGION (%)



MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Airbus	Safran	Turkish Aerospace	Indra	Sistemas	Leonardo	Thales	OHB	Northrop	Grumman	AvStar Aerospace	Hemera	ATR*
Satellite platforms (satellite buses)													
Spacebus NEO (Syracuse 4) platform	●	●				●							
Proteus (Göktürk 1) and ELiTeBus (Iridium-NEXT) low- and medium-Earth orbits platforms			●			●		●					
Stratobus future autonomous stratospheric airship									●		●		
Payloads													
Sensor electronics units (SAR-Lupe)							●						
Communications satellite													
Tiba-1 communications satellite													
Syracuse 4A and 4B military communications satellites	●												
Spainsat New Generation (NG) communications satellites	●		●										
SICRAL 3 secure satellite communications system					●								
Earth observation satellite systems													
COSMO-SkyMed Second Generation (2G) Earth observation satellite system					●	●							
CSO Earth observation satellite programme	●												
Satellite navigation systems													
Galileo global navigation satellite system	●					●	●						
European Geostationary Navigation Overlay Service (EGNOS)			●	●	●	●	●						
Equipment for Dual frequency Galileo, GPS and EGNOS (EDG ² E) project						●						●	
Propulsion system													
Xenon Propulsion System engine module		●											
Manned and transport space systems													
Cygnus Pressurized Cargo Module (PCM)								●					

*Joint venture between Airbus and Leonardo

STRATEGIC HIGHLIGHTS

Business trends

- ▶ Thales Alenia Space revenue grew by around 16% in 2021 to €2.15bn, thanks to several commercial successes in the fields of Earth observation, space exploration, navigation and commercial telecommunications.
- ▶ In 2021, Thales Alenia Space's order intake included contracts for the supply of six second-generation Galileo satellites (for €772m), two secure telecommunications satellites for the Italian Ministry of Defence (SICRAL 3) and two satellites for Luxembourg-based SES group, including a new-generation Space Inspire flexible digital satellite.
- ▶ In September 2021, Thales Alenia Space inaugurated a digital centre of excellence in Luxembourg. This facility will be dedicated to the development of innovative digital solutions for telecommunication, observation and navigation space products, based on Big Data, artificial intelligence and cybersecurity technologies.
- ▶ As part of the European Commission's HEMERA 2020 project, Thales Alenia Space carried out a demonstration flight in September 2021 to validate the emergency recovery system for the Stratobus stratospheric airship, which could make its first full scale flight (140 m long and 32 m in diameter) in 2030.

Home market

- ▶ Thales Alenia Space is a key partner of the French defence procurement agency (DGA) and is involved in the French Ministry of Armed Forces' main space programmes (Syracuse 4, CSO, etc.).
- ▶ In February 2022, Thales Alenia Space signed a contract with the French space agency CNES to develop a DFMC (Dual Frequency Multi Constellations) SBAS (Satellite Based Augmentation System) prototype in the frame of the next generation of SBAS, like EGNOS.

Export markets

- ▶ Thales Alenia Space is part of the Space Alliance, alongside Italy's Telespazio (66.67% owned by Leonardo and 33.33% by Thales). The group also relies on two main joint ventures: LeoStella, which is involved in the design and manufacture of small satellites, and Altec, which specialises in space infrastructure engineering services.
- ▶ As part of the Horizon 2020 programme, the European Space Agency awarded Thales Alenia Space a contract in September 2021 to design and develop a prototype of the next generation of ground station, called NLES-Next (Navigation Land Earth Station), for the European satellite navigation system EGNOS.
- ▶ In June 2022, Thales Alenia Space and Telespazio signed a contract with the Italian Ministry of Defence for the development of the SICRAL 3 secure satellite communications system and its ground segment (D2 development phase).
- ▶ In June 2022, the European Union Space Programme Agency (EUSPA) awarded Thales Alenia Space a contract for the development, qualification and deployment of the new version of the European satellite navigation system EGNOS. The certification and commissioning of this version are scheduled for 2024.

Technology and Innovation

- ▶ In April 2022, Thales Alenia Space and Italian start-up AIKO signed a cooperation agreement to develop advanced software capabilities for space systems. In particular, the two players will study the use of artificial intelligence and machine learning technologies to support the development of future-generation reconfigurable on-orbit systems.



THYSSENKRUPP MARINE SYSTEMS (TKMS)

Naval branch of the mainly civilian industrial conglomerate thyssenkrupp. World's largest exporter of submarines, and parent company of Atlas Elektronik.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Surface ships
- ▶ Submarines
- ▶ Ammunition
- ▶ Unmanned Surface Vehicles (USVs) and Unmanned Underwater Vehicles (UUVs)
- ▶ Combat systems, mine warfare systems
- ▶ Sonar and acoustic systems
- ▶ Equipment and MRO services

KEY FIGURES (Fiscal year ended: September 30th)

€ millions	2017-18	2018-19	2019-20*	2020-21
Revenue	1 389	1 800	1 760	2 022
Δ (%)	-18,29%	29,59%	-2,22%	14,89%
Defence (%)	N/A	N/A	N/A	N/A
Export (%)**	42%	71%	82%	82%
Operating profit/loss***	-128	1	20	26
Operating margin	-9,22%	0,06%	1,14%	1,29%
Net income	N/A	N/A	N/A	N/A
Order book	5 493	5 887	6 035	10 789
Employees	5 818	6 013	6 355	6 534

*Figures restated

**Total sales excluding Germany, Austria, Switzerland and Liechtenstein

***Adjusted operating profit/loss (EBIT)

GOVERNANCE

Chief Executive Officer	Oliver Burkhard
Head of Operations	Alexander Orellano
Chief Financial Officer	Paul Glaser

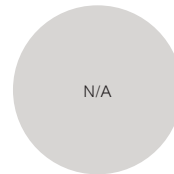
OWNERSHIP STRUCTURE

Symbol	
Listed on	Unlisted division
Market Cap	

Major shareholders (as of 15.11.2022)

Thyssenkrupp	100%
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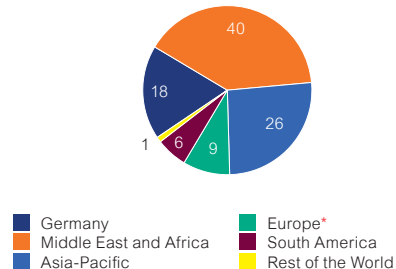
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Águas Azuis Construção Naval	75%	Brazil
Kta Naval Systems	50%	Norway
Atlas Elektronik - UAE	49%	UAE
MTG Marinetechnik	49%	Germany
Blohm + Voss German Naval Technology	40%	Qatar
CybiCOM Atlas Defence	40%	South Africa

REVENUE BY REGION (%)



*Excl. Germany, Austria, Switzerland and Liechtenstein

THYSSENKRUPP MARINE SYSTEMS (TKMS)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	Roketsan	Embraer	Fincantieri	Diehl Defence	Naval Vessels Lürssen*	HHI**	ST Engineering	Kongsberg	Gölcük Shipyards	SMW Coymia***	GNYK****	Narmco	DSME
Conventionally-powered attack submarines													
Joint programmes													
tkMS													
Atlas Elektronik													
Type 212CD future submarine								●					
Type 212A/NFS submarine		●											
Type 214 submarine					●			●					●
Dakar-class future submarine													
Invincible-class submarine						●							
Dolphin-class submarine													
Surface ships													
MEKO frigates, corvettes and OPVs								●	●	●			
F125 Baden-Württemberg-class frigate				●									
Tamandaré-class future corvette (CCT programme)	●												
K130 Braunschweig-class corvette (6 to 10)				●						●			
Naval systems, equipment and ammunition													
IDAS missile system	●		●				●						●
ORCCA submarine combat system							●						
ANCS/ANCS-SC ship combat system													
Active Towed Array Sonar (ACTAS) and Active Pulse Analysis System (APAS)													
SeaHake Mod4 heavyweight torpedo													
Unmanned vehicles													
ARCIMS minesweeper USV													
SeaFox mine disposal ROV													

*Formerly Lürssen Defence **Hyundai Heavy Industries (KSOE group) ***PGZ group ****German Naval Yards Kiel (Prininvest group)

STRATEGIC HIGHLIGHTS

Business trends

- ▶ The naval branch of German conglomerate thyssenkrupp, thyssenkrupp Marine Systems (tkMS) generated revenues of €2bn and had over 6,500 employees during fiscal year 2020-2021. tkMS, which was formerly part of the Industrial Solutions division, has been operating as a separate division since 1 October 2018. In 2020-2021, tkMS accounted for 5.6% of the conglomerate's total turnover and 6.5% of its workforce.
- ▶ tkMS has historically been involved in the design and production of submarines and the design of surface vessels (construction being currently subcontracted). Since the integration of Atlas Elektronik in 2017, tkMS is also active in the design and production of naval equipment and systems.
- ▶ In June 2022, tkMS acquired the MV Werften shipyard in Wismar (Germany), which had gone into bankruptcy, in order to increase its production capacity to meet future needs of the German Navy. Construction of submarines and surface ships should begin in 2024. Depending on orders, the shipyard could employ between 800 and 1,500 people.

Home market

- ▶ In July 2021, the German and Norwegian Navies awarded tkMS a €5.5bn contract for the supply of six Type 212CD submarines (two for the German Navy and four for the Royal Norwegian Navy). The submarines will be built at the Kiel shipyard. Deliveries are scheduled for 2029 for Norway (for the lead submarine) and for 2032 and 2034 for Germany.
- ▶ tkMS is also expected to benefit from future German Navy's programmes, in particular the supply of two additional Type 212CD submarines, a third batch of K130 corvettes and the future F127 air defence frigates.
- ▶ The fourth and final F125 frigate, named Sachsen-Anhalt, entered service with the German Navy in July 2022.

Export markets

- ▶ tkMS is currently positioned on several tenders, in particular in the Netherlands (replacement of the four Walrus-class submarines, in competition with Damen/Saab and Naval Group). On the other hand, the division has reportedly withdrawn from the competition for the supply of six conventionally-powered attack submarines to the Indian Navy (P-75I programme).
- ▶ In July 2021, tkMS delivered the last of the four Type 209/1400mod submarines, named S44, ordered by Egypt in 2011 for the first two and in 2015 for the next two.
- ▶ In January 2022, the Israeli Navy signed a €3bn contract with tkMS for the acquisition of three submarines from the « Dakar » series. The contract includes industrial offset agreements between Germany and Israel. The submarines will be built at the Kiel shipyard and delivered from 2030. Their design will be based on the Dolphin-class, already built by tkMS for the Israeli Navy, and Type 212CD submarines.
- ▶ In May 2022, the British Ministry of Defence awarded Atlas Elektronik UK, a wholly owned subsidiary of tkMS, a £32m (€38m) contract for the supply of three systems, each consisting of three ARCIMS minesweeper USVs, to be delivered from spring 2023.

Technology and Innovation

- ▶ At the SubCon2019 exhibition, Kta Naval Systems, a joint venture between tkMS and Kongsberg, unveiled the new ORCCA combat system for conventional submarines. It will be installed on the six Type 212CD submarines ordered from tkMS by Germany and Norway.



UNITED AIRCRAFT CORPORATION (UAC)

Conglomerate of the main Russian manufacturers of commercial and military aircraft (of which MiG-31, Su-57...). Subsidiary of state-owned defence holding conglomerate Rostec.

BUSINESS AREAS

Platform manufacturer and systems integrator

- ▶ Commercial aircraft
- ▶ Fighter aircraft (Mikoyan, Sukhoi)
- ▶ Trainer aircraft (Yakovlev)
- ▶ Strategic bombers (Tupolev)
- ▶ Transport and special purpose aircraft (Beriev, Ilyushin)
- ▶ Unmanned combat aerial vehicles (Mikoyan, Sukhoi)

GOVERNANCE

Chief Executive Officer	Yury Slyusar
Deputy General Director Innovations	Sergey Korotkov
Chief Financial Officer	Alexey Demidov

KEY FIGURES (Fiscal year ended: December 31st)

€ millions	2018**	2019**	2020**	2021
Revenue	5 559	4 849	5 221	5 372
Δ (%) [RUB]*	-8,90%	-14,64%	22,93%	8,41%
Defence (%)	83%	N/A	82%	N/A
Export (%)	N/A	N/A	N/A	N/A
Operating profit/loss	237	104	379	367
Operating margin	4,26%	2,14%	7,26%	6,83%
Net income	-234	-796	-1 845	-197
Order book	N/A	N/A	N/A	N/A
Employees	N/A	N/A	N/A	N/A

*Variation based on revenue in local currency

See €/RUB, p.7

**Figures restated

OWNERSHIP STRUCTURE (as of 15.11.2022)

Symbol	UNAC
Listed on	MOEX
Market Cap	-

Major shareholders (as of 15.11.2022)

Rostec	92%
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*In the absence of reliable data, the group's market cap is not presented

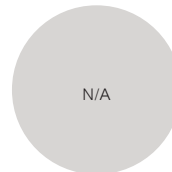
REVENUE BY BUSINESS SEGMENT (%)



MAIN JOINT VENTURES AND ASSOCIATES

Name	%	Country
Indo-Russian Aviation	31%	India
Aerospace Technology Systems Corporation (ATSC)	25%	Malaysia

REVENUE BY REGION (%)



UNITED AIRCRAFT CORPORATION (UAC)

MAIN PROGRAMMES, COOPERATIONS AND EXPORT PARTNERSHIPS

	HAL**	NADL***	Phazotron****	Tikhomirov****	UEC Saturn****	Aviadvigatel****	Klimov****	Kouznetsov****	Salyut****
Fighter aircraft									
MiG-41 (PAK DP) future high altitude interceptor aircraft									
Su-75 Checkmate future light fighter aircraft									
Su-57 (PAK FA) multirole fighter aircraft				●	●				
MiG-35 multirole fighter aircraft							●		
Su-35 (Su-27M) fighter aircraft				●	●				
Su-34 fighter-bomber					●				
MiG-31 multirole fighter aircraft						●			
Su-30SM2 multirole fighter aircraft				●	●				
Su-30MK multirole fighter aircraft	●	●	●		●				
Trainer aircraft									
Yak-152 future basic trainer aircraft									
Yak-130 advanced trainer aircraft									●
Strategic bombers									
PAK DA future long-range bomber								●	
Tu-160M2								●	
Tu-95MSM								●	
Transport and special purpose aircraft									
Il-112V future light transport aircraft							●		
Il-76MD-90A and Il-78M-90A transport/tanker aircraft						●			
Unmanned combat aerial vehicle (UCAV)									
S-70 Okhotnik-B future UCAV				●					

*Hindustan Aeronautics Ltd **National Aerospace and Defence Industries ***Subsidiary of Rostec ****Subsidiary of Almaz-Antey
*****UEC (United Engine Corporation) group, subsidiary of Rostec

STRATEGIC HIGHLIGHTS

Business trends

- ▶ UAC, which includes Russian aircraft manufacturers Mikoyan, Sukhoi, Yakovlev, Tupolev, Beriev, Ilyushin, Aviastar, Irkut, etc., generated revenues of RUB 468bn (€5.4bn) in 2021, up 8.4% year-on-year in local currency. The conglomerate nevertheless recorded a net loss of RUB 17bn (€197m) amid financial difficulties.
- ▶ In March 2022, UAC announced a share buyback plan, which could potentially lead to the delisting of the group. 92% of UAC's capital has been held by Russian conglomerate Rostec (Kalashnikov, Russian Helicopters, UEC, UralVagonZavod, etc.) since 2020.
- ▶ In May 2022, UAC announced that the development of its Su-75 Checkmate stealth fighter project would be delayed for two years as a result of Western sanctions against Russia following its invasion of Ukraine. At the same time, the group cancelled its A-100 electronic surveillance aircraft project due to difficulties to import crucial avionics components.

Home market

- ▶ UAC remains highly dependent on its domestic market. In 2021, the group delivered two Su-57 fifth-generation fighter aircraft, Su-34 fighter-bombers and Il-76MD-90A strategic transport aircraft to the Russian Air Force. Additional Su-34 fighter-bombers upgraded to the Su-34M standard (including new navigation and target designation systems and greater bomb and missile carrying capacity) were delivered in the first half of 2022.
- ▶ The group began serial production of its S-70 Okhotnik-B unmanned combat aerial vehicle in the summer of 2021, with deliveries scheduled for 2024.
- ▶ The first PAK DA strategic bomber, which was reportedly in the final stages of assembly in the end of 2021, could begin ground tests in 2022 and make its maiden flight in 2024-2025. Six other prototypes are reportedly in production.
- ▶ The first mass-produced Tu-160M2 strategic bomber began flight testing in January 2022. A further nine aircraft remain to be produced.
- ▶ In August 2022, UAC announced plans to produce four prototypes of the future Su-75 Checkmate fighter aircraft, with flight tests scheduled for 2024.

Export markets

- ▶ In the export market, UAC mainly operates in Africa (Algeria, Egypt) and Asia (China, India, Vietnam).
- ▶ UAC is continuing production of the 14 Su-34ME fighter-bombers ordered by Algeria in 2019. The first deliveries are expected by the end of 2022 or early 2023.
- ▶ The Myanmar Air Force received six new Yak-130 advanced trainer/light attack aircraft at the end of 2021, bringing the number of units in service in the country to 18. A first batch of six Yak-130 aircraft, out of the 12 ordered at the end of 2019 for \$350m (€313m), was also delivered to the Vietnamese Air Force.
- ▶ Two Su-35 fighter aircraft for Egypt were in the final assembly phase in May 2022. 17 aircraft were reportedly delivered out of a total of 24 to 31 units ordered in 2018.

Technology and Innovation

- ▶ In 2021, UAC began development of its MiG-41 (PAK DP) high-altitude interceptor aircraft, expected to replace the MiG-31 in service with the Russian Air Force in the early 2030s. It is intended to intercept aircraft and hypersonic missiles, and even attack satellites in near space.
- ▶ In August 2021, the Russian press announced that production of the upgraded version of the Su-57 fighter aircraft, developed under the Megapolis project, might begin in 2025. This version, equipped with an improved cockpit, new avionics and a new propulsion system, will be called Su-57M.

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LAYOUT & GRAPHICS

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DGA institutional website www.defense.gouv.fr/dga

State public procurement portal www.achats.defense.gouv.fr

The armaments portal www.ixarm.com

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