

THE FACTS

2004

The information in this book is correct as of 1 June 2004
Each section follows the spelling conventions of the region of the world it represents.
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BAE SYSTEMS plc

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www.baesystems.com

- The systems company innovating for a safer world
- Prime contractor and systems integrator in air, sea, land and space
- Order book of £46bn (year-end 2003)
- Sales of £12.6bn (year-end 2003)
- Presence across all five continents
- More than 90,000 employees world-wide

**WARWICK HOUSE, PO BOX 87, FARNBOROUGH AEROSPACE CENTRE,
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TEL: +44 (0) 1252 373232

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Corporate Investments

Euromandarin Limited 50%

7th Floor, Harcourt House, 39 Gloucester Road, Wanchai, Hong Kong

Tel: +85 2 2143 6878

Fax: +85 2 2143 6642

A venture capital orientated company set up in 1998 to research, structure and manage aerospace related investments in Greater China.

Partners (% Interest):

BAE Systems, UK 50%

First Mandarin, Hong Kong 50%

Innovation Partnerships Worldwide Limited 55%

PO Box 5249, Rutland Hall, Ashby Road, Loughborough,

Leicestershire LE11 3WW, United Kingdom

Tel: +44 (0) 1509 228499

Fax: +44 (0) 1509 211516

Joint venture formed to promote social and economic programmes in the global market place.

Partners (% Interest):

BAE Systems, UK 55%

Loughborough University, UK 45%

Singapore British Engineering Pte Limited 49%

435 Orchard Road, #19-02, Wisma Atria, Singapore 0923

Tel: +65 735 8328

Fax: +65 735 8233

Joint marketing company for defence activities in South East Asia. Markets BAE Systems defence products, systems and services.

Partners (% Interest):

BAE Systems, UK 49%

Singapore Technologies 51%

Spectrum Technologies plc 20%

Western Avenue, Bridgend CF31 3RT, United Kingdom

Tel: +44 (0) 1656 655437

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www.spectrum-technologies.co.uk

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Developer and supplier of high technology UV laser equipment and services for manufacturing processes.

Products:

- CAPRIS range of laser wire marking and processing systems used by most aerospace companies around the world.

- ATE range of automatic wire harness test systems for aerospace and other related applications.
- Manufacture of Laser Wire Stripping systems.

Services:

- Job Shop contract marking of aerospace wires.

Partners (% Interest):

BAE Systems, UK	20%
Other Shareholders	80%

Marketing

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Recognising the international nature of our business BAE Systems has taken steps to strengthen its presence within the increasingly competitive world marketplace. The Marketing function has the objective of enhancing relationships by having presence alongside our customers. We are also investing in regional businesses to access additional skill resources.

The regional marketing teams are as follows:

- Asia
- Europe
- Equatorial
- Middle East
- New Strategic Markets
- North America
- United Kingdom

These regions are supported by the following functions:

- Marketing Operations – responsible for the co-ordination of marketing activities, resource planning and implementation of financial control. Marketing Operations also has responsibility for the organisation and facilitation of Events and Exhibitions.
- Industrial Participation – responsible for the development of winning industrial packages in support of key marketing campaigns, co-ordination of direct offset activities across the Group and delivery of indirect offset obligations. This also includes International Socio-Economic Programmes – responsible for management and control of overseas education, training and infrastructure development programmes.
- Export Finance – responsible for the provision of a financing framework for those campaigns which require deferred payment terms, and supporting the regional marketing teams in developing financing strategies.
- Market Development – responsible for identifying and developing an approach to business opportunities emerging from future trends in the defence and aerospace market to provide future growth. This will include the analysis of market and business trends and how BAE Systems responds to them.

Teamwork within BAE Systems is essential and Marketing works with the product, project, commercial and financial resources across the company. BAE Systems strength lies in its ability to provide total solutions to the most demanding customer requirements on land, at sea and in the air.

The Company continues to reduce customer response times so that the demand for spares, operational training and technical support can be met more rapidly than ever before. BAE Systems customers are assured that the company's product support teams are on hand 24 hours a day to ensure the continued operational availability of their equipment, whatever the situation or environment.

Virtual University

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The Virtual University (VU) co-ordinates the Company's strategy in the area of people skills and capability development. The key activities that constitute the work of the Virtual University are Leadership Development; Functional Capability Development through a suite of Developing You (DY) Programmes; Technology Partnerships; E-Learning and Education Partnerships.

In the area of Leadership Development, the VU has established a Development Framework for the senior leadership population, which includes the Strategic Leaders Programme, Behaviours for Success and Performance Coaching. The Framework also includes tools and approaches aimed at optimising capabilities and performance for natural work teams and for individuals and teams working with change.

The VU supports the development of Professional Competencies through a range of "Developing You" programmes, which are sponsored by senior functional representatives within the business. There are a number of dedicated teams that manage the development and roll-out of this Professional Development activity. These include Engineering Developing You Project Management, Operations, Commercial and Procurement

To support the technical capability requirements of the organisation, the University Partnership team have developed Masters level courses in Systems Engineering and Aeronautical Engineering in conjunction with our Strategic Partner universities.

On-line learning is a key part of the VU's learning delivery strategy and a range of programmes are delivered in this way either to the home, the desktop or via the Learning Resource Centres. In addition, the Integrated Development Portfolio enables all employees to access a 'one stop shop' for development solutions pan-Company.

Also managed from within the VU and forming the first stage in a progression of learning, which brings the Business into partnership with academia and governments, is the Education Liaison programme. The activity promotes engineering and related careers in schools and colleges throughout the UK to teachers, pupils and parents. Education Liaison also provides development opportunities for employees, creates pride in BAE Systems and develops close relationships with several UK Government departments. A dedicated website provides an extensive range of material and projects for school age and young people.

Charity Challenge

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www.baesystemscharitychallenge.com

Charity Challenge is a programme that covers all employee-driven charitable activity. Operating for more than ten years, Charity Challenge has grown to cover five countries and more than 100 sites across BAE Systems, our joint-venture partners including Airbus, AMS, MBDA and XChanging HR Services, running in 18-month campaigns. The July 2003 to December 2005 campaign is aiming to surpass previous set totals of £5.7 million funds raised and 3500 volunteer days world-wide.

Future Systems

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Future Systems identifies and promotes long-term capability and technology requirements to satisfy the emerging needs of customers, focusing mainly on the UK Government but with world-wide networking to capitalise on BAE Systems global knowledge and expertise. Our customers are looking for affordable, integrated system solutions to provide their military capability, breaking away from traditional platform-based procurement.

To help achieve this, Future Systems fulfils a pan-Company role working with and alongside the sectors, and business groups (including the Joint Ventures) to position BAE Systems to capture future business opportunities. Our role is to develop enduring Customer relationships that deliver longer-term capability solutions.

Essentially, Future Systems aims to be a catalyst for better business both for the company and customers. Unconstrained by any specific product and concept boundaries, Future Systems seeks to explore, identify, evaluate, prioritise, promote and manage new business opportunities for pan-Company adoption with a strong emphasis on UK market delivery.

Customer Relationships Directorate

The Future Systems Customer Relationships (CR) Directorate works closely with current and future customers to establish priorities for future capability development. By taking a forward looking approach, coupled with an appreciation of how quickly the customer's needs can change, the CR Directorate builds a deep understanding of key issues, related challenges and likely capability requirements. This activity is key to developing future capabilities that are customer focused, responsive and effects based.

Enterprise Capability Directorate

Enterprise Capability Directorate is addressing the customer ambition to manipulate capability at an enterprise level through massive networking. New systems development and integration methods are needed for this, focused on delivering overarching military concepts rather than stovepiped user requirements.

A key Customer goal is to preserve the unique capabilities of the UK military forces whilst at the same time achieving interoperability with allies. By taking a concept-driven approach, BAE Systems is in a unique position to deliver this difficult combination. In 2004, our emphasis is on 2 areas:

1. Developing a 'Human-Centric Framework' as a means to ensure that the military enterprise can be as responsive and intuitive as the most capable human warrior while at the same time benefiting from the added reach, strength and breadth from NEC.
2. Developing systems and services such that technology, process, organisation, training and preparation support an agile, interoperable Effects-Based Operations concept.

Technology and Concept Exploitation

As part of its role to seek future business opportunities, Future Systems maintains an overview of developments and future trends in technology, defence, and global factors in general. This view can help identify gaps and opportunities, inform business plans and assess innovative ideas for business exploitation.

Projects Directorate

Future Systems leads a variety of customer capability-based projects during their early concept and assessment phases. These types of projects, often involving a diverse spectrum of customer and industry stakeholders, call for a fresh approach in Project Management and the Project Directorate ensures that this is achieved to Customer satisfaction and without losing the normal guidance and disciplines of best-practice.

The following Projects are currently being either developed or managed by Future Systems:

○ Missile Defence

Future Systems leads the current activity on Missile Defence, identifying opportunities for BAE Systems arising from potential Missile Defence programmes, and bringing together the relevant capabilities from across BAE Systems UK and North America to address them. This activity involves both an appraisal of the relevant technical capabilities across BAE Systems, and an appraisal of the various business opportunities, and how they can best be pursued. Future Systems is the lead contractor for the UK Missile Defence Centre (MDC), a joint UK Government and UK Industry organisation. The UK MDC brings together BAE Systems C4ISR, AMS and MBDA as well as QinetiQ and INSYS. The UK MDC has been formed to achieve two distinct objectives: to provide advice to policy makers and to help position UK Industry for emerging opportunities.

○ Indirect Fire Precision Attack (IFPA)

Future Systems is leading the BAE Systems team on IFPA, comprising AMS, ROD, MBDA and external partners. IFPA is a capability based programme, with an initially broadly defined requirement and solution space gradually being narrowed towards a systems definition and ultimate equipment specification, the whole process being led by BAE Systems. As a result, Future Systems will lead the assessment phase throughout its three-year duration.

- Directed Energy Systems

Future Systems acts as a central lead and co-ordinator to identify and access opportunities in directed energy systems, over a broad range of potential applications, bringing together capabilities from across BAE Systems.

- CELLDAR

In conjunction with Roke Manor Research, Future Systems has developed the concept for a new generation of sensor systems based on Cellphone Technology. Applications include Air Defence and Homeland security. A prototype system has been trialled and is now undergoing further development prior to transfer to a business unit for exploitation.

- DS1/ Digitization

Future Systems continues to lead a team comprising CDI, AMS and EDS to the deliver Digitisation Stage 1 capability to the Allied Rapid Reaction Corps (ARRC). This project has been most successful in equipping the ARRC with a significantly enhanced HQ Operational Capability that has undergone significant trials; it is now being further improved. FS maintains active dialogue with both ECC and DPA to seek and identify further opportunities in Digitization that can be addressed by a range of BAE Systems business.

Business Directorate

The Business Directorate provides a full range of business support services to Future Systems. It also considers how best to engage with non-traditional partners, and looks to understand and apply innovative business practices.

As part of Group Strategy, Future Systems will undertake a corporate role to shape future business development activities across BAE Systems. Future Systems will evolve and manage corporate or pan - Business Group business development themes, which are aligned with Corporate Strategy and support our UK strategy. By developing and maintaining this pan-company long-term view, Future Systems will both be informed by, and also inform Corporate Strategy to assist the company to make strategic decisions for a successful future.

As the sponsor of the Corporate Research and Technology programme, Future Systems will continue to ensure that funding is allocated to projects which underpin our future business development themes and which are most likely to deliver significant business benefit.

CORDA (Centre for Operational Research and Defence Analysis)

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Hampshire GU14 6YU, United Kingdom**

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CORDA is a specialist company offering Defence Analysis consultancy services to key decision-makers in UK MoD, Armed Forces, NATO and Industry.

The Company is wholly owned by BAE Systems, and forms an integral part of the Company's Future Systems capability.

CORDA's principal Defence Analysis services are:

- Capability Analysis
- Operational Analysis
- Business & Financial Analysis
- Provision of Decision Support Models and Tools

CORDA's key capability lies in the integration of scientific, technical, and financial skills with military expertise across all domains, to provide a packaged, one-stop analysis service, focused at the concept and assessment phase of the defence lifecycle.

CORDA provides direct technical consultancy to key decision makers within UK MoD DEC's, Warfare Centres, DSTL, DPA\DLO, UK Government Agencies and NATO, to support operational capability assessment and defence planning.

Within BAE Systems, CORDA provides Defence Analysis services to Business Units during the programme assessment phases, to support operational system and financial trade off and solution optimisation, and during programme delivery phases to provide specialist technical and analytical modelling support.

Research & Technology

PO Box 87, Chester House, Farnborough Aerospace Centre, Farnborough, Hants GU14 6YU, United Kingdom

BAE Systems has a significant and long established programme of Research and Technology development in the field of Aerospace and Defence. The focus of the programme is on longer term, evolutionary and transformational growth in the business. The company's R&T programme is structured according to the maturity of the research. In general, low maturity and novel research is undertaken with universities while higher maturity work is carried out in our own corporate research centre (Advanced Technology Centre). Each of the company Business Units undertakes their own application specific R&T, building on the generic research undertaken in the ATC and academic sector.

The company's R&T strategy is the responsibility of the corporate R&T team within Strategy and Planning. This team also co-ordinates the company wide programme and sponsors the longer term research programmes including:

Advanced Technology Programme

This area of investment addresses lower maturity, high potential technologies that will enhance future products and services required by our customers. It includes work into critical underpinning technology differentiators, with application across multiple businesses, and investigation of emerging and potentially disruptive technologies. A dedicated Systems Engineering Innovation Centre (SEIC) has recently been established at Loughborough University.

University Strategic Partnership Programme

The company has established a university network centred on a small number of University Strategic Partners to focus our research, education and training activities with the academic sector. These partnerships are directed at key business areas, including Systems Engineering, Signal & Information Processing, Aeronautical Engineering and Support Solutions.

Integrated Capability Programme

Inter Business Unit research programmes are undertaken which extract the synergies between business interests and which explore potential new areas of business development, particularly in higher levels of systems integration. These programmes have a high level of emphasis on demonstration.

Programmes

Air Systems

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Fax: +44 (0) 1772 634724

Samblesbury Aerodrome, Balderstone, Lancashire BB2 7LF, United Kingdom

Tel: +44 (0) 1254 812371

Fax: +44 (0) 1254 768000

Brough, East Riding of Yorkshire HU15 1EQ, United Kingdom

Tel: +44 (0) 1482 667121

Fax: +44 (0) 1482 666625

Woodford Aerodrome, Chester Road, Woodford, Cheshire SK7 1QR

Tel: +44 (0) 161 439 5050

Fax: +44 (0) 161 955 3008

The Air Systems Business Unit is tasked with maximising the Company's position in the military air market sector. The prime focus is on the needs of the customer from initial briefing through the design, build and test stages to delivery. Air Systems is focused on driving operational efficiency and working with its customers and suppliers to deliver its commitments world-wide.

Air Systems employs 10,500 people on four military aircraft businesses - Typhoon, Nimrod, Hawk and JSF - and its New Business team. It operates on four main sites: Warton and Samblesbury in Lancashire, Brough in the East Riding of Yorkshire and Woodford in Cheshire.

Through its New Business team, Air Systems seeks to exploit opportunities for future air platforms, e.g. the Future Offensive Air System and Unmanned Air Vehicles (UAVs) and the embedded systems that link them with existing platforms for maximum capability.

Eurofighter Typhoon

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The Eurofighter Typhoon has been developed by four of the world's leading aerospace companies, BAE Systems, EADS-Deutschland (Germany), Alenia Aerospazio of Italy and EADS-CASA (Spain) and is now in service with these nations. 620 aircraft are already on order for the four partner nations and Austria confirmed an order for 18 aircraft in 2003. The inherent flexibility of the swing-role weapon system through high-end air-to-air performance and precision air-to-surface operations delivers an unmatched mission performance. Typhoon breaks new ground with a unique cockpit environment; Human Machine Interface including voice activation control and Sensor Fusion technology. With advanced weapons and fully

integrated systems, high airframe performance and low operating costs the Typhoon is continually identified as the only affordable aircraft capable of meeting the swing-role requirements of the four European nations well into the 21st century.

Production Workshare

Workshare is apportioned according to the number of aircraft required by each nation and is broken down as follows:

United Kingdom (BAE Systems)	232 aircraft	37%
Germany (EADS-Deutschland)	180 aircraft	30%
Italy (Alenia)	121 aircraft	20%
Spain (EADS-CASA)	87 aircraft	13%

Manufacturer:

Eurofighter Jagdflugzeug GmbH (BAE Systems, Alenia, EADS-Deutschland [Germany] and EADS-CASA [Spain]).

Development Aircraft and First Flights:

DA1 (EADS-Military Aircraft)	Aircraft Handling & Engine Development	27 March 1994
DA2 (BAE Systems)	Envelope Expansion & Carefree Handling	6 April 1994
DA3 (Alenia)	EJ200 Integration; Stores Release; Gun Firing	4 June 1995
DA4 (BAE Systems)	2-Seat Handling; Radar Development & Integration	14 March 1997
DA5 (EADS-Deutschland)	Avionics Integration; Weapons Integration	24 February 1997
DA6 (EADS-CASA)	2-seat Avionics & Systems	31 August 1996
		<i>(aircraft lost in accident 21 Nov 2002)</i>
DA7 (Alenia)	Weapons Integration; Performance	27 January 1997
IPA1 (BAE Systems)	Defensive Aids Sub-System Integration	15 April 2002
IPA2 (Alenia)	Air-to-Surface Weapon Integration and Sensor Fusion	5 April 2002
IPA3 (EADS-Deutschland)	Air-to-Air Weapon Integration	8 April 2002
IPA4 (EADS-CASA)	Single Seat Weapons System Certification and Environmental Trials	February 2004
IPA5 (BAE Systems)	Single Seat Weapons System Certification	May 2004

BT005 will also join the development programme for six months, with a focus on Defensive Aids and Weapons System.

Aircraft Data:

Length:	15.96m	(52ft 4ins)
Height:	5.28m	(17ft 7ins)
Wing span:	10.95m	(35ft 11ins)
Wing aspect ratio:	2:205	
Wing area:	50.0sq.m	(538sq.ft)
Weight max-take off:	21,000kg	(46,305lb)
Max speed:	Mach 2.0	
Operational runway length:	700m	(2,297ft)
'g' limits:	+9/-3'g''	

Cockpit

Excellent all-round vision, head-up operation in all missions, and low pilot workload are the major drivers in the design of Eurofighter Typhoon's high technology single seat cockpit.

The cockpit features:

- **Multi-function Head Down Displays (MHDDs)** presents information including the overall tactical situation; attack formats; map displays and air traffic procedures and system status and check lists.

- **Head Up Display (HUD)** the pilot's primary source of flight information. Forward Looking Infra-Red (FLIR) imagery will be displayed.
- **Ground Proximity Warning System (GPWS)** derives information from its own terrain database, the radar altimeter, Global Positioning System (GPS) and Laser Inertial Navigation System (LINS). GPWS continuously monitors the aircraft's relationship with the ground, significantly reducing the chances of inadvertent ground collision.
- **Voice Throttle and Stick (VTAS)** twenty-four finger-tip functions related to sensor and weapon controls; defence aids management; aircraft handling; communications; target manipulation and X/Y cursor control.
- **Direct Voice Input (DVI)** allows the pilot to control non safety-critical and data entry functions (such as displaying fuel status, changing radio frequency, etc) as an alternative to using manual methods.
- **Helmet Mounted Symbology System (HMSS)** provides flight reference data, an energy cue, and weapon aiming through the pilot's visor – this will allow target acquisition and engagement at large off-boresight angles. The helmet also incorporates night vision aids using light intensification and provision for FLIR imagery.
- **Multiple Information Distribution System (MIDS)** a high capacity digital information distribution system allowing the secure and jam-resistant exchange of real-time data between a wide variety of users, including all components of a tactical air force, and where appropriate, land and naval forces.

Radar

Eurofighter Typhoon's advanced multi-mode pulse Doppler Radar, the CAPTOR has been developed by the Euroradar consortium led by BAE Systems Avionics. The radar is fully automated selecting appropriate modes according to background clutter and can provide automatic prioritisation of airborne targets. It utilises three operating channels and has advanced Electronic-Counter-Countermeasure features. The radar can also be used for tracking naval targets, ground mapping and ranging, and for navigation.

Weapons Carriage

Thirteen weapon carriage points are available on Eurofighter Typhoon – four on each wing and five on the fuselage. The standard Air-to-Air configuration will be four AMRAAMs (Advanced Medium Range Air-to-Air Missiles) carried in semi-recessed fuselage stations, and two ASRAAMs (Advanced Short Range Air-to-Air Missiles) on outboard pylons. If required, a mix of at least 10 short and medium-range missiles can be carried.

Eurofighter Typhoon will also be able to carry most of the present inventory of Air-to-Surface weapons on seven stations. These include 2000, 1000 and 500lb bombs, cluster bombs, laser bombs, ALARM (Air Launched Anti-Radiation Missile) and avionic stores such as laser designators. Future stand-off and anti-armour weapons will also be Eurofighter Typhoon compatible. Two-wing stations and a centre fuselage point are designed to carry external fuel tanks.

Powerplant

Eurofighter Typhoon is powered by two EJ200 engines, developed and manufactured by EUROJET, comprising Rolls-Royce (UK), Motoren und Turbinen Union (Germany), Fiat Aviazione (Italy), and ITP (Spain).

The EJ200 turbofan is tailored specifically to match Eurofighter Typhoon's mission requirements. In particular each engine offers a combination of very high thrust – around 90 kN in full reheat and 60 kN in full dry power – and low fuel consumption. This high dry thrust rating allows supersonic cruise without the need for reheat. Great emphasis is put on reliability and maintainability, low cost of ownership, and growth potential. Fully modular, the EJ200 incorporates digital control and state-of-the-art components.

Defensive Aids Sub-System (DASS)

The DASS is fully integrated into the aircraft design and does not need to use any weapon stations. The state-of-the-art system provides an all round prioritised assessment and fully automated responses to single or multiple threats. The system includes front and rear Missile Approach Warners (MAW), decoy systems, chaff and flare dispensers and laser warning.

Stealth technologies have been incorporated in the design features minimising the aircraft's radar signature.

Flight Control System

Eurofighter Typhoon has a foreplane/delta configuration, which is intentionally aerodynamically unstable to provide extremely high levels of agility, reduced drag and enhanced lift. The unstable design cannot be flown by conventional means and the pilot controls the aircraft via a computerised digital Fly-By-Wire system that offers fully carefree handling.

Export Potential

Deliveries to the four home-nation air forces commenced in 2003. Considerable interest in Typhoon has been shown by a number of nations already at this early stage of the programme. Austria confirmed an order for 18 aircraft in 2003, while Greece has selected Typhoon to fulfil its next generation fighter requirement. The aircraft has also been shortlisted by Singapore under its Next Generation Fighter Replacement programme

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Business;

European company managing the programme to design, develop and manufacture Eurofighter Typhoon.

Partners (% Interest):

BAE Systems, UK	33%
EADS-Deutschland, Germany	33%
Alenia, Italy	21%
EADS-CASA, Spain	13%

Hawk

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Business

Hawk is the world's most successful advanced training and light combat aircraft, outperforming and outselling all other aircraft in its class. Over 900 Hawk aircraft are in operational service with, or have been ordered by, 19 customers world-wide, and over 1.5 million flying hours have been logged on the type.

Current operational variants of the Hawk include:

Hawk T.Mk.1/1A – Initial production version of the Hawk. 176 aircraft ordered by the UK Ministry of Defence in March 1972, and first pre-production prototype made maiden flight on 21st August 1974. Hawk T.Mk.1 entered Royal Air Force service in November 1976. Eighty-eight aircraft subsequently upgraded, between 1983 and 1986, to enable operation with AIM-9 Sidewinder short range air-to-air missiles, and re-designated as Hawk T.Mk.1A. Various Service Life Extension Programmes developed for the aircraft, the most recent being a Fuselage Replacement Programme (FRP) involving the aft centre and rear fuselage sections of 80 aircraft, which has recently been completed.

Hawk 50 Series – Initial export version of Hawk, first flown on 17th May 1976, and featuring an uprated Adour Mk851 engine, enhanced cockpit instrumentation, four underwing weapons stations and significant increases in both fuel load and maximum disposable load. Ordered by Finland (Mk.51), Kenya (Mk52) and Indonesia (Mk53).

Hawk 60 Series – Developed from the earlier Hawk 50 Series, and flown for the first time on 1st April 1982, the Hawk 60 Series featured an uprated Adour Mk861 engine, an aerodynamically refined wing, higher rated wheels and tyres and the ability to carry 130 Imp.Gallon external fuel tanks. The 60 Series also offered further increases in both fuel load and maximum disposable load. Ordered by Zimbabwe (Mk60), U.A.E.- Dubai (Mk61), U.A.E.- Abu Dhabi (Mk63A/63C), Kuwait (Mk64), Saudi Arabia (Mk65), Switzerland (Mk66) and South Korea (Mk67 with extended nose profile).

Hawk 100 Series – Developed from the earlier Hawk 60 Series, the prototype Hawk 100 made its first flight on 1st October 1987. Since then, the aircraft has undergone further development and now represents a significant advance, both technically and operationally, on previous Hawk variants. The Hawk 100 Series is described in more detail, a little later in this section.

Hawk 200 Series – Developed in parallel with the Hawk 100 Series, the Hawk 200 is a single seat, radar-equipped, lightweight, multi-role combat aircraft, and first flew on 19th May 1986. Principal features of the Hawk 200 Series include: a revised forward fuselage with a single place cockpit, a new nose radome housing a Northrop Grumman APG-66H multi-mode, pulse-Doppler radar system, a seven station Combat Wing with Combat Manoeuvre Flaps and wingtip missile launchers, an advanced cockpit layout with Multi-Function Display (MFD) and Hands-On-Throttle-And-Stick (HOTAS) controls, enhanced avionic systems operating via a MIL-STD-1553B digital databus and an uprated Adour Mk871 engine. The Hawk 200 Series features extensive structural and systems commonality, aft

of the cockpit bulkhead, with the Hawk 100 Series. Ordered by Oman (Mk203), Malaysia (Mk208) and Indonesia (Mk209).

Hawk Lead-In Fighter (LIF) – The Hawk Lead-In Fighter (LIF) is an enhanced and updated version of the Hawk 100 Series, which incorporates changes to the avionics suite and associated aircraft systems. The aircraft was originally developed, by BAE Systems, for the Royal Australian Air Force, as the Hawk Mk.127 Lead-In Fighter (LIF). Subsequent Hawk LIF variants incorporate additional systems enhancements. The Hawk LIF is described later in this section.

Manufacturer

All Hawk variants – BAE Systems

Aircraft Data

	Hawk T.Mk.1/50 Srs	Hawk 60 Srs	Hawk 100/LIF
Length overall	38ft 10in (11.85m)	38ft 7in (11.80m)	40ft 7in (12.43m)
Wing span	30ft 10in (9.39m)	30ft 10in (9.39m)	32ft 7in (9.94m)
Height overall	13ft 2in (4.00m)	13ft 2in (4.00m)	13ft 1in (3.98m)
Wing Area	179.6sq.ft (16.69sq.m)	179.6sq.ft (16.69sq.m)	179.6sq.ft (16.69sq.m)
Basic Mass Empty	8,000lb (3,636kg)	8,845lb (4,012kg)	9,792lb (4,440kg)
Max Take-Off Weight (50 Series)	12,566lb (5,700kg)	20,062lb (9,100kg)	20,062lb (9,100kg)
Max. Level Speed	540kt/0.85M	545kt/0.82M	555kt/0.84M

Hawk 200

Length overall	37ft 3in (11.34m)
Wing span	32ft 7in (9.94m)
Height overall	13ft 1in (3.98m)
Wing Area	179.6sq.ft (16.69sq.m)
Basic Mass Empty	9,810lb (4,450kg)
Max.Take-Off Weight	20,062lb (9,100kg)
Max.Level Speed	550kt /0.83M

Powerplant

Hawk T.Mk.1/1A	Rolls-Royce/Turbomeca Adour Mk151 (5,200lbst)
Hawk 50 Series	Rolls-Royce/Turbomeca Adour Mk851 (5,340lbst)
Hawk 60 Series	Rolls-Royce/Turbomeca Adour Mk861 (5,700lbst)
Hawk 100 Series	Rolls-Royce/Turbomeca Adour Mk871 (6,030lbst)
Hawk 200 Series	Rolls-Royce/Turbomeca Adour Mk871 (6,030lbst)
Hawk LIF (excluding RAAF Hawk Mk.127)	Rolls-Royce/Turbomeca Adour Mk951 (6,500lbst) with Full Authority Digital Engine Control (FADEC)

Current Export Variants of Hawk

Hawk 100 Series – Hawk 100 is a two-seat lightweight fighter and advanced weapons systems training aircraft with enhanced ground attack capability, suitable for Lead-In Fighter Training of Pilots, Navigators and Weapons Systems Operators (WSO). Hawk 100 can be equipped with a nose-mounted Forward Looking Infra-Red (FLIR) and/or Laser sensor for all-weather, day and night operations. Hawk 100 can remain airborne longer, and carry a heavier and more varied weapons load than any other aircraft in its class, whilst its small size makes it a difficult target to detect. Ordered by U.A.E. – Abu Dhabi (Mk102), Oman (Mk103), Malaysia (Mk108), Indonesia (Mk109), Canada (Mk115) – for the NATO Flying Training in Canada (NFTC) programme, South Africa (Mk120), Australia (Mk127), Bahrain (Mk129) and India (Mk132).

Principal features of the Hawk 100 Series are:

- Advanced cockpit layout with Multi-Function Displays (MFD) and Hands-On-Throttle-And-Stick (HOTAS) controls
- Enhanced avionic systems operating via a MIL-STD-1553B digital databus highway
- Seven station Combat Wing with Combat Manoeuvre Flaps and provision for wingtip-mounted short range air-to-air missiles
- Lengthened nose profile with provision for Forward Looking Infra-Red (FLIR) and/or Laser sensors
- Revised tailfin with Radar Warning Receiver (RWR) fairing
- Upated Rolls Royce/Turbomeca Adour Mk871 turbofan engine (Note: not Hawk Mk.120 and Mk.129)
- Heavy and varied weapons load up to 3,000kg

Hawk Lead-In Fighter (LIF) – The Hawk Lead-In Fighter (LIF) is an updated version of the Hawk 100, incorporating avionic and system enhancements, and was originally developed, by BAE Systems, for the Royal Australian Air Force, as the Hawk Mk127, Lead-In Fighter (LIF). Subsequent Hawk LIF variants incorporate additional system enhancements. Hawk LIF is a cost-effective pilot training system capable of producing high calibre aircrew for both current, and projected, front line combat aircraft types. The BAE Systems Hawk 100 demonstrator aircraft, ZJ100, is currently configured with LIF-standard cockpit layouts for development purposes.

Principal features of Hawk LIF are:

- Revised cockpit layouts with three, full colour, Multi-Function Displays (MFD)
- Cockpit instrumentation fully compatible with the use of Night Vision Goggles (NVG)
- Head-Up Display (HUD) with enhanced symbology
- Hands-On-Throttle-And-Stick (HOTAS) controls with enhanced moding and switching functions
- Enhanced Stores Management System (SMS) with ‘smart’ weapons capability
- Inertial Navigation/Global Positioning System (IN/GPS) for enhanced navigation/weapon aiming accuracy
- Upated Rolls Royce/Turbomeca Adour Mk951 turbofan engine with Full Authority Digital Engine Control (FADEC)
(Note: This does not apply to RAAF Hawk Mk.127 aircraft)
- Health and Usage Monitoring (HUMS) system

Associated systems changes to the Hawk LIF include:

- Electrical system upgraded with a 25kVA generator
- Auxiliary Power Unit (APU) installed
- On-Board Oxygen Generation System (OBOGS)

Provision for Air-to-Air Refuelling (AAR) using a detachable, nose-mounted, fixed position probe (AAR trials were successfully completed using an RAAF Hawk Mk.127 aircraft and an RAAF Boeing 707 tanker aircraft, in December 2002)

F-35 Joint Strike Fighter

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The F-35 Joint Strike Fighter (JSF) is being developed for the US Air Force, Navy and Marine Corps, as well as the UK's Royal Air Force and Royal Navy, to replace the A-10, the AV-8 Harrier, F-16 and the F/A-18 in current service with the two nations.

The single-engine F-35 JSF has a low-observable design, giving greater stealth, and will be manufactured in three variants:

- a conventional takeoff and landing (CTOL) aircraft for the US Air Force, which features a larger internal weapons bay and greater internal fuel capacity.
- a short takeoff and vertical landing (STOVL) variant for the US Marine Corps and the UK, which features a shaft-driven lift fan propulsion system that multiplies vertical thrust, enhancing short takeoff and landing performance without any compromise to the fighter ability of the aircraft.
- a carrier takeoff and landing (CV) aircraft, for the US Navy, which has increased internal fuel capacity for greater combat striking range. Larger wing and tail surfaces enable superior, carrier-suitable handling qualities.

Affordability is the cornerstone of the JSF programme. It is achieved in a large part through a very high level of common parts and systems across the variants. Support costs are forecast to be about half that of present day fighters, and streamlined assembly methods will cut production time and cost significantly.

JSF Concept Demonstration Phase:

The Lockheed Martin JSF Team built two Concept Demonstrator aircraft, designated X-35. The first, the X-35A, was used to demonstrate the CTOL variant. The testing of X-35A was completed with all objectives achieved. The X-35A was then modified to the X-35B, the STOVL variant, which was used to test the unique shaft-driven lift-fan propulsion system in spring/summer 2001. The second Concept Demonstrator aircraft, the X-35C, was developed to demonstrate the carrier suitability qualities of the CV variant.

All three versions flew an intensive programme of flight testing between October 2000 and June 2001, which established an unprecedented string of flight-test records, maintaining an extraordinarily high level of reliability throughout the testing period with all requirements and objectives achieved or exceeded.

Subsequently, the JSF team was awarded the prestigious 2001 Collier Trophy for the work performed on the Integrated Lift Fan Propulsion System (ILFPS) on the X-35B Joint Strike

Fighter during the Concept Demonstration Phase. The industry team, including Pratt & Whitney, Rolls-Royce, Lockheed Martin, Northrop Grumman and BAE Systems, along with the JSF Joint Programme Office, designed and fully demonstrated the ILFPS as part of the Short Takeoff and Vertical Landing (STOVL) variant of the JSF.

The System Development and Demonstration Phase:

Following the Concept Demonstration and Assessment competition phase, the Lockheed Martin, BAE Systems and Northrop Grumman JSF Team was awarded an \$18.9 billion System Development and Demonstration (SDD) contract in October 2001. In parallel, the engine team - Pratt & Whitney and Rolls Royce - was awarded a \$4 billion contract for the SDD phase for the F-35 engines.

The 11 and-a-half-year SDD phase involves the production of an initial 22 aircraft — 14 flight test aircraft and eight ground test aircraft to be tested for safety, effectiveness and to verify the proposed design. The 14 flying aircraft are five CTOL, five CV and four STOVL. Component production for the 22 aircraft has started, and the first aircraft will start coming together on the floor during 2004. The first flight of the CTOL aircraft is scheduled for mid 2006.

Current stated requirements of the initial customers, US Air Force, US Navy, US Marine Corps and the Royal Navy and Royal Air Force, will result in the manufacture of 2,593 aircraft. There is also an export potential of up to a further 3,000 aircraft, with countries such as the Netherlands, Italy, Canada, Denmark, Norway, Turkey and Australia having joined the SDD phase of the programme and expressed an interest in purchasing the aircraft in the future. There is also involvement from Israel and Singapore as Security Co-operation Participants (SCP).

BAE Systems in the F-35 JSF:

The SDD Phase is estimated to be worth £1.1/ \$1.6 billion to BAE Systems in the UK and a further £0.5/ \$0.75 billion to BAE Systems North America.

Production could be worth £11/\$16.5 billion to BAE Systems UK, and a further £3/\$4.5 billion in the US. These figures do not include export sales, support or other business opportunities such as upgrade programmes.

A major part of the UK industrial contribution to JSF will come from BAE Systems' world class aircraft manufacturing facilities at Warton and Samlesbury and avionics facilities of BAE Systems Avionics at Rochester and Edinburgh, as well as BAE Systems North America.

The aft fuselage and empennage (tails and fins) for each F-35 JSF will be designed, engineered and built at the Samlesbury site, using the latest in advanced development and manufacturing technology. BAE Systems is also involved in the key areas of the weapon system's design, such as mission systems, the vehicle system and autonomic logistics.

BAE Systems brings with it a rich heritage of Short Takeoff and Vertical Landing (STOVL) experience from the Harrier programme as well as advanced lean manufacturing technology from its facilities at Warton and Samlesbury (Lancashire).

Through its Integrated Electronic Warfare Systems division, BAE Systems will be responsible for the Electronic Warfare system.

BAE Systems Platform Solutions business in North America is providing the aircraft's Vehicle Management Computer.

Nimrod MRA4

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Under a £2.4 billion contract originally awarded in December 1996, BAE Systems is to build 18 (reduced from 21 in 2002) Nimrod MRA4 aircraft, the Royal Air Force's new Maritime, Reconnaissance and Attack aircraft. A worthy and hugely capable successor to the successful Nimrod MR2, the aircraft is equipped with the latest in sensors and mission systems for the 'three-in-one' maritime patrol mission. This includes ASW, Anti-Surface Unit Warfare (ASUW) and Search And Rescue (SAR). Providing the aircraft with enhanced capability (beyond its traditional maritime roles) is currently being assessed with the UK MoD. Nimrod MRA4 will offer unrivalled multi-role operational effectiveness, incorporating a state-of-the-art technical and mission capability and a fully integrated training system and logistic support package.

Programme delays during 2002 led to a joint review and contract renegotiation with the MoD. An agreement was announced in February 2003 (and formally signed in February 2004) whereby the design and development phase (three aircraft) was separated from production (potentially a further fifteen aircraft) and a formula agreed (Target Cost Incentive Fee) for the sharing of savings or future cost overruns. The production contract will be placed by the MoD when sufficient overall risk reduction has been achieved in the programme and an acceptable level of confidence reached, both on the first three design and development aircraft and on the future production cost. The Nimrod MRA4 is set to achieve first flight in 2004 and provisionally due to enter service with the RAF in 2009, although this latter date is dependent on the timing and scale of the production contract decision.

Manufacturer/Prime Contractor

BAE Systems

Aircraft Data

Length overall:	126ft 9ins
Wing span:	127ft
Height overall:	30ft
Wing area:	2,538 sq.ft.
Maximum take off weight:	235,315lbs
Maximum speed:	Mach 0.77
Service ceiling:	42,000ft.
Range unrefuelled:	In excess of 6,000 nautical miles

Cockpit and General Systems

Nimrod MRA4's cockpit is configured for two-pilot operation with a modern 'glass cockpit' including many of the latest state-of-the-art systems, displays and architecture of the Airbus family of airliners. Nimrod MRA4 will also have a completely new undercarriage to allow for the increase in maximum take-off weight, and new hydraulic systems, environmental control

system, electrical generators and wiring, crew oxygen system, automated fuel system, a new auxiliary power unit and improved flight control system. Together, these systems, which are mainly derived from proven and reliable equipment already in use in other modern aircraft, will ensure that Nimrod MRA4 achieves maximum operational effectiveness and reliability while minimising the cost of ownership.

Mission System

BAE Systems, as prime contractor, has teamed with Boeing to develop the Nimrod MRA4 Tactical Command System as the heart of the overall mission system. A defining feature of the mission system is the maturity of both hardware and software development using commercial off-the-shelf equipment wherever feasible. Nimrod MRA4's tactical crew will operate seven reconfigurable operator workstations each with large, high-resolution multi-function colour display screens. This concept ensures maximum flexibility and availability with multiple redundancy. No single failure can cause a mission abort.

Key Features

Nimrod MRA4's mission package includes:

- Multi-Mode Pulse Doppler Radar – a large antenna for greater range and improved target resolution.
- Electronic Support Measures – new equipment to detect, localise and classify electronic transmissions.
- Defensive Aids Sub-System – fitted with a dedicated radar warning receiver.
- Acoustics System – this key sensor system in submarine detection will use advanced sonobuoys and dedicated processors to rapidly detect and locate the quietest and deepest running submarines in service.
- Electro-Optical Surveillance and Detection System – turret-mounted under the nose, this system provides high-resolution imagery to assist in search, identification and intelligence gathering.
- Magnetic Anomaly Detector – mounted in the tail 'sting' this detects localised changes in the Earth's magnetic field confirming the presence of large metallic objects, such as submarines, under the sea's surface.
- Communications Management System – Nimrod MRA4 will be able to communicate on all voice bands from low frequency to UHF. The aircraft will also have datalink and satellite communication capability for world-wide secure communication.

Nimrod is designed for use away from base:

- Maintenance status via External Maintenance Data Access Panel
- High pressure single point/centrally controlled re-fuelling capability greatly reduces turnaround time
- Flight maintenance serving times minimised
- Auxiliary Power Unit capability eliminates need for Ground Power Units and significantly reduces need for support equipment
- Higher system availability means fewer aircraft are required to satisfy operational requirements

- Remote operations can be managed via portable Mission and ground Support Systems
- Consumables standardised to meet NATO specifications
- Lightweight airstairs

Autonomous Operation

An individual Nimrod MRA4 can deploy worldwide for 10 days without re-supply complete with:

- Support Personnel
- Spares
- Support Equipment

Powerplant

With its four Rolls-Royce Germany BR710 engines, Nimrod MRA4 will be the only large jet-powered maritime patrol aircraft in service. Its rival turboprop-powered aircraft are slower, and Nimrod MRA4's high-speed dash capability will get the aircraft to the scene of operations faster and at higher altitudes where the air is smoother and there is less crew fatigue induced by noise and vibration.

Weapons Carriage

Nimrod MRA4's new larger wing will provide an additional pair of weapon hardpoints. As well as these four wing pylons and the existing under-fuselage internal weapons/stores bay will remain, giving the aircraft the ability to carry a wide range of stores.

Support Facilities

In-service support and maintenance for the Nimrod MRA4 fleet will be based at RAF Kinloss where a new software maintenance facility and a simulator building have been constructed. The new software maintenance facility will provide accommodation for an on-base software support capability provided by a joint RAF / industry team. The new simulator building will house the Aircrew Synthetic Training Aids.

New Business Group

New Business is responsible for developing both product strategy, ensuring a balanced portfolio of products for the future, and operational strategy to promote improved business performance.

New Business also acts as the launch area for new programmes, with particular emphasis on potential Unmanned Air Vehicle (UAV) markets, and is active in developing business opportunities which can exploit Air Systems' technologies and facilities.

In discharging these activities, the New Business Group has developed a set of key competencies in:

- Fostering productive relationships with Air Systems' Programmes, Business Units Corporate HQ & BAE Systems Joint Ventures.
- Delivering complex technology programmes, integrating the efforts of people and skills from across Air Systems & the wider BAE Systems portfolio.

New Business discharges its business through a number of delivery streams, namely Strategy and Planning, Future Offensive Air Systems, Unmanned Air Vehicles, Operational Analysis, Technology Partnerships, Future Concepts and Business Development.

1. Strategy and Planning

The Strategy Group is tasked with setting out how Air Systems will meet the challenge of providing better products and services, often in innovative ways. These form the framework that enables Air Systems to cope with change in its market environment, and to develop plans that allow management of the business to meet its aspirations and objectives.

The Strategy Group have also developed the Air Systems Transition Plan which is the mechanism by which the key business improvement and change activities are co-ordinated and managed. Established in January 2003, the Plan is successfully delivering significant savings to the business. The focus is now moving to right-sizing the business together with a continued drive for profit margin improvement.

2. Future Offensive Air System (FOAS)

Air Systems are working with the BAE Systems Future Systems Group and the UK Ministry of Defence (MoD), ensuring BAE Systems have a key role in the FOAS programme as it transitions through 'Initial Gate' into the Assessment Phase of the MoD Procurement Cycle.

The programme started as a manned solution to replace the Tornado GR4 capability at the end of its operational life (2018). This then evolved into the need to fulfil a Deep Strike Capability gap. Further understanding of the requirement continues to evolve in order that the correct long-term solution is developed.

FOAS will consist of a force-mix of numerous platforms and systems, delivered over time to provide affordable incremental capability enhancements. Elements of the overall solution will most likely be UAVs, cruise missiles and existing manned platforms, encompassed by a command, control, communications, computing and information system.

FOAS is currently in the Concept Phase awaiting Initial Gate acceptance so that Assessment Phase can begin. Current contracts being discharged cover several key aspects of FOAS including refinement of the Customer requirement, unmanned systems studies, system consolidation studies to integrate complex elements, technology development plans and technology demonstrations.

3. Unmanned Air Vehicles

The UAV Team is a multidisciplinary team covering all aspects of technology and design associated with autonomous air systems. This includes the ability to rapidly demonstrate new ideas, utilising rapid prototyping facilities and processes. It has strong links into the supporting supplier base and into the authorities associated with qualification and clearance.

It also has the capability to design and test fly demonstrator systems in order to demonstrate UAV capability and technology. This activity is centred around a secure assembly and test facility, enabling the team to be co-located around the product.

The UAV team work very closely with all areas of New Business, in particular with the FOAS team in developing and assessing the potential UAV solution for FOAS. The team is also considering wider UAV application in the military markets, including ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) application, and in the civil domain. A particular focus is the application of technologies to meet this potentially large market.

4. Operational Analysis

The Operational Analysis Team provides a Defence Analysis Centre of Excellence for BAE Systems and its customers, evaluating the capability impact of key programme decisions to the Customer and the Company, to help determine strategic and tactical decisions more scientifically. In the defence sector this necessitates the study and quantification of the factors affecting military operations, their interactions and sensitivities, and the application of these studies to aid investment decisions, force management and military operations.

Operational Analysis deploys a wide set of capabilities, which includes:

- Evaluations of relative military capability of equipment and services.
- Force structure analysis.
- Market and competitor analysis.

5. Technology Strategy and Partnerships

The Technology Strategy and Partnerships Team are responsible for the development of technology strategies and long term product planning, focused on the capture of external funding investment to facilitate access to crucial technologies. The Team also interfaces with external organisations on technology/research matters and creates and manages partnerships to support key future business drivers, including Air Systems' relationships with universities.

6. Future Concepts

Future Concepts is a small team developing new ideas and concepts that have the potential to provide good business opportunities for Air Systems, beyond current programmes. Both completely new programmes and extensions to existing programmes are considered. Novel and conventional ideas are pursued, for projects large and small. Funding is sought from a diverse set of sources

Initial concept creation studies involve capability/total system requirement capture, and high level parametric studies, leading to concept identification and design analysis. Aerodynamic, mass and performance evaluation can then be completed, with requirements and design iterations investigated as necessary. More detailed studies investigating various system and vehicle subsystems – e.g. propulsion systems, mission system fit, weapons carriage etc. are also done as required.

The skills and tool sets available also allow assessment of in-service air vehicles, and any required modifications, to be produced. This includes competitor aircraft as well as current UK based aircraft.

Naval Ships

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Business:

BAE Systems Naval Ships is a warship prime contractor and systems integrator for the UK Ministry of Defence and export customers.

The company delivers complete warship capability from initial concept studies through to in-service delivery and its activities include warship design, project management, manufacture, integration, test and commissioning.

BAE Systems Naval Ships is headquartered in Scotstoun, Glasgow. Additional facilities are located in Govan, Glasgow, in Filton, Bristol and in Farnborough. The company employs approximately 2600 people and had a turnover of circa £300million in 2003.

Capabilities and facilities

BAE Systems Naval Ships provides a 'whole ship' capability.

Maintaining this requires continual investment in people, relationships, systems and equipment.

Naval Ships has invested millions of pounds in ensuring the design and engineering functions can deliver innovative solutions at the cutting edge of maritime engineering.

The company has invested several million pounds in upgrading manufacturing facilities to ensure it has an efficient and safe modern manufacturing environment.

Naval Ships prime contracting and project management skills ensure that it can successfully manage an entire network of partners, contractors and suppliers while giving customers a single point of contact.

To deliver this capability the company has a suitably skilled and experienced workforce. It employs experienced craftspeople, engineers and managers but is also investing for the future. It has recently commenced the largest apprentice intake programme in a generation, continues to bring and develop graduates and ensures that retraining and re-skilling opportunities are available at levels throughout the business.

Programmes – UK

Type 45 Destroyer

The Type 45 Anti Air Warfare Destroyer will provide the backbone of the Royal Navy's air defences for much of the first half of the 21st Century. These will be the largest and most capable air defence destroyers ever ordered for the Royal Navy.

BAE Systems is the prime contractor for this class of vessel. The company is the design authority for the entire warship and has responsibility for the design, development and delivery for the whole class, together with elements of through-life support.

The MoD and BAE Systems signed the Design for Manufacture contract for the first three ships in December 2000. A contract for a further three platforms was signed in February 2002.

The Type 45 Destroyers will be built and launched from the BAE Systems Naval Ships facilities in Glasgow. VT Shipbuilding will supply bow sections, mast sections and funnels for the vessels. These items will be transported to BAE Systems facilities for final assembly and integration.

Construction of the first ship, HMS Daring, began in August 2003. The ship will be launched in 2005.

Landing Ship Dock (Auxiliary)

BAE Systems Naval Ships is engaged in the build of two LSD(A) for the Royal Fleet Auxiliary.

The 176-metre long, 16,000 tonne LSD(A)s will provide 'second wave' support to amphibious assault and will deliver personnel and equipment. They will also be capable of undertaking a wider range of secondary roles such as humanitarian aid and disaster relief.

The first vessel built by Naval Ships, Mounts Bay, was launched on April 5th 2004. Following post-launch outfitting it will be delivered into service in 2005.

Work is also underway on a second ship, Cardigan Bay which will be launched in 2005.

Future UK prospects

BAE Systems Naval Ships is actively engaged in the development of a number of proposals for future work.

CVF block build

In 2003 the Ministry of Defence announced that BAE Systems would manage the prime contract for the Royal Navy's carriers with Thales acting as major partner to supply the design. The two companies, with a team from the Ministry of Defence, have formed the Carrier Alliance to deliver the vessels into service.

BAE Systems Naval Ships has been working closely with the Carrier Alliance team to formulate an appropriate build strategy and establish an appropriate workshare for each of the next-tier businesses.

MARS

The Military Afloat Reach & Sustainability (MARS) project will replace a substantial portion of the RFA fleet with new vessels between 2010 and 2020, and is being designed to provide the required future afloat support capability. Teams from Naval Ships are currently engaged in defining potential solutions that will meet this requirement and ensuring that

the appropriate facilities and resources are available and the company is in a strong position to play a significant role in the programme.

Joint Casualty Treatment Ship

The Joint Casualty Treatment Ship (JCTS) is designed to provide an enhanced medical capability. In due course the vessel will replace RFA Argus which will be reaching the end of its useful service life.

Future Surface Combatant

The Future Surface Combatant (FSC) programme will define the next generation of warship capability for the Royal Navy. Teams for Naval Ships are working to establish potential solutions that will meet the operational requirements.

The shape and size of the FSC is still to be defined by the customer but BAE Systems Naval Ships teams are examining options including the use of alternative hull forms or the use of advanced materials to provide the flexibility and capability the programme will require.

Programmes – Export

Brunei Offshore Patrol Vessels

BAE Systems Naval Ships is moving towards completion of a contract to supply three Offshore Patrol Vessels (OPVs) to the Royal Brunei Armed Forces. Naval Ships is acting as a prime contractor and is delivering a ‘whole ship’ capability to the Bruneian customer.

A prime contract office has been set up to manage all elements of the contract from initial contractual specifications through to control of all systems providers and final integration.

The prime contract office is also overseeing training of the Brunei crews who will operate the ships.

Future export prospects

Naval Ships is the UK’s leading supplier of warships and associated technology to international markets.

It provides customers with a single point of contact for prime contract services, and has unique skills in the organisation, negotiation, management and delivery of naval prime contracts with governments world-wide.

The company’s products and services are offered in a variety of forms including complete design, build and through-life support packages, lead yard services with follow-on assistance, or full technology transfer programmes for in-country build.

We are in discussions regarding a number of potential export contracts with particular focus on the Far East and the Middle East.

Naval Ships is responsible for the international marketing of existing Royal Navy designs into selected export markets.

In addition to this Naval Ships has also developed an extensive product range of ships specifically geared towards the export market:

Frigate 2000 Series

The technology developed during the Type 23 programme has been applied to produce a range of cost-effective, multi-purpose 2000 tonne warships. The frigate hull forms ensure excellent sea keeping in all weather conditions and incorporates the stealth features that are essential in today's environment.

Corvettes and patrol vessels

The surface ship product range includes corvettes, fast attack craft, patrol craft, landing ships and survey vessels. The F1000 series uses a range of high performance hull forms to achieve maximum weapon payloads on small ship platforms from 55 to 85 metres long.

Submarines

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Business:

The submarine business unit is a key component of BAE Systems naval activities. It comprises the shipyard at Barrow in Furness, designated as a submarine centre of excellence, the Astute team and Swiftsure/Trafalgar class update teams at Farnborough and Weymouth, and the Astute and Swiftsure /Trafalgar class integration facilities at Ash Vale. In addition the team is responsible for the successful reactivation of the four former Royal Navy SSK Upholder class submarines for the Canadian Navy.

The Barrow shipyard is also completing the Royal Navy assault ship Bulwark, which will be delivered in the Summer of 2004, sister ship to Albion which was delivered in 2003.

Astute Class Submarine

BAE Systems is the Prime Contractor for the Astute Class of submarine under a contract worth around £2 billion. As prime contractor BAE Systems is responsible for the design, build and initial in-service support of three Astutes with a potential of future orders.

The construction of HMS Astute and HMS Ambush is underway. When the Astute Class enters service, they will be the largest and most powerful nuclear attack submarines ever built for the Royal Navy.

Missions:

Designed for littoral, deep sea or ocean deployment world-wide.

Operational Roles:

Capable of world wide operational deployment

Primary Roles:

Anti-submarine warfare

Anti-surface vessel warfare

Secondary Roles

Land attack (optional)

Minelaying

Characteristics:

Length Overall: 97m

Displacement: 7800 tons

Submerged Speed: about 30 knots

Complement: 98

Dive to depths in excess of 300 metres

Figures subject to change as design evolves.

Armament:

Weapons load is 50% greater than the existing Trafalgar Class attack submarines.

Six 533mm missile tubes.

Total of 38 weapons.

Spearfish torpedoes.

Tomahawk missiles (SLCM).

Mines (in lieu of torpedoes).

Propulsion:

Harnessed (nuclear) power - the reactor, requiring no refuelling, will provide all the power Astute needs for life.

One PWR2 Pressurised Water Reactor.

Geared turbine drive and pump jet propulsor.

Diesel - electric emergency propulsion system and diesel generator.

In addition to the management of the Astute Prime Contract the team also have the responsibility for the successful completion of the SSK reactivation programme currently underway at Barrow. The shipyard at Barrow built the first of class conventional diesel-electrical patrol submarine, HMS Upholder, for the Royal Navy and was lead yard for three further boats of the class built at Cammell Laird, Birkenhead in the early 1990s while under the company's ownership. When the cold war ended, the Royal Navy took the decision to operate an all-nuclear fleet and the company received the four submarines back under a care and maintenance contract. Working with the Defence Disposals Agency, the company assisted the UK Government with the sales/marketing/leasing agreements for the Upholder Class boats with several potential customer navies. This led to a successful agreement with the Canadian Navy. In 1999, BAE Systems Submarines secured the

contract to reactivate the four boats. Three have now been delivered, with the fourth due to be completed later this year.

Underwater Systems

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Business:

The Underwater Systems Division is the centre of UK expertise within BAE Systems and a market leader in underwater warfare. The products range from torpedoes acoustic countermeasures systems for both submarine and surface ship platforms, unmanned underwater vehicle technology development to all aspects of mine warfare.

Underwater Systems provides a total capability to its customers throughout the life cycle of its products, encompassing:

- Weapon System Prime Contract Management
- Applied Research
- Engineering Development and Production
- Product Test and Evaluation
- Operational In-Service Support

Submarine Weapons, Torpedoes & Countermeasures

Spearfish Heavyweight Torpedo

Spearfish, in service with the Royal Navy, is an advanced heavyweight torpedo that entered full production in 1995 and was successfully completed on time and to budget. Spearfish is a thermal-engine powered weapon, which achieves very high speeds, long endurance and exceptional manoeuvrability. The weapon's advanced acoustic homing and tactical algorithms enable Spearfish to prosecute targets, even in the presence of countermeasures, in both deep and shallow water.

Tigerfish Heavyweight Torpedo

The Tigerfish Mod 2 wire-guided electrically powered heavyweight torpedo deployed for both anti-submarine and anti-surface ship operations and currently in service with other navies. The weapon can be integrated into a wide range of fire control systems and across all types of submarine platforms, and may be launched by either positive discharge or swim-out systems. The Tigerfish Mod 2 weapon is currently utilised as a mobile target for the Joint UK/US Surface Ship Torpedo Defence Programme (JSSTD).

Unmanned Undersea Vehicles (UUVs)

The Underwater Systems Division has designed a number of undersea vehicles to support scientific research through the UK "Wealth from the Oceans Initiative". Under a MoD (UK) contract, BAE Systems has developed a new UUV, Project Marlin, for a programme to evaluate the effectiveness of UUVs for military reconnaissance operations for future Royal Navy operational requirements. The Marlin vehicle started sea trials in November 2000 and was delivered in 2002.

Submarine Countermeasures Acoustic Device (SCAD 200)

The company's acoustic countermeasures systems include the SCAD 200 submarine launched countermeasure. The system has been developed to provide protection for Royal Navy submarines and entered service in 2001.

Anti-Submarine Weapons

Sting Ray Lightweight Torpedoes

Sting Ray is an advanced lightweight torpedo which has been in-service with the Royal Navy and Royal Air Force since 1984. It has also been supplied to Norway, Egypt and Thailand. Launched from surface ships, maritime patrol aircraft or helicopters, it has the capability to counter the full range of submarine threats.

In 1996 MoD (UK) contracted BAE Systems to extend the life of Sting Ray and enhance the operational capability to counter new submarine threats in littoral scenarios. Sting Ray Mod 1 retains its proven electric propulsion and incorporates a new digital homing system to enhance the weapon's acoustic and tactical performance. The new weapon also includes an Insensitive Munitions warhead.

Torpedo Launchers

Underwater Systems weapon system capability includes launch and control systems for surface and airborne platforms. Over 20 customers world-wide use the lightweight torpedo launching system which includes versions of the Royal Navy's STWS 2, the US Navy's Mk 32 triple-tube launchers and a range of airborne carriage and release systems.

The twin and triple-tube shipborne sets can be fitted internally or deck-mounted. Pre-setting can be manual or automatic with full integration to the ship's combat system. BAE Systems offers a complete logistic support service for torpedo launch systems.

Mine Warfare Systems

Stonefish Sea Mines

The Stonefish family of intelligent naval ground mines combine advanced microprocessor-based logic, PBX insensitive munitions technology and an electronic safety and arming system.

Stonefish can be programmed to activate according to a range of predefined target influencing characteristics, either singly or in combination and is effective against all submarine and surface ship threats in coastal waters.

Stonefish variants include the Stonefish Exercise Mine in service with the Royal Australian Navy for simulating minefield environments and exercising MCM systems, and the Stonefish Assessment Mine in service with a number of navies for data gathering.

The Versatile Exercise Mine System (VEMS)

VEMS incorporates a comprehensive suite of modern mine sensors, sophisticated micro-processor technology, data storage and an acoustic communications link all of which can be packaged in a full range of mine shapes to emulate all known threat mines. VEMS is an essential pre-requisite for training and assessment of minehunting and sweeping systems as well as other naval forces, and is in service with the Royal Navy, US Navy and many other navies world wide.

MCM Evaluation and Range System (MERS)

As an evolution of VEMS technology MERS provides a transportable multi-influence signature measuring range for measuring vessel and sweep signatures. This type of tactical range is

essential for high fidelity influence minesweepers and all out of area MCM operations. MERS can be deployed rapidly in its cable-less configuration from an MCMV size vessel, or laid with cables for a permanent or semi-permanent site for shore based ranging system. MERS is in service with the Belgium Navy.

Combined Influence Sweep and Mechanical Sweep Systems

BAE Systems is the in-service support contractor and systems authority for the Royal Navy's mine sweeping equipment. Similar systems have been supplied to a major overseas navy and follow-on orders are anticipated as well as new orders to another regional navy.

Archerfish, mine disposal

Archerfish is an expendable, single shot naval mine disposal system, developed under a company funded programme in collaboration with Raytheon, USA and EURENCO, France. It provides a fast, low risk and low cost mine disposal capability against ground and buoyant mine threats and is being supplied under contract to the USN for deployment from the MH-60S helicopter. It can also be deployed from ships.

The Archerfish expendable is a small self-propelled torpedo-shaped vehicle containing a shaped charge warhead. Powered by twin mid-body propulsors, it receives guidance commands via a fibre-optic link from the minehunting platform. For target acquisition, Archerfish activates its own short-range sonar and video link, transmitting sonar images and video pictures to the minehunting platform for classification and identification. Final, accurate placement of the Archerfish vehicle enables the mine target to be controlled and detonated by substituting the mine's own firing chain with the Archerfish warhead, leading to a full order detonation of even insensitive mine warheads.

The innovative nature of Archerfish was recognised during 2003 when Archerfish won a top gold award in the BAE Systems Chairman's Award for Innovation.

Divers Electronic Beach Reconnaissance Aid (DEBRA)

DEBRA is under development for the Royal Navy to enable divers to operate more efficiently when carrying out a beach survey task, giving accurate position and navigation information and storage of depth data for subsequent download and display.

MCM/EOD Diver Ancillary Equipment

BAE Systems was awarded a contract by MoD (UK) in 1999 to develop and supply the new EOD Diver Ancillary Equipment to support Royal Navy Mine Countermeasures operations. The system will enable clearance divers to operate more efficiently when conducting hazardous operations in close proximity to sea mines. Designed to meet stringent acoustic and magnetic signature requirements, the equipment includes: a hand held sonar, underwater viewing system, underwater microprocessor, head mounted display, communications and hand heating system.

TEST & SUPPORT EQUIPMENT

Spearfish Replacement Automatic Test Equipment (RATE)

BAE Systems was awarded a contract by MoD (UK) in 2003 to develop and supply a new suite of production test equipment to support the Spearfish torpedo throughout the remainder of its in-service life. The equipment will be based upon modern test technologies, including VXI and NI LabVIEW, and will utilise a mixture of bespoke in-house developed instruments and Commercial-Off-The Shelf (COTS) items.

C4ISR Group

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BAE Systems C4ISR (Command, Control, Communications, Computing, Intelligence, Surveillance & Reconnaissance) Group provides information systems to support the delivery of Network Enabled Capability (NEC).

Using battlespace engineering techniques, C4ISR Group integrates legacy and future systems into networked solutions that allow the customer to manage the complexities of the battle environment. Our response is driven by our customers' needs for time-sensitive decision-making and an increased tempo of operations.

Our core capability is the integration of complex systems that fuse platforms, weapons and information, improving our ability to detect and engage targets, reducing the risk of collateral damage and friendly fire, and reducing sensor-to-shooter times.

The domain areas we work in are:

- **Communications systems:** we provide advanced communications solutions to ensure the right person has the right information at the right time.
- **Data acquisition and manipulation:** we provide the reconnaissance and imaging infrastructure to acquire and format data from multiple sources into reliable information.
- **Networked infrastructures:** we design and develop networked infrastructures to provide seamless transfer of information across the battlespace.
- **System and sensor fusion:** we develop solutions that fuse information within fully integrated federated architectures.
- **Knowledge management systems:** we provide applications to manage and retrieve information for timely decision-making.

In March 2003, C4ISR Group established a Battlespace Management Evaluation (BME) Centre in Farnborough UK. The Centre is a fully networked visualisation and experimentation hub. It is a key tool for testing network enabled solutions to the limit within a virtual battlespace.

In addition, C4ISR Group has developed 4D. This is a battlespace engineering process that is used to deliver truly network enabled solutions from concepts through to prototypes.

C4ISR Group employs more than 800 people across seven locations and is organised into two businesses.

- Networked Systems & Solutions
- Communications & Defence Infrastructure

Within these businesses are a number of Value Groups:

Networked Solutions

Networked Systems & Solutions (NS&S) is supporting customers to achieve their vision of the battlespace – today and in the future – through the delivery of integrated information systems and network enabled solutions. Within the Defence market, NS&S has the capabilities to develop solutions for programmes such as the mission system for the UK's future Carrier (CVF), integration of the CVF mission system with the UK JSF aircraft information system, time sensitive targeting and missile defence. NS&S has recruited a talented team of battlespace architects, enterprise architects and systems engineers. It has a unique approach to delivering network enabled solutions called 4D. NS&S is also supporting NITeworks – the joint UK MoD/Industry partnership to explore network enabled capability – by providing the core engineering and facilities management team at BAE Systems' Battlespace Management Evaluation Centre, Farnborough and has proposed a solution to the British Army's FALCON information infrastructure requirement.

Communications Systems & Special Projects

Communications Systems & Special Projects (CS&SP) is widely experienced in the provision of high capacity ruggedised networks to meet area and theatre communications requirements. From enhancements to the UK's Ptarmigan to give a rapid deployment out-of-area capability and the widely exported MRS2000, CS&SP is closely associated with introducing innovative R&D from the civil sector into the defence domain. These include the application of web-based internet protocol technologies into products such as the Sentinel switch.

CS&SP is active in incorporating commercial off-the-shelf technology for urgent operational needs. Recent major programmes included the provision of a complete, commercially based communications system throughout the Balkans and in Sierra Leone to support British and allied armed forces and reduce manpower demands, and the supply of systems for Operation Telic in Iraq.

Infrastructure Systems

Infrastructure Systems (IS) has long been associated with the digitisation of the battlespace. IS develops and installs infrastructure systems to enable information services and information exchange applications to be hosted on all-pervasive communications networks in NEC environments. Typical projects include the GP3 Command Support Tool employed by NATO's Allied Command Europe headquarters and used within the South

African Air Defence System, and the UK Pilot Direct Broadcast System, transmitting gigabytes of information to dispersed military users world-wide. The team have also provided a major contribution to the UK BOWMAN requirement, the development of the Management in Domain-based Secure Systems (MIDASS) firewall system and support activities in synthetic environments, including the UK Land Systems Reference Centre.

PRODUCTS

- BOWMAN – communications management system
- Dagger - Land Rover hosted satellite communications terminal
- Direct Broadcast Systems
- GP3 - command support suite
- MIDASS – domain security software
- MRS2000 – networked military communications
- Naval communications and data links
- Ptarmigan – theatre communications
- Sentinel – “All-IP” military communications
- Talon - rapid deployment satellite communications terminal

SERVICES

- Analysis & visualization – from concepts to rapid prototyping
- Battlespace architecting
- Commercialisation of military communications
- Electromagnetic engineering services
- Enterprise Architecting
- Identification Friend or Foe consultancy
- Synthetic communications environments
- Systems engineering and integration
- Trials and experimentation

Joint ventures

The Group manages BAE Systems’ interests in two joint ventures, SIKA International and BAeHAL.

SIKA

C4ISR Group manages BAE Systems’ interests in SIKA International, a joint venture company, 50/50 owned and capitalised by BAE Systems and Lockheed Martin. It was established as the TRACER/FSCS (Tactical Reconnaissance Armoured Combat Equipment Requirement/Future Scout Cavalry System) UK/US joint programme and is now supporting TARDEC for US based C3I on-the-move trials and other opportunities to link the FSCS experience and knowledge into the FCS programme.

BAeHAL

BAeHAL Software is a joint venture company between BAE Systems in the UK and Hindustan Aeronautics Limited of India, which provides software services accredited to the ISO9000 standard. BAeHAL has successfully completed a range of development, maintenance, conversion and testing projects across real-time environments, client-server and IBM mainframe. Based in India, the company has access to a large pool of highly trained IT personnel, which enables BAeHAL to provide high quality services while offering exceptional value for money. BAeHAL has established a secure private satellite link with British Airways at Heathrow. The combination of voice and data links ensures effective offshore operations, especially for maintenance and conversion work.

Network Enabled Capability (NEC)

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NEC is the MoD's major initiative to address transformation and has been identified in the recent Defence White Paper as a priority activity. The MoD's approach to NEC, defined below, is closely aligned to similar approaches in US (Network Centric Warfare), NATO, Sweden (Network Based Defence) and Australia.

The MoD define NEC as follows:

“Network Enabled Capability (NEC) encompasses the elements required to deliver controlled and precise military effect rapidly and reliably. At its heart are three elements; sensors (to gather information); a network (to support the fusing, exchange and exploitation of information); and strike assets to deliver effects.”

Group Managing Director – NEC is responsible for leading BAE Systems' overall approach to MoD's NEC activities. The Group Managing Director-NEC will coordinate across BAE Systems' Business Units to address how Group responds to new NEC-related programmes.

NITeworks (Network, Integration, Test and Experimentation Works)

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www.niteworks.net

The formation of NITeworks in 2003 was a major strategic success in the context of UK MoD business and positions BAE Systems to move into the system of systems architect role as the requirement for it develops.

NITeworks is a partnership between the MoD/Industry to explore Network Enabled Capability (NEC). It provides an experimental environment that allows the customer community to assess the benefits of NEC and the options for its effective and timely delivery. NITeworks will take questions from a wide variety of sources. It will develop them with the customer to identify NEC integration issues, evaluate candidate solutions through experimentation and then deliver evidenced options to improve operational capability.

The Industry is made up of 9 Alliance Partners in addition to BAE Systems – AMS Limited, EDS Defence Limited, General Dynamics UK Limited, LogicaCMG, MBDA UK Limited, QinetiQ, Raytheon Systems Limited, Thales UK Plc and EADS.

Customer Solutions and Support (CS&S)

CS&S Australia
CS&S International
CS&S Logistics & Information Systems
CS&S Military Air Solutions & Support
CS&S Naval
CS&S Operational Services
CS&S RO Defence

CS&S PO Box 87, York House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

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Our customers are changing, driving for enhanced military capability at lower cost and are seeking to deliver this through long term partnerships with industry. Our track record uniquely positions us to respond to these changes.

CS&S's strategy and organisation structure, supported by its 14,800 employees, is designed to meet customer requirements. Our strategy is to work closely with our customers to optimise their military capability, both now and in the future, across land, sea and air, by delivering the most efficient, value for money solutions. Our success will be measured and rewarded against the service we provide.

Our core competencies include, but are not confined to, the following:

Prime contracting
Systems integration
Fleet management
Supply chain management
Facilities management
Maintenance, repair and overhaul
Military Training
Integrated Logistics Support
Information and Logistics Infrastructure

Our organisation is structured to ensure we deliver the most effective solution to our customers needs at every level. We take responsibility for providing a fully integrated end-to-end service to our customers, meeting the need for through-life support, for existing capabilities and future requirements.

Our aim is to support customers' military capability by delivering the most efficient solutions - always.

CS&S Australia

CS&S Australia is committed to being the Australian Defence Force's through life capability partner in integrated military systems and support solutions. It provides Military Air Support, Force Awareness and Protection and Information Architectures. It combines key skills in engineering and systems integration and is a leading provider of battlespace communications, electronic warfare systems, military air support, electronics, flight training, software and support services.

Headquartered at Edinburgh Parks in South Australia, the company has 2,600 employees nationally at four major locations and numerous customer sites.

Information Architectures – has five key areas of focus:

Communications – Incumbent supplier and maintainer of more than 90% of Australia's Land Communications Systems including RAVEN HF and VHF Combat Nat. Radio System, Wagtail VHF Radio, Parakeet Truck Communications System, ROVIS Vehicle Intercommunications System and advanced satellite communications Terrestrial Infrastructure including Shipbourne SATCOM and Portable land SATCOM Terminals.

Command Support/Intelligence – supplying a range of specialist communications devices such as the Deployable ATM Hub Assembly (DAHA), the Digital Subscriber Line Fibre Interface (DSLFI), the Liaison Officers Briefcase Systems (LORS), the Mercury Messaging System, the Ruggedised Transport Case (RTC), the Spread Spectrum Fibre Interface and the Truster Filter (Data Diode). Also provide specialist IT integration and software skills to Joint Intelligence Support Systems (JISS.)

Maritime Electronic Systems – provider of current Integrated Combat System for the RAN Huon Minehunter vessels based on the Nautis system from AMS. Also support and maintain the Stonefish exercise mine for the RAN.

Engineering service – provides specialist engineering support for ground air communications and air traffic control systems for the RAAF, Personal Locator Beacon for the RAAF and RAN, product support of the JORN over the horizon radar system equipment, all the companies previously supplied communications systems, designed and support the Tornado Stores Management System and provide specialist software systems in network and frequency management.

General Information Systems (GIS) – supplies Geospatial information product development and quality assurance, acquisition processing and archiving of satellite remote ranging data of Australia and its environs and Satellite Laser Ranging service to Geoscience Australia. It also provides product sales and support service to San Diego based Geospatial Exploitation Products group.

Force Awareness & Protection – supplies equipment and integrated systems for military intelligence, surveillance, reconnaissance and air defence applications. It undertakes the design, development, integration and support of electronic warfare systems, ground-based mission support for Airborne Early Warning and Control (AEW&C), High Frequency (HF) radar, weapon systems and integrated autonomous systems.

Electronic Warfare (EW) Systems – includes Electronic Support Measures (ESM) for naval and air platforms, integrated airborne EW Self Protection systems and the development of the only indigenous airborne Radar Warning Receiver. Programs include:

- the Combat (ALR-2002) radar warning receiver
- the PRISM naval ESM
- supply of the integrated Electronic Warfare Self-Protection and Electronic Support Measures (ESM) for Boeing's project Wedgetail (AEW&C)
- development of the Sensor Independent Integrated Defensive Aid System (SIIDAS)

As a principal sub contractor to Boeing for the Wedgetail Airborne Early Warning & Control (AEW&C) program, Force Awareness & Protection also supplies the complete ground-based mission support system comprising of the Operational Mission Simulator (OMS), the Mission Support System (MSS) and the AEW&C Support Facility (ASF).

Over The Horizon Radar Systems (OTHR) – includes signal processing, receiver system development and SIGINT are capabilities that support the operations and on-going development of the Jindalee OTHR system of the ADF. This technology is being inserted into the Jindalee Operational Radar Network to enhance its capability and to extend its ability to support ballistic missile defence initiatives.

Weapons Systems – includes Integrated Autonomous Systems supporting the deployment of Unmanned Aerial Vehicles (UAV) through UAV Management Systems and the acquisition, distribution and analysis of terrain and intelligence information as a central element of a Network Centric Warfare (NCW) capability. Activities presently include:

- the Autonomous Navigation and Sensing Experimental Research (ANSER) program
- UAV Management System (UMS) development
- the Future UAV for Reconnaissance & Interdiction (FURI) concept development

Ship Air Defence incorporates the design and ship integration of both hard and soft kill systems and the modelling of complex naval combat systems for system performance determination. Systems include the Evolved Sea Sparrow Missile (ESSM) and the Nulka Active Missile Decoy that provides warships with a highly effective all-weather defence against modern anti-ship missiles.

In-service support is also provided for these guided weapon systems as well as for the Advanced Short Range Air-to-Air Missile (ASRAAM).

Military Air Support – brings together BAE Systems Australia's capabilities in support of military aircraft and helicopters, aircrew training and air operations.

Fast Jet and Rotary Wing Support – MAS has a strong reputation as a provider of high quality maintenance services for both rotary and fixed wing military aircraft, including logistics support, airframe assembly, modification and repair. This includes:

- F/A18 Hornet
- Hawk 127 Lead-in-fighter
- CH-47D Chinook

- Seahawk
- Iroquois
- Black Hawk
- Sea King
- Squirrel

Mission Systems Software Support – operates an Integrated Avionics Systems Support Facility (IASSF) for the Royal Australian Air Force (RAAF) F/A-18 Hornet mission and weapon systems. IASSF fully supports the aircraft’s Operational Flight Program and undertakes software and avionics maintenance, test & evaluation and mission & weapon systems integration for the RAAF’s F/A-18 Hornets.

BAE Systems Australia also undertakes software unit testing of flight control software modules over a secure interactive link to UK for Eurofighter Typhoon.

Training and simulation – BAE Systems Australia provides support for a range of military aircraft simulation devices and environments, including Tactical Weapon Systems Training System Fighter Training Aids for the RAAF’s Mk127 Hawk Lead-In-Fighter; software models for inclusion in the Aircrew Synthetic Training Aids (ASTA) for Eurofighter Typhoon and the RAAF Synthetic Navigation Training environment.

BAE Systems Australia is the sole provider of ab-initio pilot training and flight screening for the Australian Defence Force. The company owns training operations in Tamworth, New South Wales and offers a complete training and living environment for Navy, Army and Air Force pilots. Flight training is also conducted for the Republic of Singapore Air Force.

Operations – provides support for the military and commercial industry and consists of the following four business disciplines:

- Product Support
- Operations Support
- Support Services
- Civil Flight Training

Product Support – provides customised total support packages for the Collins Class submarine, the Minehunter command and control system, the Rapier surface to air missile, the Mulloka sonar system and the Tacan beacon. It also provides deeper level maintenance support for the customer’s in-service systems including AP-3C avionics and sensors, electro-optic sensors, electronic support measures and radar sensors and Collins Class submarine power conversion equipment. Precision optical component manufacture, test engineering and design, implementation and qualification engineering are other capabilities offered.

Operations Support – provides machining, harness (wiring), treatment and finishing and environmental test capabilities.

Support Services – provides garrison support services, facilities management services, maintenance repair and overhaul, manpower services, training, logistics management and

project management for the Military and Commercial Industry. Major contracts include Woomera Commercial Support Services, maintenance support to various organisations in East Timor, garrison support services for the Royal Australian Air Force Base Wagga and Australian Army Kapooka Military Area and remote area communications support to the mining, oil and gas industries. Support Services also provides 320 personnel (air and ground crew) for the Kingdom of Saudi Arabia Air Force.

Civil Flight Training – provides turnkey flight training for civil airlines and private students, to recognised international standards. The college employs highly experienced and fully qualified instructors deliver all elements of theory, ground school and flying training. Customers include Qantas, Emirates, Cathay Pacific, Air China and Dragonair.

CS&S International

CS&S International is responsible for the development of new market opportunities and the sustainment of business in the Middle East region including our long-term presence in Saudi Arabia.

Working in partnership with our customers, CS&S International provides cost-effective solutions supported by a whole range of management and technical capabilities.

As a non product-based business unit, CS&S International is uniquely positioned to provide flexible solutions with guaranteed through-life performance.

Business Overview:

Al Yamamah – UK's largest export contract, signed in 1985 between the UK and Saudi Arabia governments, involves the provision of a complete defence package for the Kingdom of Saudi Arabia.

BAE Systems was established as prime contractor, with overall responsibility for delivering the contract including aircraft, associated hardware, radar, communications, support, construction and manpower for the Royal Saudi Air Force, and the supply and support of mine hunters for the Royal Saudi Naval Forces.

Saudi Development and Training (SDT) – is an organisation formed in Saudi Arabia under the Al Yamamah Economic Development Programme, in which BAE Systems is a partner. SDT manages the Saudi British Electronics Institute in Riyadh, which provides technical and vocational courses leading to internationally recognised qualifications in electronics, mecatronics, telecommunications and information technology.

C4I – deploys project management and commercial expertise in order to provide Command, Control, Computing & Communication Integration turnkey solutions to Middle Eastern markets.

Bahrain – establishing an autonomous aircrew training capability in Bahrain following contract signature in 2003. It includes the supply of Firefly and Hawk aircraft together with training facilities.

Kazakhstan – established Air Astana with the Kazakh Government in 2001. BAE Systems is bidding to supply Kazakhstan with an integrated air defence system.

New Markets – this new business sector enables CS&S International to focus on other

world-wide opportunities for business, generally in support of BAE Systems platforms in countries with limited indigenous capability.

CS&S Logistics & Information Systems

CS&S Logistics & Information Systems is a dedicated business unit providing information and logistics services that support the effective management of defence assets across air, land and naval sectors throughout the defence supply chain. Our core technical expertise is strengthened by our key joint venture, IFS Defence Ltd.

The business' primary focus is the development and provision of IT and e-capability products, services and infrastructure to the CS&S customer facing business units (CFBUs). These products are key requirements in achieving the CFBUs' platform/sector specific support strategies and include:

- Traditional Services
- AMTS (Asset Management & Tracking Services)
- Integrated Asset Management (IAM)
- Fleet Sustainment (FS)

In addition L&IS is developing opportunities to provide Materiel Flow (Physical Logistics, Inventory and Supply-Chain Management) solutions directly to the UK Defence Logistics Market. The aim is to deliver the benefits of greater systems integration across the entire logistics supply-chain but also maintain platform focus where necessary.

L&IS, on behalf of CS&S, is responsible for managing the development and delivery of the joint strategic milestones with the Defence Logistics Organisation, the key enabler in aligning the strategies of the two organisations.

IFS Defence Ltd – IFS Defence Ltd's logistics business software is a key element of BAE Systems' 'e-capability' support solutions framework. IFS Defence Ltd provides global defence solutions combining best practice, domain expertise, market-proven Commercial Off the Shelf (COTS) software and structured implementation services. IFS Defence Ltd can help influence the design of equipment for supportability, plan for the support of that equipment through life and deliver component based business applications, which support evolution towards the 'extended enterprise'.

(Partners % Interest):

BAE Systems, UK	50%
Industrial and Financial Systems Limited	50%

CS&S Military Air Solutions & Support

Military Air Solutions & Support lies at the heart of sustaining affordable air power. Driven by customer needs it is focused on supplying innovative through-life support services to military air platforms, ensuring operational requirements are supported and maintained in the most cost-effective manner.

The through-life support solutions provided by Military Air Solutions & Support cover maintenance and upgrade while providing the focus for developing innovative support service solutions.

Working in true partnership with our customers in the UK and overseas, Military Air Solutions & Support aims to provide frontline aircrew, with the best, most affordable support.

Business Overview:

Military Air Solutions & Support, is working increasingly closer with the customer, operating at their facilities, integrating into joint teams and looking at support needs for future and existing platforms. It provides support through the following business areas:

Hawk Support – provides through-life support to Hawk customers worldwide. This includes upgrades to in-service aircraft and all other through life support deliverables. It also supports the provision of Hawk aircraft to new customers and works with the Hawk Programme to achieve effective support solutions.

Joint Force Operations – a through-life provider of upgrades and in-service support for Harrier aircraft, with the UK MoD the Indian Navy and the US Marine Corps. This is provided through upgrade (capability sustainment and enhancement) and support capability teams.

Strike Operations – is a through-life provider of upgrades and in-service support for current strike aircraft, including Tornado and Jaguar.

Tanking, Transport & Reconnaissance Operations (TTRO) – is a through-life provider of in-service support for current aircraft, including Nimrod R & MR2, VC10 and Canberra aircraft. It is also preparing to support the next generation of reconnaissance aircraft - Nimrod MRA4. In addition, TTRO is reviewing a number of Tanking, Transport and Reconnaissance opportunities for future business.

U.S. Business – delivers major aircraft units and support services for training and T45 aircraft to the U.S. Navy.

Training Solutions – provides full, integrated platform specific and general application tri-service solutions. Its activities include:

- Warton Technical Academy
- Hawk Synthetic Training Facility (HSTF)
- North Sea Range (NSR)
- C-130J Total Training System
- Horizon Training

Aerosystems International Limited (Ael) – specialises in tactical data links, e-maintenance solutions and logistics systems. Its subsidiary, Terrington Systems, provides aircraft data acquisition and recording systems. Its SHSL subsidiary is an e-commerce company that specialises in delivery of managed services.

Partners (% Interest):

BAE Systems, UK	50%
GKN Aerospace Services, UK	50%

CS&S Naval

The CS&S Naval business is BAE Systems' point of contact for through-life support solutions, in-service support and specialist services for customers in the naval support sector. It provides naval through-life management solutions to UK and overseas customers, covering maintenance and upgrade of warship capability and innovative training solutions. CS&S Naval has over 700 people at five sites in the UK; Barrow-in-Furness in Cumbria, Farnborough in Hampshire, Filton near Bristol, Portsmouth in Hampshire and Scotstoun, Glasgow. CS&S Naval works in partnership with industry and customers alike throughout the lifecycle of military platforms, systems and equipment from concept design to disposals. Complementing these activities are two joint venture companies; Fleet Support Limited and Flagship Training.

CS&S Naval is the focal point for agreeing the 'strategic milestones' that underpin the achievement of the UK MoD's Defence Logistic Organisation's Strategic Plan from a Naval perspective, with the Warship Support Agency. The principle internal business structure reflects the evolving market and is aligned to our key customers:

Support Solutions – is wholly responsible for the delivery of all naval support contracting for UK programmes and has a presence at all five CS&S Naval sites. It acts as the primary interface to the Warship Support Agency and internally to BAE Systems naval platforms businesses. As a through-life management provider, maintaining warship and submarine capability, Support Solutions maintains a wide range of capabilities including design for support, integrated logistics systems, contractorised logistics support and combat system design.

Design Services – provides an integrated through-life technical consulting service for a broad range of naval and tri-service customers. It delivers unique services in the following domains either as a single or integrated capability: operational analysis, systems engineering, integrated logistics support solutions, safety and risk, human factors, marine consultancy and naval architecture.

International Surface Ship Operations – acts as our naval export support services provider and seeks to lead support of naval platforms and Royal Navy disposals for emerging International customers in order to capture long-term support and through-life opportunities. It is also responsible for undertaking the prime contracting role to the UK MoD, for the regeneration and upgrade of two Type 22 frigates for sale to Romania under a government to government contract.

Training & International Business Development – provides innovative naval training solutions for the UK market as well as developing training and support solutions for international markets. This includes development of the Canada business and delivery of our commitments to the Canadian customer for the Victoria Class submarine (formerly Upholder) reactivation and in-service support programme. The Training & International Business Development business also manages the relationship with our joint venture Flagship Training and the Defence Training Review consortium.

Fleet Support Ltd (FSL) – is the strategic partner to Portsmouth's Naval Base Commander delivering in-service support capability to the Royal Navy. FSL provides all encompassing engineering facilities, including waterfront engineering capability and facilities management. This provides a capability in refits, maintenance and upgrades on warships,

the Royal Fleet Auxiliary and commercial ships. It also offers logistics and warehousing services to the Portsmouth Naval Base and Royal Navy surface ship fleet based at Portsmouth.

Partners (% interest):

BAE Systems, UK	50%
VT Group, UK	50%

Flagship Training Limited – our maritime training capability is spearheaded by Flagship Training Limited. Flagship has a unique partnering arrangement with the Royal Navy covering most of its training schools and establishments. This arrangement enables Flagship to offer cost-effective training to navies around the world and civil customers using the extensive high quality Royal Naval training resources available. The training portfolio includes courses in warfare, engineering, systems, specialist naval and civil maritime subjects, corporate management training, training methods and technology, consultancy services and English language training for foreign students.

Partners (% interest):

BAE Systems, UK	50%
VT Group, UK	50%

Defence Training Review (DTR) Consortium (MC3) – following the publication of the DTR by the Government in May 2001, the UK MoD is moving towards developing a number of national centres of excellence to deliver military training ranging from technical to catering. The rationalisation programme is a complex change management project, whose aim is to provide modern cost effective, specialist rationalised training, better accommodation and utilisation of training facilities, in order to contribute to operational capability. This opportunity is being addressed by the MC3 Training consortium that combines the complementary capabilities of BAE Systems, Carillion and VT Group, and builds on the experience gained by Flagship Training Limited.

Partners (% interest):

BAE Systems, UK	33.3%
Carillion, UK	33.3%
VT Group, UK	33.3%

CS&S Operational Services

Operational Services provides customer information, supply chain management and defence repair solutions to customers in 17 countries, delivering over 100,000 order lines annually and managing a supplier base of over 500 companies.

Operational Services is organised around three key business streams:

Material Support Solutions (MSS) – manage the supply of spares, modification kits, consumables and ground equipment to its customers world-wide. It uses information and knowledge management solutions to reduce stock levels and drive efficiencies in the supply chain.

Customer Information Services (CIS) – provides customers with technical publications and efficient information management solutions to support their military capability. Customer

Information Services is a fast growing part of the business which seeks to provide cost savings and value creation across the tri-service information sector.

Defence Repairs Business (DRB) – manages off-aircraft spares and repairs for customers, providing them with guaranteed turn-around times on key components. DRB has contracts to supply spares inclusive repairs on Tornado, Jaguar and Harrier. DRB is developing its business to provide total UK defence repairs capability including the provision of services on customer bases.

CS&S RO Defence

CS&S RO Defence is one of the largest volume producers of ammunition in Europe and exports to more than 48 nations.

CS&S RO Defence manufactures:

- Ammunition (5.56–155mm)
- Explosives and propellants
- Warheads
- Medium calibre cannons
- Tank guns
- Artillery systems
- Mortars
- Engineer vehicles
- Naval guns
- Naval weapon launchers
- Naval sub-systems
- Electronic systems integration

Products:

- Explosives and demolition charges
- Initiators and pyrotechnics
- Ammunition of all types (artillery, tank, small arms, medium calibre, mortar and training rounds) in calibres from 5.56mm to 155mm, including 4.5”shells for naval guns
- Warheads for missiles, torpedoes and depth charges
- BROACH multiple-warhead
- 105mm L7 tank gun and its derivatives
- 120mm CHARM tank gun for Challenger II
- 105mm light gun

- 155mm AS90 SP howitzer
- 155mm M777 towed howitzer
- 81mm mortar
- 120 Turreted Mortar Systems
- Aden 25mm and 30mm aircraft cannon
- 4.5 Mk 8 naval guns
- 40mm Cased Telescoped Weapon System
- Terrier Combat Engineer Tractor

M777 – the M777 lightweight 155mm howitzer is now in production following contract award by the US Department of Defense (DoD) for the low rate initial production of the towed system. Under the initial phase of the contract, CS&S RO Defence is manufacturing 94 M777s for the US Marine Corps (USMC) with the first weapons delivered in February 2004 from the company’s facility in Hattiesburg, Mississippi. It is expected that the USMC will take delivery of 377 systems to replace the heavier M198 155mm towed howitzer, with the US Army also acquiring 273.

BROACH – Team BROACH consists of CS&S RO Defence, Thales and DERA. BROACH has been designed to attack a range of buried high-value targets. It is a multi-warhead system, which achieves its results by combining an initial penetrator charge with a secondary follow-through bomb, supported by multi-event hard target fusing.

4.5in Mk8 Mod 0 & Mod 1 naval guns – the Mk 8 Mod 0 is the classic main gun in many of the world’s navies. In the Mk 8 Mod 1, with the application of stealth technology, CS&S RO Defence is providing the Royal Navy with the most modern, accurate naval artillery and lowest cost of ownership of any medium naval gun.

120 Turreted Mortar System – CS&S RO Defence is continuing development of an integrated turret system to interface with a wide range of existing and future armoured vehicles.

Terrier Army Combat Engineer Vehicle (CEV) – CS&S RO Defence was selected in July 2002 by the UK MoD to design, develop and manufacture the Terrier CEV, the next generation air-transportable armoured combat engineer vehicle for the Royal Engineers. The 65 CEVs, are for a wide utility vehicle with reduced logistic support requirements that will support both the current force structure and the future with Future Rapid Effects System (FRES).

Services:

- Upgrading artillery, tanks and armoured fighting vehicles – Appliqué armour and regunning
- Full customer support and advice
- Test facilities – Ridsdale Range, ETF Bishopton and FEF Chorley
- Investigation and remediation of contaminated land

Subsidiary and Associate Companies:

Wholly-owned overseas companies:

- Case Telescoped Ammunition (CTA) International - is a Societe par Actions Simplifiees (SAS) registered in France and jointly owned between CS&S RO Defence and GIAT Industries. The company was created to design, develop, promote and market a new Case Telescoped Weapon System (CTWS).

The company, operating from its own premises in Bourges, central France, consists of a management and design team of both British and French engineers and scientists. In addition to the core team, the parent companies provide engineering and manufacturing support.

CTWS ammunition is wholly contained within the cartridge, which confers the advantages of high-density storage and via the use of lightweight materials, a high mass efficiency. The shape of the ammunition also enables novel gun design approaches, which provide space and mass efficiencies, key attributes for the future rapid deployment role foreseen for infantry fighting and reconnaissance vehicles. The gun system has been designed to vastly increase reliability by eliminating over 50% of a conventional gun's most unreliable parts.

Partners (% interest):

CS&S RO Defence	50%
GIAT Industries, France	50%

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North America

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BAE Systems North America is a leading defense electronics, information systems and technology services company which has grown to become one of the top 10 suppliers to the US Department of Defense. With operations in some 30 US states and in the UK, BAE Systems North America generates annual sales of more than \$5 billion, and employs more than 25,000 people. They design, develop, integrate, manufacture and support a wide range of advanced aerospace products and intelligent electronic systems for government and commercial customers.

BAE Systems North America is organized into four business sectors:

- Information Systems Sector
- Information & Electronic Systems Integration Sector
- Platform Solutions Sector
- Technology Solutions Sector

BAE Systems North America's products and services include:

Combat Systems: Electronic identification systems; infrared imaging; and mine countermeasures;

Information & Electronic Warfare Systems: Electronic jammers and acoustic countermeasures; decoys; dispensing systems; radar warning receivers; laser warning systems; passive missile warners, radio frequency and IR countermeasures; and communications countermeasures.

Avionics and Navigation: Precision landing systems; Doppler, GPS and inertial navigation systems; flight management systems; head-up displays; information processing; mission planning, acoustic communications, and underwater surveillance.

Aeronautics Products: Military and commercial flight controls, aircraft engine controls, avionics and vehicle management systems; unmanned air vehicles and targets; air structure modification and maintenance, threat warning systems, and missile seekers.

Systems Technical Support: Integration of shipboard combat systems; command, control and communications engineering; and range systems and support.

Information Systems: Mission management and strategic warplanning systems; imagery; mapping systems; test and space systems; information services; training and facilities management.

Communications and Data Links: Wide-band spread spectrum, Networking Packet Radio; common and tactical data links; antennas and apertures, and integration of C4I.

Reconnaissance and Surveillance: Theatre airborne reconnaissance systems, Advanced tactical air reconnaissance and EO reconnaissance, and Forward-Looking IR navigational system.

Space Electronics: Missile and satellite electronics, and radiation-hardened digital components.

Washington Office

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The Washington Office is the hub for BAE Systems interaction with the US government, US aerospace and defense industry, and the representative embassies of countries from the rest of the world. The Washington Office is the primary Marketing and Government Relations Office for BAE Systems throughout North America, charged with coordinating marketing, business development, public relations, legislative and licensing activities. This office serves all of BAE Systems.

Within the Washington Office are marketing, analysis and planning, government relations, import/export licensing and compliance and communications professionals, well-versed in the North American markets, with in-depth knowledge, key contacts, and well-established relationships in the Departments of State and Defense, the United States Congress, and major aerospace and defense companies.

Facilities and services provided by the Washington Office for BAE Systems to conduct business in the Washington area include:

- Temporary offices
- Conference Rooms
- Video Teleconferencing
- In-house IT support
- Audio-visual support
- Convenient access to Washington National and Dulles International airports
- Convenient access to rail connections, including high-speed rail to New York and Boston

Activities coordinated by the Washington Office:

BAE Systems North America association memberships

(Public Relations Tel: +1 703 907 8261/8259)

- Aerospace Industries Association
- AFCEA
- Air Force Association
- American Institute of Aeronautics and Astronautics
- Association of Old Crows
- Association of the United States Army
- Government Electronics and Information Technology Association
- Marine Corps Aviation Association
- National Defense Industrial Association
- Navy League of the United States
- Army Aviation Association of America
- Association of Naval Aviation
- Naval Reserve Association
- Precision Strike Association
- Association for Unmanned Vehicle Systems International (AUVSI)

Consultant Support (Tel +1 703 907 8232)

Exhibitions, Advertising, and Special Events (Tel: +1 703 907 8265)

License and agreement applications (Tel: +1 703 907 8335)

Export Marketing for BAE Systems North America products and Regional Managing Director for Japan, Mexico, Israel, Canada, and Taiwan (Tel: +1 703 907 8312)

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Information Systems Sector

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The Information Systems Sector (ISS) is a full spectrum provider of information technology systems and services to the intelligence and military communities and geospatial products for commercial use. It specializes in the design and integration of large, distributed, network-based computing, archive and dissemination systems, and provides automated systems for supporting the full spectrum of battle management, mission planning, and force executive objectives.

The sector is an industry leader in automated routing of low observable (stealth) air vehicles, and the generation of highly accurate, imagery-based targeting material for precision strike weapons as well as developing high-quality image exploitation and archiving systems for stereo photogrammetry, photointerpretation, and mapping, charting and geodesy (MC&G) applications. ISS also develops, integrates, and produces test equipment for advanced electronic systems including space launch, satellites, and provides avionics systems for the Atlas and Titan launch vehicles. In the IT service arena, the sector applies the latest information technologies to customer office automation needs by providing full-service IT solutions.

Information Systems Sector is organized into three business units:

Mission Solutions – 10920 Technology Place, San Diego, California 92127-1874, USA

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Mission Solutions is the forerunner in developing high-quality image exploitation, geospatial information and archiving systems for government and commercial customers. Other major business areas include unsurpassed automated systems for supporting the full spectrum of battle management, mission planning and force execution objectives, and the production of test equipment for advanced electronic systems including aircraft, munitions, space craft, and telecommunications.

BAE Systems ADR, a subsidiary within Mission Solutions, is one of the largest suppliers of mapping and geospatial products to industrial consumers, state and local governments. Their major focus is adapting the evolving world of mapping technologies to meet project specific requirements. They develop geospatial data products designed to support a broad range of applications, including emergency response, critical infrastructure protection, homeland defense as well as facility management and security.

Enterprise Systems – 8201 Greensboro Drive, Suite 1200, McLean, VA 22102

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A full-service provider of information technology solutions including work group computing and work flow automation, information assurance, client/server solutions, network design and operations, data warehousing and mining, legacy systems re-engineering and migration, broadband integrated service, full-service systems integration and independent testing, multimedia applications development and data visualization. The company is a Lotus Premium Partner and Lotus Authorized Education Center as well as a Microsoft Solutions Provider and Microsoft Authorized Technical Education Center, and offers a broad-range of CBT and hands-on classroom training.

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Integrated Systems (IS) is a premier enterprise information systems integrator and service provider to the defense, National Security and intelligence communities - facilitating timely, accurate and comprehensive information to support decision makers at all levels. IS targets high-end, system-of-systems integration opportunities and provides architectural design and implementation aimed at the intelligence community and information based Command, Control, Communications, Computing, Information, Surveillance and Reconnaissance (C4ISR) programs.

Information & Electronic Systems Integration Sector

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The Information & Electronic Systems Integration Sector is a leading designer, developer, and manufacturer of a wide range of electronic systems and subsystems for both military and commercial applications. Sector headquarters is in Nashua, New Hampshire.

The sector comprises three major business units in the United States whose products include electronic warfare systems, self-protection systems, tactical surveillance and intelligence systems for all branches of the armed forces, as well as microwave, mission and space electronics, infrared, C4I systems integration, and communication, navigation, identification and reconnaissance systems, among many others.

Other product lines encompass inertial sensors, avionics systems; military and industrial displays; combat identification systems; night vision head-up displays; beacons, Doppler navigation systems, advanced identification friend-or-foe (IFF) systems for ground, ship and airborne applications; SATCOM communications; space systems and subsystems, and chemical/biological agent detection devices.

Additionally, this sector's expertise includes air structure assembly and aircraft and avionics modernization; flight testing, certification and operations; and development and manufacture of full- or sub-scale aerial targets.

The Information and Electronic Systems Integration Sector is organized into two business units (formerly three):

Communications, Navigation, Identification and Reconnaissance – 164 Totowa Road, Wayne, New Jersey 07474-0975
Tel: +1 973 633 6140

Communications, Navigation, Identification and Reconnaissance (CNIR) is a world leader in military communications, electronic identification, navigation, reconnaissance and guidance, providing systems solutions to the US and its allies. CNIR offers a broad spectrum of technical expertise in Command, Control, Communications, Computing, Information, Surveillance and Reconnaissance (C4ISR) systems, including wideband networking radios; guidance and navigation; identification; and airborne ground-based software development. CNIR's system solutions are designed to meet the most demanding military environments and requirements.

This business unit is the world's leading producer of Identification Friend or Foe (IFF) products and currently produces military interrogators and transponders for airborne,

shipboard, and air defense applications worldwide, as well as state-of-the-art turnkey system solutions for stand-off and penetrating airborne reconnaissance; and a broad range of electro-optic solutions for surveillance, navigation and training systems. CNIR maintains a long history in the design, development and manufacturing of military communications, electronic identification, displays, antennas, and anti-submarine warfare products.

Facilities are located in Wayne, New Jersey; Greenlawn, New York; Mount Vernon, New York; and Reston, Virginia.

Major Programs:

- Tactical Wideband Networking Radios: Effective, jam-resistant communications between forces, including Joint Tactical Radio System for the US Army, Link 16 systems for real-time information exchange and situational awareness, used by the US Army, Air Force and Navy, and NATO and allied European forces. Radios include Joint Tactical Information Distribution System (JTIDS) and Multifunctional Information Distribution Systems (MIDS).
- Tactical Common Data Link for communications and transmitting surveillance data to command and control platforms.
- IFF systems; ground-to-air and air-to-air antennas; combined interrogator/transponder (CIT); display systems
- Acoustic countermeasures, communication buoys, high-frequency sail arrays, acoustic telemetry systems.
- RF electronic components; equipment for communications surveillance, direction finding, and signal processing.
- System solutions for stand-off and penetrating airborne reconnaissance; and a broad range of electro-optic solutions for surveillance, navigation and training systems.
- Photographic airborne reconnaissance and electro-optic systems design, development, and manufacture. Systems include state-of-the-art turnkey systems solutions for standoff and penetrating airborne reconnaissance.
- Doppler/GPS navigation for US Army and allied forces helicopters.
- Landing system receivers capable of multiband operation allow landing at any field using landing aids.
- Low probability of intercept altimeters for jam-resistant, low detectable, accurate altimetry in F/A-18 and other aircraft.
- Remote monitoring systems provide centralized networks to monitor underground municipal and regional electrical utility grid systems.
- High-tech, high-quality windows for radio frequency interference (RFI), electromagnetic interference (EMI), electromagnetic pulse (EMP), nuclear electromagnetic pulse (NEMP), microwave attenuation, and ballistics.

Information & Electronic Warfare Systems – 65 Spit Brook Road, NHQ1-734B Nashua, New Hampshire 03061-0868. Tel: +1 603 885 0268

The Information & Electronic Warfare Systems (IEWS) business unit is a leader in the design,

development, and production of advanced electronic systems for the defense, civil, and commercial markets. For more than 50 years, IEWS has led innovation in the art and science of aircraft electronic combat and self-protection systems, and tactical surveillance, situational awareness, and intelligence systems for all branches of the armed forces and foreign allies. IEWS' key capabilities include: signal processing, lasers and electro-optics, integrated optoelectronics, antennas and receivers, EO/IR sensors, chemical and biological agent detection, and advanced microwave devices, acoustic sensors and communications, and information operations.

- **Electronic Warfare/Electronic Protection:** Since 1951, IEWS has been producing cost-effective, operationally integrated, fully supported self-protection systems that have demonstrated an ability to defeat a wide range of current and future threats. Current programs include the Advanced Threat Infrared Countermeasures/Common Missile Warning System (ATIRCM/CMWS) and the Integrated Defensive Electronic Countermeasures Radio Frequency Countermeasure Systems (IDECM RFCM). IEWS is providing the integrated avionics and EW suite for the Air Force's F/A-22 Raptor. IEWS will also provide the integrated EW suite for the Lockheed Martin Joint Strike Fighter (JSF). Threat warning and defensive systems programs include the ALR-56C Radar Warning Receiver; the ALR-56M Advanced Radar Warning Receiver; and Defensive Aids Suites for US and allied military platforms. In 2004, IEWS was selected to participate in Phase 1 of the U.S. Department of Homeland Security's Counter Man-Portable Air Defense Systems (C-MANPADS) program.
- **Electronic Warfare/Information Warfare:** IEWS' tactical and strategic systems span the spectrum from acoustic through optical frequencies, and are used for ground-based, submarine, surface ship, airborne, and space applications for DoD customers, government agencies, and foreign governments. Major programs include Compass Call, Cooperative OUTBOARD Logistics Update (COBLU), and Adaptive Joint C4ISR Node (AJCN). Computer-based mission planning systems are also part of this program area. Also included are the development and production of a wide array of space mission solutions from single-board, radiation-hardened computers to complete space payloads. Other programs include communications countermeasures; radar warning systems; antenna, microwave, and hybrid circuit components for electronic and avionics systems; broadband multi-octave microwave and millimeter-wave circuits; antenna components; and multifunction assemblies.
- **Mission Electronics:** Product areas include IR, millimeter-wave, and laser technologies in the design and fabrication of missile seekers, guided munitions, and target designators. Program areas include the Theater High Altitude Area Defense (THAAD) Infrared Missile Seeker, the laser-based Advanced Precision Kill Weapon Systems (APKWS) and the Longbow millimeter-wave seeker transceiver. IEWS also manufactures state-of-the-art gallium arsenide monolithic microwave integrated circuits (MMICs), millimeter-wave components, modules and subsystems for government and commercial applications including missile, radar, EW terrestrial communications, and space applications. Infrared imaging systems provide imaging applications for military, space, and commercial customers
- **Integrated Defense Solutions:** IDS has been in the defense and aerospace markets for more than 40 years providing a wide range of military products and systems solutions. IDS produces robust, highly integrated, mission-critical equipment for detection, situational awareness, protection systems for U.S. and allied military forces and homeland security.

IDS also provides a range of products and services to meet the needs of aviation customers, such as design engineering, product development, and specialty aircraft modifications and maintenance. Major programs include chemical and biological agent detection, atmospheric and meteorological analysis, mine detection and neutralization, threat-adaptive countermeasure dispenser systems, laser detection, integrated sensor systems, integrated mission-specific vehicles and systems, helmet-mounted displays, cockpit and mission displays, night vision-compatible lighting systems, aerial subscale and full-scale targets, and unmanned vehicles.

Platform Solutions Sector

600 Main Street, Johnson City, New York 13790, USA

Tel: +1 607 770 2000

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BAE Systems Platform Solutions serves the aerospace and defense community with capabilities and products that improve operational safety and enhance mission effectiveness. Platform Solutions supports a wide range of military and commercial platforms, including fixed-wing and rotary-wing aircraft, ground vehicles, and unmanned vehicles with capabilities in vehicle management, human-machine interface, precision guidance, and power systems. The sector also is developing integrated capabilities in all-weather operation, power management, real-time cockpit information, prognostics and health management, and air traffic management.

Platform Solutions is a trans-Atlantic enterprise, with more than 6,000 employees performing design, development, and production operations in the United States and United Kingdom. This structure offers wide-ranging capabilities to home markets in the U.S. and U.K. and a broad base for access to European and other world markets.

Platform Solutions' offerings are grouped in these product lines, each spanning multiple platforms and customers:

Vehicle management — fly-by-wire controls, actuation control electronics, and autopilots that reduce pilot workload and enhance safety on fixed- and rotary-wing aircraft for both military and civil customers.

Power systems — full-authority digital controls for aircraft engines and hybrid electric propulsion systems for commercial and military applications.

Precision guidance — inertial sensors and measurement units that enable precision guidance and navigation on platforms from helicopters to missiles to automobiles.

Human-machine interface — pilot-centered systems, including head-up and helmet-mounted displays and pilot inceptors, that provide prioritized data at the right time and in the right format to optimize situational awareness and increase mission effectiveness.

Platform Solutions also offers the following integrated capabilities:

Day/night, all-weather operation — vehicle management, guidance, and mission information systems, integrated with human-machine interface capability to enable pilot visibility in dust, fog, rain, darkness, and other visibility-limiting conditions.

Power management — setting new standards in efficiency, flexibility, and reliability in the way mobile systems generate, distribute, and consume power.

Real-time cockpit information — combining projected data with real-time information to assist decision-making and provide mission solutions for maximum survivability and operational effectiveness.

Prognostics and health management — diagnostic and health management solutions that identify problems before they become expensive to remedy, enabling guaranteed levels of availability and reducing life-cycle costs.

Air traffic management — custom navigation, surveillance, and separation systems for efficient operations, gate to gate, in all weather and for all aircraft types.

Organization:

Platform Solutions is based in Johnson City, New York, and has facilities in Plymouth, Rochester, and Edinburgh, U.K.; Los Angeles, Westlake Village, and Ontario, California; Fort Wayne, Indiana; Cheshire, Connecticut; Wayne, New Jersey; Heath, Ohio; and Redmond, Washington. The sector is organized in five business areas:

Aerospace Controls — 600 Main Street, Johnson City, New York 13790, USA
Tel: +1 607 770 2000

Develops and produces fly-by-wire flight controls, mission computers, integrated flight and fire controls, and control electronics for space vehicles.

Avionic Systems — Airport Works, Rochester, Kent ME1 2XX, United Kingdom
Tel: +44 (0) 1634 844400

South Gyle Crescent, Edinburgh, EH5 2XS, United Kingdom
Tel: +44 (0) 131 332 2411

Leading supplier of head-up, head-down, and helmet displays; flight controls; and associated subsystems across both the civil and military aviation sectors.

Inertial Products — 600 Main Street, Johnson City, New York 13790, USA
Tel: +1 607 770 2000

Inertial sensors and measurement units for the control, navigation, and guidance of fixed- and rotary-wing aircraft, precision weapons, missiles, unmanned aerial vehicles, targets and drones, military ground vehicles, and automobiles.

Integrated Solutions — 5140 West Goldleaf Circle, Los Angeles, California 90056, USA
Tel: +1 323 298 6300

Integrated avionics, vehicle management and utility control systems, turnkey UAV systems, aircraft ground support and fueling systems, and see-through systems for low-visibility operation.

Power Systems — 600 Main Street, Johnson City, New York 13790, USA
Tel: +1 607 770 2901

Full-authority digital engine controls for aircraft engines, power management systems for ground vehicles, and hybrid diesel-electric propulsion systems for urban transit and military applications.

Technology Solutions Sector

1601 Research Boulevard, Rockville, Maryland 20850-3173, USA

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The Technology Solutions Sector of BAE Systems North America provides a full-spectrum of systems engineering, technical services, and ordnance systems to its customers in disciplines essential for successful systems development, operating, and maintenance. Its full life-cycle systems capabilities include system design, integration and test; software development, engineering, and maintenance; and integrated logistics support.

The Technology Solutions Sector is organized into seven business units.

Surface Warfare – 80 M Street, SE, Suite 300, Washington, DC 20003

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BAE Systems provides a broad range of professional engineering and integration services, software engineering and testing, information technology, test services, and program management support to major defense acquisition programs. We have an unequalled record of valued partnership with major DoD acquisition programs. Since 1970, BAE Systems has provided continuous support in systems and software engineering, test and evaluation, integrated logistics support, acquisition and production, and program support. Significantly, our relationships with the AEGIS Program, DDG 51 Shipbuilding, and CG47 Cruiser Modernization, and precision strike programs have been ongoing since their inception. BAE Systems has the background, experience, and competencies to provide a high level of customer satisfaction as reflected in the long relationships that we have maintained with our various customers.

Our major activities support the Naval Sea Systems Command, PEO Ships, PEO Integrated Warfare Systems (IWS), and the Naval Surface Warfare Center and the Joint Warfare Analysis Center in Dahlgren, Virginia and Port Hueneme, California, and the Marine Corps Systems Command in Quantico Virginia. While we largely provide technical and engineering support, we also deliver key product lines such as systems engineering and architecture designs, Weapons Direction System Mk 14, Technical Documentation, in support of Naval Surface Fire Support, Vertical Launching System, STANDARD Missile, NATO SEASPARROW, and Area Air Defense Commander, as well as, provide software to all variants of the TOMAHAWK Cruise Missile.

Undersea Warfare – 13900 Connecticut Avenue, Silver Spring, Maryland 20906

Tel: +1 301 231 2323

BAE Systems has been the prime systems integration contractor for U.S. Navy and U.K. submarine fleet ballistic missile programs since 1956. In this role, we provide requirements flow-down and coordination between all major subsystems and testing to ensure those subsystems perform as specified. We also develop logistics systems and support environments to ensure those systems perform flawlessly over their 40-year lives.

Our Undersea Warfare team provides test vehicle buildup and test vehicle operations at the Navy's Large Scale Vehicle development facility in Bay View, Idaho. We support the Naval Undersea Warfare Center by providing engineering support, integration and logistics services for torpedoes, towed array sensor systems, and underwater fire control systems. We also provide program management and acquisition support for the Navy's new attack submarine programs.

Electronic Systems – 23481 Cottonwood Parkway, California, Maryland 20619

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As a premier provider of systems integration and life cycle support services for C4I systems used by DoD, other federal and commercial agencies, and international customers, BAE Systems designs, integrates, and produces highly specialized C4I systems with an emphasis on radio communications ranging in size and complexity from highly mobile, portable units to the world's largest and most sophisticated systems for installation aboard U.S. and foreign navy combatants. BAE Systems has delivered more than 100 radio communication systems for multiple ship classes, including systems for international navies and more than 60 AEGIS cruisers and destroyers.

BAE Systems designs and produces integrated systems that provide cost-effective classified and unclassified voice, video, and data communications using radios, satellites, data links, and networks for end users with highly specialized communications requirements such as the Special Operations Forces. BAE Systems is also a primary support contractor for U.S. Navy and Marine Corps air traffic control and identification systems and a major supplier to SPAWAR for the design and installation of physical security systems for the U.S. Navy and other federal agencies.

Advanced Technology Solutions – 1601 Research Boulevard, Rockville, Maryland 20850

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BAE Systems is a Federal Aviation Administration (FAA) system engineering and professional services contractor providing engineering and technical services, national airspace planning and architecture, surveillance systems planning and support, and program and financial management support including investment and cost analysis. BAE Systems also provides program and project management, systems engineering, system integration, test and evaluation, logistics support, and field services and repair for Army Communications Systems with particular strength in land-to-satellite C4I support.

BAE Systems is an information management and information technology contractor and real-time software development contractor for U.S. Navy and international Navy weapon systems programs. The company also provides critical IT support, intelligence data analysis, system administration, computer operations, web development, and full life-cycle software support services to the U.S. Navy and U.S. Coast Guard maritime intelligence community. BAE Systems is a software process improvement, IV&V and systems testing service provider for U.S. Navy weapon systems and mission-critical systems at the U.S. Internal Revenue Service (IRS) and other U.S. Government civilian agencies. The company holds a registration for ISO 9001:2001 for software design, development and maintenance, and has been successfully evaluated at SEI CMM Level 3.

Technical Services – 557 Mary Esther Cut-off, Fort Walton Beach, Florida 32548

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BAE Systems provides test range operations support to various U.S. military installations. We provide operations support and maintenance for the test range and technical facilities at Eglin Air Force Base in Florida, and Holloman Air Force Base in New Mexico, supporting the test and evaluation of defense weapons systems, air armament, and munitions.

BAE Systems also performs operations support and maintenance on high-technology equipment and has supplied logistics and engineering support for 190 radar systems located

on 25 test ranges worldwide. BAE Systems offers a full line of test range instrumentation hardware systems, including radar and optical tracking systems, in fixed or mobile configurations to domestic and international customers.

Ordnance Systems – 4509 West Stone Drive, Kingsport, Tennessee 37660
Tel: +1 423 578 6000 Fax: +1 423 578 8054

BAE Systems is the largest producer of High Energy explosives in the western world. The explosives for both U.S. DoD and commercial customers are produced at the Holston Army Ammunition Plant in Kingsport, Tennessee, which we are responsible for managing, operating and developing commercially. The government-owned, company-operated facility has about 600 employees and contractor personnel involved in both the production of explosives and providing total management of all site activities. Site management activities include maintenance, wastewater treatment, environmental services, railroad operations, steam generation, fleet management, research and development, and the commercial development of the 6,000-acre facility.

In partnership with the local community and the U.S. Department of Economic Development, BAE Systems recently opened a Business Incubator at Holston, which will help create jobs for the community and foster commercial development at the facility.

Analytical Solutions – 1525 Perimeter Parkway, Suite 500, Huntsville, Alabama 35806
Tel: +1 256 890 8103 Fax: +1 256 890 0000

BAE Systems provides professional services support in a broad range of professional technical and management services to the Department of Defense (DoD); NASA; civilian federal, state, and local government agencies; and commercial businesses and provides expertise in software development, systems integration, modeling and simulation, business improvement services, privatization studies, professional training, cost estimating, and environmental analysis.

We are leaders in air and missile defense, joint interoperability, program management, quality assurance engineering, test and evaluation engineering, cost analysis, outsourcing, and business process reengineering. BAE Systems has made contributions to many Department of Defense programs that are vital to our nation's defense, including Ground-Based Midcourse Defense; Tactical High Altitude Air Defense System; Joint Tactical Ground Station; Tactical High Energy Laser, and Blackhawk, Kiowa, and Apache helicopters. In addition, Analytical Solutions provides science and engineering support to NASA's Marshall Space Flight Center.

We provide our clients with a powerful blend of experts, products, and services to meet their unique expectations and needs. We do not believe one solution is right for every client; therefore we focus on each of our client's special circumstances.

Operational, Shared Services, Capital Commercial Aerospace

Aerostructures

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**Precision Aerostructures, 1515 North Hiway 81, PO Box 70, Wellington,
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Business:

Aerostructures' strategic goal is to establish the business as the premier aerostructures provider.

The operating model for the Aerostructures business allows it to participate in the aerospace market as an intelligent integrator, offering workable major airframe structure solutions to the customer. The business offers a totally integrated capability for initial concept, through the design and development phase and management of the global supply chain process for manufacture, assembly and support. Major customers include Airbus, Boeing, Raytheon, Cessna and Lockheed.

Airbus (BAE SYSTEMS 20%)

1 Rond Point Maurice Bellonte, BP33, 31707, Blagnac, Cedex, France

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Airbus is a leading aircraft manufacturer with the most modern and comprehensive family of airliners on the market, ranging in capacity from 100 to more than 500 seats. The company has delivered over 3,400 aircraft to nearly 190 customers world-wide since it first entered the market in the early seventies, and boasts a healthy order book of more than 1,400 aircraft for delivery over the coming years. With an annual turnover of 19.2 billion Euros in 2003, Airbus is a global company, employing some 50,000 people of many different nationalities in design and manufacturing facilities in France, Germany, the UK, and Spain, as well as subsidiaries in the U.S., China and Japan. Airbus also operates spare parts and training centres in Europe, the U.S. and Asia, and provides round-the-clock support services to all Airbus operators, helping them enhance the profitability of their fleets.

Headquartered in Toulouse, France, Airbus is a joint EADS company with BAE Systems.

Shareholders (% Interest):

BAE Systems	20%
EADS	80%

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Airbus North America

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Airbus China Ltd

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Airbus Japan K.K.

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Airbus Military

15 Av. Didier Daurat, 31707 Blagnac, Cedex, France

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The A400M military transport aircraft represents a twenty-year programme for the European military aircraft industry, providing a total of 180 aircraft to be delivered to the launch customers as follows: Belgium, 7; France, 50; Germany, 60; Luxembourg, 1; Spain, 27; Turkey, 10; United Kingdom, 25.

Designed specifically to meet the demanding conditions of the European Staff Requirement, (ESR), the A400M will provide the world's air forces with a replacement for the fleets of C-160 Transalls and C-130 Hercules and provide the rapid reaction capability that is essential in responding to crisis situations. An export market is expected to develop in addition to the launch customer base and discussions are on-going with a number of the worlds' air forces. Airbus Military SL - an Airbus subsidiary company will be responsible for the management of the A400M programme. The company is a Spanish legal entity registered in Madrid. The A400M's first flight will take place in 2008 from the final assembly facility to be established in Seville, Spain.

Regional Aircraft

Prestwick International Airport, Ayrshire, Scotland KA9 2RW

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Other Locations:

Customer Training and Engineering

Woodford Aerodrome, Chester Road, Woodford, Cheshire SK7 1QR, United Kingdom

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European Logistics Centre (ELC)

Vickers Drive, Brooklands Business Park, Weybridge, Surrey KT13 0UJ, United Kingdom

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SupportUnit 2, Level 2, 13 Lord Street, Botany, New South Wales 1455, Australia

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Asset Management, Trading and Services and Support

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Asset Management and Trading and Service

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Asset Management – Portfolio Management Services

PO BOX 87, Warwick House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

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Business:

BAE Systems Regional Aircraft is a former Original Equipment Manufacturer (OEM) with a long history of aircraft design and production dating back to 1910. Although regional aircraft production ceased in 2001 after the termination of the RJX project, BAE Systems Regional Aircraft remains fully committed to the continued support of its aircraft types. There are currently over 1100 aircraft in the BAE Systems Regional Aircraft fleet.

BAE Systems Regional Aircraft has its Headquarters in Prestwick, Scotland and additional offices world-wide and offers unrivalled capability in the areas of Customer Support, Engineering and Asset Management, in addition to being the world's leading regional aircraft portfolio servicers. BAE Systems Regional Aircraft comprises the following business streams:

Engineering

Responsible for engineering and governance across BAE Systems Regional Aircraft, including Technical Authority for all aircraft Type Certificates. Has whole-aircraft design capability and provides engineering services to third-party companies, including Boeing and Airbus.

Customer Engineering

Responsible for all In-Service Engineering and Customer Information for the world-wide fleet. This includes 24/7 engineering solutions for all operator requests.

Customer Support

Supports a world-wide fleet of over 1,100 regional aircraft from the Jetstream 31 and 32, Jetstream 41, ATP, 748 and BAe 146/Avro RJ, Embraer 145, Fairchild Dornier 328 and ATR 42/72 families. Provides spares, repair and overhaul solutions to operators, for both rapid response AOG (Aircraft on the ground) situations and predictable cashflow PBH (power by the hour).

Asset Management

Responsible for portfolio management, sales and leasing of the Avro 146/RJ family of regional jets and Jetstream 31/32/41 and ATP turboprops. Asset Management's fleet totals nearly 330 turboprop and jet regional aircraft, making it the third largest lessor by fleet size and the world's largest regional aircraft lessor.

In addition to BAE Systems' lease portfolio, the Trading and Services' operation currently manages 63 aircraft for third parties.

Avro RJ and BAe 146

Manufactured between 1982 and 2001.

Over 385 aircraft in service world-wide.

60 operators including British Airways CitiExpress, Swiss, Air Canada Jazz, Lufthansa, Qantas, SN Brussels, United, Northwest and the RAF.

Passenger, freighter, Quick Change convertible and VIP variants are all in service.

ATP

62 aircraft built with last delivery in 1998.

Fuel efficiency gives excellent seat-mile economics.

60 to 68 passenger seats.

Freighter conversion available.

Jetstream 41

100 Jetstream 41s delivered between 1993 and 1999.

30-seat regional turboprop with low operating costs.

In use with special equipment fit for maritime surveillance by the Hong Kong Government Flying Service.

Jetstream 31 and Jetstream 32/32EP

386 aircraft built with last delivery in 1997.

BAE Systems asset management portfolio contains 19-seat airliner and corporate business shuttle variants.

Enhanced Performance (EP) package available on J32 improves short field and hot-and-high performance.

CityLine Avro Simulator and Training GmbH

(BAE Systems 50%)

Schutzenstrasse 10, 12526 Berlin, Germany

Tel: +49 30 88 75 5779

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A 50/50 joint venture between Lufthansa CityLine and BAE Systems Regional Aircraft, formed to operate a Reflectone manufactured Avro RJ simulator. Main customer is Lufthansa CityLine.

Partners (% Interest):

BAE Systems Deutschland GmbH 50%

Lufthansa CityLine GmbH 50%

International Partnerships

AMS (BAE SYSTEMS 50%)

Eastwood House, Glebe Road, Chelmsford, Essex, CM1 1QW, United Kingdom

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AMS, Via Tiburtina KM. 12,400 00131, Roma, Italy

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Radar Systems (Land Systems – UK)

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Integrated Systems (Naval Systems – UK)

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Hillend Industrial Estate, Nr Dunfermline, Fife, KY11 5JE, United Kingdom
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Other Location:

Bahnhofsweg 10 82008, Unterhaching, Germany
Tel: +49 89 6141950 Fax: +49 89 61419544/5

Land Systems – Italy

Via Tiburtina, Km.12, 400 00131 Roma, Italy
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Viale Europa, 20014 Nerviano, Milan, Italy
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Naval Systems – Italy

Via Tiburtina, Km.12, 400 00131 Roma, Italy
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via Hermada 6/B, 16154 Genova, Italy
Tel +39 010 654 6244 Fax: +39 010 654 6605

via Valdilocchi 15, CP 337, 19136 La Spezia, Italy
Tel +39 0187 58111 Fax: +39 0187 582977

c/o Arsenale MMI, via di Palma, 74100 Taranto, Italy
Tel +39 099 452 9140 Fax: +39 099 477 4842

Air Traffic Management Systems

Broad Oak, The Airport, Portsmouth, Hampshire, PO3 5PQ, United Kingdom
Tel: +44 (0) 2392 226000 Fax: +44 (0) 2392 226001

Via Tiburtina, Km.12, 400 00131, Roma, Italy
Tel: +39 6 41501/41971/418831 Fax: +39 6 4131436/4131133/4131091

AMS – Gematronik, Elektronische Anlagen, Raiffeisenstrasse 10, 41470 Neuss, Germany
Tel: +49 (0) 21 37 / 78 22 88 Fax: +49 (0) 21 37/7 82 37

AMS-ASI Inc, 11300 West 89th Street, Overland Park, 66214, Kansas City, Kansas, USA
Tel: +1 913 4952604

Operations – UK

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Operations – Italy

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Tel: +39 81 527111

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Customer Support – UK

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Tel: +44 (0) 1276 633111

Fax: +44 (0) 1276 695485

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Customer Support – Italy

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via Valdilocchi 15, CP 337, 19136 La Spezia, Italy

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c/o Arsenale MMI, via di Palma, 74100 Taranto, Italy

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Fax: +39 099 477 4842

www.amsjv.com

AMS is a major European Joint Venture owned equally by BAE Systems and Finmeccanica, and a world leader in the provision of integrated defence and electronic systems. A multinational company based in the UK, Italy, Germany and the United States, AMS has an annual turnover of €1.3bn, an order book of €3.3bn and a customer base in well over 100 countries. AMS has 7,000 employees and operates in the fields of;

- Air Defence and Battlefield Systems
- Air Traffic Management Systems
- Naval Systems
- Simulation and Synthetic Environments
- Systems Integration
- Customer Support and Training
- Contract Manufacturing

AMS is the primary electronic systems business for both BAE Systems and Finmeccanica.

AMS designs, manufactures and supplies mission critical command, control and management systems, radar sensors, simulation and training systems to defence forces and air traffic management authorities throughout the world.

Key technologies within AMS cover; systems engineering, antenna design, RF engineering, signal processing, software design, modelling and simulation, mechanical engineering, and synthetic environments. Knowledge of “operational doctrines” enhances its systems integration capability allowing AMS to be an effective systems supplier. The balance between systems and products is key to extracting value within the company, enhanced by the appropriate core technologies, and more recently, supported by e-business and associated techniques. These are further supported by a strong full life support and comprehensive training capability.

Product Groups include;

Air Defence and Battlefield Systems

- Strategic C4I Systems
- Digitisation
- Digital Integrated Communications Control Systems
- Air Defence Command and Control Systems
- Radar Command and Control Systems
- Battlefield Command and Control Systems
- Radar Cross Section Measurement
- Long Range Radar
- Medium Range Radar
- Multi Function Radar
- Battlefield Fire Control Systems
- Battlefield Tracking Radar
- Battlefield Surveillance Systems
- Battlefield Meteorological Systems

Naval Systems

- Strategic Systems
- Surface Command and Control Systems
- Underwater Command and Control Systems
- Underwater Communication Systems
- Data Links
- Command Support Aids
- Decoy Systems

- Meteorological Systems
- Long Range radar
- Medium / Short / IIF Range Radar
- Multi-Function Radar
- Radar Fire Control Systems
- Optronic Fire Control Systems
- Gun Fire Predictors
- Vessel Traffic Management Systems
- Maritime Surveillance Radar

Air Traffic Management and Airport Systems

- Control Management Systems
- Meteorological Systems
- Terminal Radar
- En-route Radar
- Secondary Surveillance Radar
- Navigation Aids

Simulation and Synthetic Environments

- Synthetic Environments
- Land Training Aids and Systems
- Naval Training Aids and Systems
- Air Training Aids and Systems
- Electronic Warfare
- Visuals

Specific product information is available from the AMS website at www.amsjv.com

Alternatively, a Product Directory can be obtained from the Marketing Services Director on +44 (0) 1245 702927 or the International Partnerships office.

AMS Training

AMS has two dedicated training colleges; Dundridge in the UK and the Oman Aircraft Control College, both offering specialist “hands-on” solutions to meet the training requirements of our customers. Training can be provided for AMS and third party products in both the military and civil arenas. Courses include:

- Air defence
- Battle management
- Electronic warfare
- Air Traffic control

C4I

Airspace evaluation and analysis

Air defence operations

Civil Air Traffic Control (ICAO syllabus)

Ground control

Since its formation in 1998, AMS has achieved a number of significant milestones including:

- AMS was selected to supply the first set of new generation NATO Class 1 land based air defence radars within Europe, leading to further orders outside of NATO. The company is also playing a leading role in the NATO Ballistic Missile Defence programme, and has increased its activity in the upgrade and modernisation of the NATO Air Defence Ground Environment programme. Additionally, AMS has won the first order to supply the surveillance and weapon control radars for the JERNAS Short Range Air Defence System.
- AMS has the contract to deliver the Royal Navy its first requirement for multi-function radar capability. Sampson will be a world class radar to provide surveillance, tracking and guidance functionality to the PAAMS system, being delivered to the Type 45 Destroyer. AMS has also been selected to provide the EMPAR multi function radar to the French and Italian Navy's Horizon Frigates. Indeed, of the 3 multi-function radar programmes in the world, AMS is the Prime Contractor for 2, along with non developmental items such as the ship's gunfire control system and navigation system.
- To complement AMS prime contracting for the multi-function radars for the Type 45 and Horizon programmes, the company has also been selected to be the prime contractor for the long range radar for both vessels. In addition, AMS also provides the Combat Management System to both programmes. This product is an example of where we have been able to work successfully in a complex multi national environment with other systems suppliers.
- In Italy, the company has supplied the Italian National Vessel Traffic Management System and was selected to supply surveillance radar, data transfer, navigation system, combat management, meteorological and oceanographic systems for the Italian Navy aircraft carrier programme, along with a preliminary integration and combat systems study.
- In the underwater sector AMS is playing a key role in the Royal Navy's new Astute class submarines, supplying a key part of the submarine's Control and Instrumentation System, by providing a systems design capability for the steering and diving sub-systems. In addition to this, AMS has also won the Astute class submarine 30-year training provision contract.
- AMS also supplies the British Army's Combined Arms Tactical Trainer, the largest networked simulation system in the world, with over 140 vehicle specific simulators.
- AMS' success in the Air Traffic Management and Airport Systems domain has resulted in more than 25 major ATC contracts being awarded to AMS in the last 18 months, bringing its total installed base in this sector to well over 100 countries across the world.

- In the Middle East, AMS designed, developed, installed and part-funded an air defence and air traffic control training college, featuring state-of-the-art defence radar simulators, a Controlled Airspace Synthetic Environment (CASE) and a 3-dimensional tower simulator. This was the first project developed jointly between the country's Ministry of Defence and the private sector in support of their innovative 'Partnerships for Development' programme.

BAeHAL Software Limited (BAE SYSTEMS 40%)

Airport Lane, Hal Estate, Bangalore, 56 017 Karnataka, India

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Business:

BAeHAL Software is a joint venture company between BAE Systems in the UK and Hindustan Aeronautics Ltd of India, which provides software development, simulation, validation & verification, engineering and technical publication services accredited to the CMM Level 5, BS 7799 and ISO9001 standard. BAeHAL has successfully completed a range of development, maintenance, conversion and testing projects across real-time environments for leading Aerospace and Defence organisations in US, Europe and Asia. Based in India, BAeHAL has access to a large pool of highly trained IT Personnel, which enables BAeHAL to provide high quality services whilst offering Exceptional value for money.

BAeHAL has established a secure private satellite link, which is an integral part of the BAE Systems network. The combination of voice and data links ensures effective offshore operations, especially for maintenance and conversion work. Our business model offers a tailored combination of onsite and offshore project execution offering both value for money and highest quality.

Partners (% Interest):

BAE Systems, UK	40%
Hindustan Aeronautics Ltd, India	49%
Held in trust in BAeHAL	11%

Gripen International (BAE SYSTEMS 50%)

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www.gripen.com

Business:

Supported by the Governments of Sweden and the United Kingdom, Gripen International is a Swedish registered company responsible for the marketing and selling of Gripen and associated services internationally, managing the resulting contracts and providing lifetime product and system support.

Jointly owned by SAAB AB of Sweden and BAE Systems of the United Kingdom, the creation of Gripen International in September 2001 was a natural progression from the Joint Venture Agreement, signed between SAAB AB and BAE Systems in 1995, to sell the Gripen fighter aircraft internationally.

Gripen International acts as a prime-contracting organisation, responsible for marketing, selling and supporting the Gripen aircraft worldwide (outside Sweden). The company works closely with its parent companies, drawing on their resources as required. Gripen International has around 55 core employees, with a number of strategic partners and subcontractors. The organisational structure reflects its mission and includes programme and technical management expertise as well as logistic support functions.

Gripen International's headquarters are in Stockholm, Sweden with central business offices in Linköping, Sweden and Farnborough in the United Kingdom. The company also has offices or representation throughout the world including Washington, Pretoria, Johannesburg, Budapest, Prague and Brasilia.

Gripen is the first new-generation multi-role/swing-role combat aircraft to enter service. It is designed to meet the demands of current and future threat scenarios, whilst at the same time meeting stringent requirements with regard to flight safety, availability, training efficiency and life cycle cost.

Fully integrated digital systems give Gripen the brainpower to use its strength and the intelligence to use its muscles to maximum effect. Its pilots can share real-time tactical information with friendly forces while remaining undetected by the enemy. A two-seat version of Gripen, which retains full operational capability, is also available for type conversion and technical weapons training and specialised combat missions.

Gripen was declared operational in the Swedish Air Force in 1997, which has 204 aircraft on order including 28 dual seaters, and where over 40,000 flying hours have been achieved in five fully operational, multi-mission squadrons. In December 1999, South Africa ordered 28 aircraft (19 single-seat and 9 dual seat), to replace their existing front-line aircraft. Since then, Hungary has ordered 14 Gripen's (12 single-seat and 2 dual seaters) and the Czech Republic has also selected Gripen to meet its defence needs with a requirement for 14 aircraft (12 single-seat and 2 dual-seat). Both these countries will be

the first Gripen operators within NATO. Gripen International, supported by SAAB and BAE Systems, continues to actively pursue Gripen export opportunities around the world.

Aircraft data:

Length (excluding pilot tube)	14.1m	(46ft 3in)
Length (Two-Seat variant)	14.8m	(48ft 5in)
Wing span (including launchers)	8.4m	(27ft 6in)
Height overall:	4.5m	(14ft 8in)
Maximum take-off weight	14 tonnes	
Maximum speed	M2.0 and supersonic	at all altitudes

Key Features:

Advanced aerodynamic combining a close coupled canard-delta configuration.

Lightweight structure employing advanced materials and construction techniques.

The world's most highly developed data link.

Triplex, digital fly-by-wire Flight Control System for optimum combat agility.

Fully-integrated avionic systems operating via five MIL-STD 1553B digital data bus highways.

Advanced cockpit layout with large colour Multi-Function Displays (MFD's) and Hands-On-Throttle-And-Stick (HOTAS) controls.

Long range Ericsson PS-05/A multi-mode, pulse doppler radar.

Powerful, fuel efficient, Volvo Aero Corporation RM12 turbofan engine.

On Board Oxygen Generation System (OBOGS) and Air-to-Air Refuelling (AAR).

Low visual radar and Infra-Red (IR) signatures.

Heavy and varied weapons load covering all mission parameters – Air-to-Air, Air-to-Ground, Air-to-Sea, Reconnaissance and Advanced Tactical Training – an unrivalled mix of simplicity and sophistication.

50% lower operating costs than its best competitor.

“On-condition” maintenance.

Capable of operating from simple road bases and dispersed bases with the minimum of maintenance, personnel and ground support equipment.

Cockpit and Display System

The Gripen cockpit is dominated by three large, full colour, Multi-Function Displays (MFD's) and a wide angle diffractive optics Head-Up Display (HUD) with a holographic combiner. A highly efficient human-machine interface has been integrated into the Gripen to substantially ease pilot workload, particularly in combat situations. This provides a Gripen pilot with outstanding situational awareness, ensuring unrivalled operational effectiveness. It also increases the time available for tactical decision-making allowing the pilot to use the aircraft and weapons system to maximum effect.

The main functions of each display are as follows:

Head-Up Display (HUD) – providing FLIR imagery and weapon aiming information superimposed on the outside world at all altitudes.

Flight Data Display (FDD) – provides flight data and system status information about the engine, fuel and external stores.

Horizontal Situation Display (HSD) – provides navigational and tactical mission data superimposed on an electronic map of selectable scale.

Multi-Sensor Display (MSD) – presents information from the radar, FLIR imagery and other sensors. Flight and fire control data are also superimposed.

Radar:

The primary sensor of the Gripen target acquisition/weapons aiming system is the long-range Ericsson PS-05/A radar. The Gripen radar is a compact, long-range, high performance multi-mode pulse-doppler radar with a modular architecture and high reliability, offering high resolution, excellent look-down performance and good Electronic Counter-Counter Measures (ECCM) capabilities. Using state-of-the-art technology, including fully programmable signal and data processors, the radar is able to handle all types of air defence, air-to-surface and reconnaissance missions with built in growth potential to meet future requirements.

Powerplant:

The Volvo Aero Corporation RM12 is a modular, fuel efficient, low bypass ratio afterburning turbofan in the 80 KN (18,000lb) thrust class. It is based on the General Electric F-404-400 which has attained several million flight hours in operations world wide – with several enhancements incorporated by Volvo including increased thrust and bird strike resistance.

MBDA (BAE SYSTEMS 37.5%)

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P O Box 5, Filton, Bristol BS34 7QW, United Kingdom

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37 Avenue Louis Breguet – BP 1, 78146 Vélizy Villacoublay Cedex, France

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2 Rue Béranger, 92323 Chatillon Cedex, France

Tel: +33 1 47 46 21 21

La Chaudronne, Route départementale 75, 41300 Selles St-Denis, France

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Tel: +39 018 750841

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www.mbda.net

MBDA is the first fully integrated, pan European defence company and is owned equally by BAE Systems (37.5%), EADS (37.5%) and Finmeccanica (25%). The Company is a world leading missile systems company with an annual turnover of 2 billion Euros, an order book of 15 billion Euros and over 70 customers worldwide. MBDA has 10,000 employees based across the UK, France, Italy and the USA.

MBDA operates in all of the major world markets and is the only company in its sector able to design and produce missile systems for land-based, naval and airborne requirements. The group offers customers high technology solutions and has unrivalled capability in key technologies. Our long-term strategy is to pursue and reinforce the development of strong, mutually beneficial links with regional industry leaders worldwide.

With prime contractorship of some of the world's most advanced future missile systems and with a strong technology base, our ambition is to offer our customers the best and most cost-efficient solutions and services for their defence requirements in missiles and missile systems.

MBDA is in a leading position, capable of mastering key technologies, developing large joint European programmes, offering its customers an unequalled range of products and services and uniting Europe's major collaborative programmes.

MBDA is able to:

- Satisfy the requirements of the three armed forces with a fully comprehensive range of missiles already in production and provide solutions for all future needs.
- Guarantee customers access to a new generation of weapon systems with through-life support for existing missile systems and the development of future technology.
- Act either as prime contractor or principal partner in the development of major European collaborative programmes.
- Continue research and development into future programmes such as Anti Ballistic Missile Defence and Future Offensive Airborne Systems (FOAS).
- Further consolidate the European missile industry as a major player capable of forging equal partnerships with US industry.

- Substantiate its status as a forward-looking company with a strong financial base.
- Set the standard for the successful multinational integration proven by the company's strong, multi-cultural and fully integrated management.

MBDA's international programme portfolio, which includes the Aster/FSAF surface-to-air family, the Storm Shadow/SCALP EG stand-off family and the Meteor Beyond Visual Range Air-to-Air Missile, answers increasingly challenging requirements worldwide. Product groups include:

PRODUCTS:

Ground based air defence

ASTER 30 - SAMP/T

SPADA 2000

VL MICA

RAPIER FSC/JERNAS

RAPIER B1X

MISTRAL 2

MISTRAL FAMILY (MANPADS, ATLAS, ALBI, MCP)

Airborne Air Defence

ASRAAM

MICA

METEOR

SPECTRA

SPIRALE

ECLAIR-M

SAPHIR-M

SAPHIR-400

DDM

MILDS

IRIS-400

ACTIONS

Strike

STORM SHADOW / SCALP-EG

PGM

JDAM

DIAMOND BACK

BANG

Battlefield Engagement

ERYX

MILAN

BRIMSTONE

HOT

MISTRAL ATAM

GMLRS

DEDALE

SOUVIM

Maritime Dominance

ASTER 15 & 30 (PAAMS)
ASTER 15 (SAAM)
ALBATROS
VL MICA
VL SEAWOLF
TETRAL
SIMBAD
EXOCET FAMILY (MM 40 BLOCK 3, AM 39, SM 39)
OTOMAT MK2 BLOCK IV
MARTE MK2/S
MILAS

Specific product information is available from the MBDA website at www.mbda.net.

Alternatively, a Product Catalogue can be obtained from the Communications Department on +44 (0) 20 7451 6094.

SAAB AB (BAE SYSTEMS 35%)

SE-581 88 Linköping, Sweden

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Fax: +46 1318 0011

In line with BAE Systems objective to improve shareholder value through consolidation of the aerospace and defence industry, a 35% share in SAAB AB was purchased in April 1988.

This strengthens ties between the two companies and enables a co-ordinated strategy to be pursued in a number of business areas including combat aircraft, aerostructures, guided weapons, asset management and training systems.

Partners (% Interest):

BAE Systems, UK	35%
Other shareholders	65%

ATLAS ELEKTRONIK GmbH (BAE SYSTEMS 100%)

Sebaldsbruecker Heerstrasse 235, 28305 Bremen, Germany

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Fax: +49 (0) 421 457 3699

www.atlas.de

Other Locations:

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ATLAS ELEKTRONIK GmbH, Jägerstr. 59, 10117 Berlin

Tel: +49 (0) 30 20942641

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ATLAS ELEKTRONIK GmbH, Grenzstr. 19, 26382 Wilhelmshaven

Tel: +49 (0) 44 21 9 13 47-0

Fax: +49 (0) 44 21 9 13 47-20

ATLAS ELEKTRONIK GmbH has an impressive pedigree dating back over 100 years. In this time it has established an extensive, global customer base in the naval and maritime world. In the best traditions of German companies, ATLAS has, not surprisingly, a sound technology base and product range including "sensor-to-shooter" chains for Submarines, Surface Vessels, Mine Counter Measures (MCM) as well as non-military products, e. g. Vessel Traffic Systems and Hydrographic Systems. The company today is very much part of the German maritime scene but it has also established itself as one of the leading companies in the world providing state-of-the-art Underwater Capability.

With 1600 specialists in naval and maritime business including more than 400 experts in design, prototyping and hardware production and an annual turnover of approximately 300 Million, ATLAS ELEKTRONIK has an excellent reputation world-wide. After the split of its predecessor STN ATLAS the Naval System Division and the Production Department of its forerunner formed ATLAS ELEKTRONIK GmbH as a wholly-owned subsidiary of BAE Systems.

Products

Sonar for submarines and surface ships
Integrated combat systems for submarines and surface ships
Mine Warfare Systems (sonar, command, weapons)
System services and support including prime contractorship for vessel programs
Naval weapons including heavyweight torpedoes and torpedo c/m systems
Vessel Traffic Service Systems (VTS)
Hydrographic Systems

Partners (% Interest):

BAE Systems, UK 100%

Other locations:

ATLAS HYDROGRAPHIC GmbH (100% ATLAS Hydrographic Holdings Pty Ltd)
Kurfürstenallee 130, 28211 Bremen, Germany
Tel: (04 21) 4 57-11 22 Fax: (04 21) 4 57-34 49

Australia

SONARTECH ATLAS Pty Ltd (60% ATLAS ELEKTRONIK GmbH)
Unit 6, Herbert Street, St Leonards NSW 2065
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ATLAS ELEKTRONIK Pty Ltd
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ATLAS Hydrographic Holdings Pty Ltd (100% ATLAS ELEKTRONIK Pty Ltd)
2 Elphinstone Close, Postsmith, QLD 4870
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Malaysia

ATLAS DEFENCE TECHNOLOGY SDN BHD
(Formerly known as PSC-STN ATLAS Elektronik (Malaysia) SDN BHD)
Lot 152 & 153, Persiaran PM2, Pusat Perniagaan Manjung, 32040 Seri Manjung Perak
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Avionics Group

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Business:

BAE Systems Avionics Group is one of Europe's leading avionics companies, and the UK's foremost supplier of electronic systems for military platforms in the air, at sea and on land. With its head office at Basildon in the UK, the Avionics organisation has major sites in southern England and Scotland. The Group employs 4,800 people.

BAE Systems Avionics Group specialises in developing world-class integrated sensor solutions for land, naval and airborne defence electronics requirements. It is a leader in airborne radars, and electro-optical surveillance, tracking, targeting and imaging systems. It has a complete capability for design, development, manufacture and in-service support. The Avionics Group has organised its core business activities into seven delivery focused sectors:

- Radar
- Electronic Warfare (EW)
- Laser Systems
- Battlespace & EO
- Advanced Projects
- Mission Systems Integration (MSI)
- Avionic Partnered Solutions (APS)

Mission Systems Integration and Avionic Partnered Solutions:

BAE Systems Avionics' Mission Systems Integration business, is a leading integrator of advanced, state-of-the-art avionics to rejuvenate both fixed wing and rotary aircraft with enhanced performance and next generation capabilities. Working with global aerospace partners and, where possible, utilising the regional capabilities of its customers, MSI delivers a cost-effective approach to aircraft upgrade and support.

Avionic Partnered Solutions was established to build on the existing product capabilities and in-service experience of Avionics Group and other BAE Systems business units. APS addresses the opportunity created by the changing role of the Defence Logistics Organisation (DLO) in the UK Support Market. The prime objective of APS is to work in partnership with platform primes and key alliance members to provide an Avionics Capability and Availability service direct to the Front Line Commands.

Products:

Avionics Group is a key supplier to major military aircraft, land and navy programmes, both current and future. Major products and programmes include:

CAPTOR – Avionics leads the consortium supplying the CAPTOR radar for Eurofighter Typhoon under the banner of Euroradar. CAPTOR detects, identifies, prioritises and engages targets beyond the effective range of enemy weapon systems, while remaining resistant to severe electronic jamming.

Eurofighter Defensive Aid Sub System (DASS) – EWD leads the consortium developing the DASS for Eurofighter Typhoon. DASS is an integrated system comprising Electronic Support Measures (ESM), Electronic Countermeasures (ECM), Missile Approach Warner (MAW) and Laser Warning Receiver (LWR).

Ariel – Airborne towed radar decoy fitted to RAF fixed wing platforms. The latest version will be supplied for the Eurofighter Typhoon.

Helicopter Integrated Defensive Aids Sub System (HIDAS) – selected by the British Army to protect the WAH-64D Apache battlefield helicopter. HIDAS is an integrated system comprising Laser Warning Receiver (LWR), Radar Warning Receiver (RWR), Missile Warning System (MWS), Chaff and Flare Dispenser (CMDS) and DAS controller.

Seaspray – lightweight, high performance, multimode radar for helicopters and maritime patrol aircraft. Seaspray's 7000E variant introduces active electronically scanned array (ESCAN) technology for advanced surveillance applications.

AMSAR – technology programme for future generation airborne active electronically scanned fire control radar.

TIALD – (Thermal Imaging Airborne Laser Designator) and next generation targeting pods.

FLIR – Forward Looking Infra Red systems.

NEMESIS DIRCM – Directional Infra Red Countermeasures System.

LINAPS – Laser Inertial Artillery Pointing System - ring laser giro system for artillery pointing and aiming.

SIGMA - the latest high resolution staring Focal Plane Array thermal imager providing high performance passive infrared imaging.

JOANNA – Technology programme to develop a future air to ground targeting capability.

Dragonfly – Electro Optical technology demonstrator programme to improve multiple target tracking and recognition.

LIRCM – Next generation laser based IRCM system.

HALO – passive acoustic artillery location system monitors artillery activities across a wide area of the battlefield.

Weapon (EO/IR) guidance, control (datalinks) and actuation systems.

Automatic EO tracking systems.

Land and naval surveillance systems.

Thermal Imaging Cameras/Systems – LION, DTIV/DVE (Driver's Thermal Sights), UGTS (Uncooled Gunnery Thermal Sight), and V4500 series – for land and naval applications.

High specification cooled and uncooled IR detectors.

Sky Guardian 2000 – Radar Warning Receiver in service on many airborne platforms including Jaguar, Hawk and L-159. Sky Guardian 2000 has been selected by Royal Air Force and export customers.

Sky Guardian 200 – Radar Warning Receiver in service on many airborne platforms including Jaguar, Hawk and L-159.

LWR (Series 1223) Laser Warning Receiver – a modern advanced laser warner fitted on the Apache and Australian AWACS aircraft.

Sky Shadow and RHWR – ECM pod and Radar Warning System for fast jet applications, in service on Tornado aircraft with the RAF and Royal Saudi Air Force.

ZEUS - Integrated EW system with a combined radar warner and ECM system, fitted to the RAF Harrier.

SIREN - Off board radar decoy system for warships. SIREN is now in production for the Royal Navy's DLH programme and is available for export opportunities.

MENTOR – Radar band ESM for warships in service with the Royal Malaysian Navy.

BAE SYSTEMS South Africa

BAE Systems (Gripen Overseas) Limited

**Suite 202, Optiplan House, 232 Bronkhorst Street, Nieuw Muckleneuk, Pretoria,
0181, Gauteng Republic of South Africa**

Tel: +27 12 452 01 00

Fax: +27 12 460 08 07

In South Africa BAE Systems is headquartered in Pretoria, where it serves customers and supports partnership activities with the local aerospace, defence and air transport sectors.

The Pretoria-based team is responsible for the delivery of 24 Hawk Lead-In Fighter Trainers and 28 Gripen swing-role fighters to South Africa. It also manages the discharge of the company's direct industrial participation (defence and aerospace industry offsets) obligations in addition to other commercial marketing and support co-ordination activities.

Products represented in South Africa:

Jetstream 41 (with SA Airlink)

Hawk Lead-In Fighter Trainer

Gripen

GP3 from Communications & Defence Infrastructure (in support of South Africa's GBADS programme)

Visual Guidance System (with South African Airways)

Airbus A340-600, A340-300E, A319 and A320 (with South African Airways)

Other locations:

South Africa National Industrial Participation (SANIP)

12A Turnberry Building, Fourways Golf Park, Roos Street, Fourways, Sandton, Gauteng, South Africa

Postnet Suite No. 246, Private Bag X033, Rivonia, 2128, South Africa

Tel: +27 11 700 38 70

Fax: +27 11 700 38 78

The SANIP team is responsible for the identification, implementation and roll-out of BAE Systems & Saab's portfolio of National Industrial Participation (civil industrial offset) projects which are benefiting the South African economy through investments, exports, skills & technology transfers and jobs. These NIP projects are linked to South Africa's purchase of Hawk and Gripen aircraft. Sectors where SANIP is active:

Minerals and metals beneficiation technology

Gold & Platinum Jewellery manufacturing

Medical research

Automotive component and product manufacturing

Heavy engineering

Power generation component production

Tourism development

Mining equipment manufacture

Forestry and timber products

Agri-business

Office furniture manufacture

Biotechnology

IFS Defence

Cnr. Embankment Road & Hendrik Verwoerd Drive South, Centurion, 0046, South Africa

PO Box 9984, Centurion, 0046, Gauteng, South Africa

Tel: +27 12 672 59 46 / 57 00

Fax: +27 12 663 41 91

CyberSim (PTY) Ltd

Waterkloof Park Building, Cnr. Dely & Julius Jeppe Streets, Waterkloof, 0145, Pretoria, South Africa

PO Box 36677, Menlo Park, 0102, South Africa

Tel: +27 12 346 75 75

Fax: +27 12 346 00 64

www.cybersim.co.za

CyberSim is a South African-based IT company developing software simulation solutions for clients who want to enhance decision making, optimise operations and develop human resources. It is an ISO 9001 accredited company founded in 1994 and develops products tailored to address the following military and civil training and simulation requirements:

- War and peace mission simulation (BattleTek series)
- Disaster management systems (SimTek series)
- High-level Command & Control systems (Chaka digital military Command & Control series)
- User-specific software (custom products)

CyberSim also provides exercise and decision-making support services.

BAE Systems has a 25 percent shareholding in CyberSim.

Aircraft Carrier Team

Building 20x, Golf Course Lane, Filton, Bristol, BS34 7QW, United Kingdom

Tel + 44 (0) 117 918 8284

Fax + 44 (0) 117 918 8008

Building 550, The Crescent, Bristol Business Park, Bristol BS16 1EJ, United Kingdom

Tel + 44 (0) 870 837 6000

Fax + 44 (0) 117 969 0374

The Aircraft Carrier Team is a partnership between BAE Systems and Thales UK, set to be part of a wider Defence Procurement Agency-led Alliance to deliver the UK Royal Navy's two new aircraft carriers, the QUEEN ELIZABETH and the PRINCE OF WALES.

The two new aircraft carriers are set to be larger and more capable than the current INVINCIBLE class aircraft carriers they are replacing. They are also being designed to be fully adaptable. They will go into service configured for Short Take-Off and Vertical landing (STOVL) operations, with a ski jump and will carry the STOVL variant of the F-35 Joint Strike Fighter (JSF). However, it will be possible to convert them to conventional carrier operations later on in their service life, removing the ski jump and fitting catapults and arrestor gear. The ships will be powered by Integrated Electric Propulsion (IEP), drawing on the learning from the Type 45 destroyer programme.

The Aircraft Carrier Team consists of over 350 people working in a joint integrated team under a single management structure. The Team recently completed its work on Stage Three of the Assessment Phase of the Aircraft Carrier programme and is now working on continuing to mature and de-risk the design for the ships.

The next phase of the programme will be focused on concluding the formation of the Aircraft Carrier Alliance, involving key suppliers and partners; finalising the shipbuilding strategy; and further developing the design to ensure that performance, cost and schedule are sufficiently matured to enable the project to progress successfully through Main Gate.

Shared Services

**PO Box 87, Warwick House, Farnborough Aerospace Centre,
Farnborough, Hampshire GU14 6YU, United Kingdom**

Tel: +44 (0) 1252 383232

Fax: +44 (0) 1252 383172

BAE Systems Shared Services was formed in April 2002 to deliver internal support and specialist services more effectively across BAE Systems and its partner companies. It passes the benefits of increased efficiency and reduced cost directly back to the Business Groups through reduced charges. The activities identified for inclusion in Shared Services were previously part of Corporate Functions or embedded in Business Groups and would benefit from leveraging scale and standardisation of processes. Shared Services has approximately 800 employees based across the UK.

One of Shared Services' key activities is the relationship management of the company's major outsourcing contracts: the HR Services contract with Xchanging HR Services (XHRS) and the Indirect Procurement contract with Xchanging Procurement Services (XPS), both of which are 50% owned by BAE Systems, together with the IT outsource contract with CSC and the Exostar e-Business Joint Venture.

Shared Services includes:

Pensions: learning and development, SIGMA, graduate recruitment.

Employee Services: recruitment, benefits, payroll, pensions and travel (through BAE Systems, XHRS & XPS).

Technology and Engineering Services: development and introduction of technologies, systems and processes provided by the Advanced Technology Centre (ATC), the Product Assurance Group (PAG) and the Systems Engineering Innovation Centre (SEIC).

Intellectual Property Services: managing the protection of the Company's intellectual property, licenses, patents, trademarks etc.

Ventures: extracting maximum value from the considerable pool of intellectual property within BAE Systems.

IT & e:business Services: managing and co-ordinating the company's global IT strategy and web-based e:business.

Indirect Procurement Services: managing the company's £800m per annum non-product related spend.

Property & Environmental Services: providing a range of real estate services and managing the disposal of the company's land and building assets.

Corporate Air Travel managing the company's aircraft fleet.

Advanced Technology Centre
Corporate Air Travel
Exostar
Intellectual Property
Indirect Procurement Services
IT & e-Business

Partnership with Xchanging
Product Assurance Group
Property and Environmental Services
Systems Engineering Innovation Centre
Ventures

Advanced Technology Centre

PO Box 5, Filton, Bristol BS34 7QW, United Kingdom

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Fax: +44 (0) 117 302 8007

West Hanningfield Road, Great Baddow, Chelmsford, Essex CM2 8HN, United Kingdom

Tel: +44 (0) 1245 473331

Fax: +44 (0) 1245 475244

Wood Burcote Road, Towcester, Northants NN12 6TF, United Kingdom

Tel: +44 (0) 1327 356844

Fax: +44 (0) 1327 356996

atc.enquiries@baesystems.com

**Systems Engineering Innovation Centre (SEIC), C/O External Relations Office,
Loughborough University, Loughborough, Leicestershire LE11 3TU**

Tel: +44 (0) 150 922 3442

Fax: +44 (0) 150 922 7014

peter.l.phillips@baesystems.com

Business:

Advanced technology services for defence and aerospace systems.

The Advanced Technology Centre (ATC) provides innovation, expertise and services for the creation and development of future technology capability covering a broad spectrum. From hardware to software development, composite materials to stealth techniques, sensing systems to synthetic environments, the ATC provides innovative solutions to customer requirements.

The ATC is also home to the company's intended Centre of Excellence in Systems Engineering innovation: The Systems Engineering Innovation Centre (SEIC). This new centre is focused on research and innovation in all systems engineering aspects in order to improve the management of risk, product configuration and technology insertion for the development of innovative products.

In addition to supporting BAE Systems and its Joint Venture organisations in the achievement of tactical and strategic technology objectives, the ATC has relationships with external organisations including the UK Ministry of Defence, US Department of Defense, European Space Agency, Universities and other third party research and product organisations. With a highly skilled, world-class scientific and engineering workforce spread across four sites, the ATC provides services, capability and support throughout the product lifecycle, from long-term speculative research to in-service product development. Key skills and expertise are available to provide assistance for short-term product development and mid-term next generation programmes.

Long-term capability requirements are supported through an underpinning technology research programme coupled with focused research themes named 'Strategic Options'. These programmes concentrate on areas of key importance within the defence and

aerospace arena and include Micro and Nano Technologies, C4ISR, Autonomous Systems and Battlespace Information and Knowledge Capability.

The capability portfolio of the Advanced Technology Centre spans the following areas:

Communications and Signal Processing

System Studies, Software and Soft Intellectual Property Designs and Rapid Prototypes – Communication Systems and Digital

Battlespace – Networks – Signal, Data and Image Processing – Target Recognition - Propagation Modelling – Radio Coverage Surveying – Signal and Information Processing Systems

Revolutionary advances in communications and signal processing technology present both Military and Civil businesses with huge opportunities and challenges. Civil deployments of leading edge wireless products and services naturally lead to Military forces expecting the same ease of communication and access to information available in the civil marketplace. Our research positions BAE Systems to fully exploit these opportunities by creating exciting and affordable leading edge technology, products and services for both wireless and wired communications, electromagnetic sensing and distributed signal processing applications.

Our scientists and engineers apply a multi-disciplined approach to research in these areas, creating whole-of-life affordable systems using the latest productivity enhancing engineering tools and techniques. Examples of deployed technology are radio coverage and prediction tools, generic software radio and ad-hoc networking technologies, hyperspectral image and SAR image analysis packages. Our technology research and design capabilities are complemented by our expert radio survey and model validation services.

Human Factors

Human Performance Modelling – Training – Command and Control – Maintainability and

Support Systems – Human Factors Integration – Workload - Situational Awareness – Task Analysis – Sensors and Displays – Vision Modelling – Mental Modelling.

The successful design of any system is highly dependent on the integration of Human Factors within the Systems Engineering process. This will ensure that the capabilities and limitations of the system operators, maintainers and other support personnel are accounted for during all design phases. To be successful, Human Factors Integration requires appropriate tools, techniques and expertise. The development of such Human Factors tools, techniques and expertise, for application during system design and integration, is a principal role of the ATC Human Factors Department. Our main focus is the modelling and evaluation of human performance within complex air, land and sea systems, enabling designers to engineer optimum performance from the combination of technology and humans in systems. Our research into human performance and our development of tools and engineering processes is extending BAE Systems' capability to integrate Human Factors into its products and services.

Information and Data Processing

Autonomous Navigation and Sensing – Image Analysis for Scene Understanding – Decentralised Data Fusion – Situational Awareness – Behaviour-based Methods for Co-operative Control – Data Management and Agent Methods – Robotic Vehicles – Automated Assembly – Automation for Non-Destructive Testing – Product Data Modelling.

Our Advanced Information and Data Processing capabilities provide major contributions to the creation, acquisition and development of those strategically important information-processing technologies necessary to support the future success of BAE Systems. While the primary focus of the work is on providing BAE Systems with intelligent autonomous systems operating within a network-enabled capability, the same technologies are also being applied to other automated systems (e.g. aircraft assembly) required by the company.

Mathematical Modelling

Electromagnetic Modelling – Aero/Fluid Dynamics – Material Dynamics – Engineering Process Technologies

The Mathematical Modelling Department researches, develops and acquires techniques and computer codes to enable the prediction, measurement and analysis of the physical characteristics of products and manufacturing processes, and to enable optimisation of designs. We also research, develop and apply novel technologies to improve the design process (e.g. Grid technologies for e-engineering) and to enable advanced performance of future products (e.g. flow control). Examples of our modelling activities include radar cross section prediction, electromagnetic compatibility-susceptibility and hazards, aerodynamics, fluid-structure interactions and high-velocity impacts.

Materials Sciences

Composites – Structural Health Monitoring – Device Fabrication – Spectroscopic Techniques – Microsystems – Experimental Impact Studies – Surfaces & Interfaces – Corrosion Monitoring

The understanding of a wide range of material characteristics and technologies is essential for a modern international engineering company. Knowledge of the behaviour, manufacture and testing of materials is a fundamental capability within the organisation. Backed up by a sophisticated array of instruments and tools, our scientists conduct research into the properties of materials such as composites and develop novel techniques for monitoring wear, corrosion and damage. Detailed studies into the characteristics of surfaces and their bonding properties are carried out and technologies such as microsystems and nano-technologies are being investigated.

Optics and Lasers

Photonics – Electromagnetic Technology – Infrared Prediction – Non-Contact Measurement Techniques – Optical Signal and Data Processing – Lasers and Electro-Optic Systems – Miniature Displays

Our Optics and Laser Technology research ensures that BAE Systems has access to relevant, state of the art, optical and electromagnetic technology, processes and techniques. These include high-bandwidth communications, miniature displays, non-contact measurement and the application of laser technology to manufacturing techniques. Further work is expanding the application of optics and laser technology in areas such as underwater imaging, signal and data processing and structural strain sensing.

Sensors

Antenna Design and Evaluation – Electromagnetic Modelling – Microwave Systems and Components – Radar Systems and Techniques – Target Detection and Recognition – Control Systems

The growing need for all-weather precision strike capability, and minimisation of casualties, translates into an increasing need for high-performance surveillance sensors and electronic countermeasures across a wide spectrum of wavebands. Our long-established antenna design capability covers the electromagnetic spectrum from very low frequency (VLF) to millimetric bands and is backed up by a comprehensive measurement and test facility. We cover all aspects of radar design including phased arrays, long-range over-the horizon systems, electromagnetic modelling, target recognition and platform control and stabilisation.

Stealth

Measurement of Materials Properties – Performance Prediction and Modelling – Radar Cross Section Reduction – Radar Absorbing Materials – Radar Transparent Materials – Noise and Vibration Reduction

Stealth is an enabling technology in today's defence and aerospace industries. A major consideration in controlling an object's observability is the adaptation of the materials, structures and systems used to minimise transmitted and reflected radiation. We specialise in the measurement of materials at radar frequencies and produce custom materials with either radar absorbing or radar transparent qualities. The latter are developed for use in radomes and have stable characteristics throughout the harsh operating conditions of high performance aircraft. Our range of radar absorbing materials is tailored both in physical characteristics and frequency selectivity. Our engineers have also developed world-leading techniques for reducing noise and vibration transmission from maritime propulsion systems.

Systems Engineering

Lifecycle Planning - Capability Development & Deployment - Data Management & Exchange - Network Enabled Systems & Capabilities - Cognitive Modelling - Information Security & Integrity - Ad Hoc Networking - Information Assurance - Flexible, Upgradeable & Complex Systems and Architectures - Intelligent Autonomous Systems - Systems Management - Reconfigurable Architectures - System Health & through-life management & Diagnostics - System wide Modelling, Exploitation & Integration - Optimal Capability Reuse & COTS Technologies - Rapid Engineering & Prototyping.

The Systems Engineering Innovation Centre (SEIC) was set up to create an environment for innovation which provides BAE Systems with access to the best academic and parallel sector industrial capability in Systems Engineering. The goal is to create an internationally recognised centre, bringing increased capability to attract leverage funding. In addition, the SEIC will provide world-class education and training in Systems Engineering, infused with the knowledge and innovative approaches created by the research.

The academic element consists of the academic partnership network in Systems Engineering, led by Loughborough University. One of the UK Government's Regional Development Agencies (The East Midlands Development Agency) is sponsoring the provision of a building to facilitate the development.

Corporate Air Travel

BAE Systems (Corporate Air Travel) Limited, Warton Aerodrome, Preston, Lancashire PR4 1AX, United Kingdom

Tel: +44 (0) 1772 852926

Fax: +44 (0) 1772 855240

cat.enquiries@baesystems.com

“To provide safe, efficient and economic air travel to BAE Systems and its partners”

Business:

Corporate Air Travel (CAT) is BAE Systems internal airline. During 2001 CAT was awarded its Joint Aviation Regulations Air Operators Certificate (JAR Ops 1 AOC), Operating Licence, and JAR 145 (Maintenance approval), all of which are recognised Benchmark standards within Aviation. CAT operates to these Benchmark standards, while maintaining the flexibility to meet the business need. However, following a commercial review in 2003, a decision was taken to return the Operating Licence.

The safety and security of passengers is the number one priority for CAT.

BAE Systems policy is that CAT scheduled services are to be used in preference to other forms of travel.

Based at Warton, and operating to various locations both in the UK and Europe, CAT provides the company with point to point air travel, often direct into BAE Systems or partner company sites. The CAT fleet consists of 140-100, 146-200 and two HS125 aircraft.

In 2003 CAT carried over 65,000 passengers. CAT can also charter aircraft from the external market to meet the business requirements.

Services:

CAT provides a scheduled shuttle service and specific point-to-point flight services where cost-effective.

Exostar

Exostar LLC, 13530 Dulles Technology Drive, Herndon, VA 20171, USA

Tel: +1 703 561 0500

Fax: +1 703 793 1763

UK Freephone: 0800 917 2485

www.exostar.com

Business:

Exostar is an independently incorporated company set up to develop and operate a neutral electronic marketplace for the Aerospace and Defence industry – www.exostar.com – designed to increase the efficiency of supply chain transactions and improve design collaboration between all players in the industry.

Exostar is headquartered in the Washington DC area. Founding members include BAE Systems, Boeing, Lockheed Martin Corporation, Raytheon Company and Rolls-Royce. The exchange has been trading since September 2000, and now has over 12,000 members.

Founding Members (% ownership):

BAE Systems	19.6%
Boeing	19.6%
Lockheed Martin Corporation	19.6%
Raytheon Company	19.6%
Rolls-Royce	19.6%
Commerce One	2%

Intellectual Property

PO Box 87, Lancaster House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

Tel: +44 (0) 1252 383201

Fax: +44 (0) 1252 383091

ipd.enquiries@baesystems.com

Business:

Intellectual Property Department offers a professional intellectual property (IP) service to customers in all parts of the BAE Systems group world-wide and in its joint ventures. It has a team of fourteen IP professionals, mostly qualified as UK and/or European patent attorneys and all with degrees in science or engineering. The department obtains patents to protect its customers' technical innovations, and in particular to protect their investment in R&D. It advises on the other sorts of protection for technology such as copyright. It also advises on the effect on its customers' operations of their competitors' patents and other rights. The department negotiates and drafts IP agreements such as confidentiality agreements, licences, and R&D collaboration agreements (either taking the lead itself or in support of customers' legal or contracts functions). It advises on the IP terms in other contracts, in particular MoD contracts. The IP aspects of mergers, acquisitions, and disposals are a particular departmental responsibility. The department also protects customers' brands through trademark registration and offers unique services and tools for managing patent portfolios to optimise cost-benefit. Contact details of attorneys with particular specialist skills and allocated to particular customers are available on the Intranet site:

<http://baesystems-web.intranet.baesystems.com/intelprop>

Indirect Procurement Services (IPS)

**PO Box 87, Warwick House, Farnborough Aerospace Centre
Farnborough, Hampshire GU14 6YU, United Kingdom**

e-mail: ipss.enquiries@baesystems.com

Customer Support Team: +44 (0) 1772 677177

Other Location:

Building W370A, Warton Aerodrome, Preston, Lancashire PR4 1AX, United Kingdom

Tel +44 (0) 1772 854890

Fax: +44 (0) 1772 854861

Business:

Provides Procurement services for all BAE Systems UK based Business Groups in the area of indirect goods and services. Indirect Procurement covers the purchase of goods and services, which do not form part of the final product. The team manages approximately £600m of spend and the associated supply chain across BAE Systems, covering a range of indirect spend categories over approximately 40 UK site locations. Interfaces with BAE Systems North America on global agreements in the Indirect arena.

Employing approximately ninety employees across twenty sites, IPS achieved all customer base targets in 2003 with an overall savings performance of £15.4M

Four main business areas:

- Capital and production services
- Customer service and solutions
- Facilities
- Professional services'

IPS is also responsible for managing, on behalf of BAE Systems, the company's JV company Xchanging Procurement Services (XPS). XPS was formed to deliver improved and integrated procurement products and services to BAE Systems and third-party customers. Services provided include: car fleet, healthcare, temporary labour (non-engineering) office supplies (stationery office furniture etc), mobile phones and pagers, hotel bookings etc.

IT and e-Business

PO Box 87, Warwick House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

Tel: +44 (0) 1252 383450

Fax: +44 (0) 1252 385490

The IT and e-Business team manages the Company's outsourcing contract with Computer Sciences Corporation (CSC) and the relationship with Exostar on behalf of all BAE Systems business groups to ensure the quality and value of IT services and the delivery of new capability.

IT and e-Business works with CSC to identify cost saving and service improvement opportunities that will maximise the businesses' return on IT investment, and manages key elements of corporate infrastructure such as the email service and the Wide Area Network. In addition to the focus on day-to-day operations, services include leadership in business improvement and change management to support the exploitation of Enterprise wide solutions and the Internet.

Activities are governed by the IT and e-Business Steering Group, which brings together decision-makers from each BAE Systems business and function. The Steering Group is charged with collectively establishing Enterprise IT and e-Business strategy, policy and plans, and for the monitoring of progress against them. Key areas include the deployment of a common infrastructure, company-wide integration initiatives and the development and deployment of Internet-based technologies across BAE Systems' supply chain.

As part of Shared Services, IT and e-Business agrees comprehensive Service Level Agreements with each of the businesses for all of the services it manages.

Partnerships with Xchanging

PO Box 87, Warwick House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

Tel: +44 (0) 1252 373232

Fax: +44 (0) 1252 383000

BAE Systems and Xchanging B.V. jointly own Xchanging HR Services and Xchanging Procurement Services. Xchanging HR Services was formed on 1 May 2001 to provide HR support services initially to BAE Systems and subsequently to capture third-party business from the integrated HR services market. This is a market that is expected to grow rapidly over the next few years and BAE Systems is a key stakeholder in this Joint Venture. Xchanging HR Services provides BAE Systems HR with transactional HR services including; pension and payroll administration, remuneration & benefits, learning & development and web enabled HR capability. It is developing world-class processes and people to ensure it delivers its vision of becoming the benchmark integrated HR services provider.

Xchanging Procurement Services (XPS) was formed in November 2001 to deliver improved and integrated procurement products and services to BAE Systems and third-party customers. Services include; car fleet, healthcare, temporary labour (non-engineering) office supplies (stationery, office furniture etc).

Product Assurance Group (PAG)

Chelmsford, Essex CM2 8HN, United Kingdom

Tel: +44 (0) 1245 242000

Fax: +44 (0) 1245 242340

pag.enquiries@baesystems.com

Business:

PAG provides specialist engineering services which enhance product quality and reliability.

Services:

PARC supplies forensic analysis of component and material failures, assessment of production processes and environmental impacts. The service is supplied by a team dedicated to responding rapidly against guaranteed Returns on Investment.

Mechanical Engineering and Project Support provides an Integrated Mechanical Design, Analysis and Production Engineering Capability, the emphasis being on optimising designs for performance and cost. The service includes Project based Engineering support, problem solving, 3D, CAD Design, Project Management and also product Environmental Data Logging.

Rapid Prototyping is a service producing functional mechanical hardware concurrently with the design process. It drastically reduces the time taken to produce representative hardware to a matter of hours, at a nominal cost, regardless of the design complexity, utilising 3D CAD data from ProEngineer, CADD5, SolidWorks or CATIA. It also provides a rapid route to investment casting.

Structural and Thermal Simulation uses MSC/PATRAN, MSC/NASTRAN, ABAQUS and MSC/THERMAL to assess the integrity of products, including Aircraft Equipment, Radar Systems, Missiles and Artillery, Shipbourne Systems, Underwater Systems and Electronic Packaging.

Product Assurance Services develop and apply techniques to increase the reliability of products. Techniques include Stress Margin Analysis, Accelerated Ageing, Environmental Stress Screening, Transportation Packaging Design and Design of Experiments. The aim is to exploit the techniques used in consumer electronics to enhance the reliability in defence equipment.

Six Sigma is a methodology that facilitates the data-based, continuous improvement of both the design of a product, and the processes used to create it. It optimises any process by eliminating non-value-adding stages.

Battery Hazard Testing provides expert advice on all matters concerned with battery technology. Testing facilities are available for the evaluation and destructive testing of batteries to best practice standards.

Property Unit (consisting of Property & Environmental Services)

Westcott Venture Park, Westcott, Aylesbury, Buckinghamshire HP18 0NP, United Kingdom

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Fax: +44 (0) 1296 652121

bapu.enquiries@baesystems.com

or contact us via our website:

<http://www.baesystems.com/ocs/sharedservices/pandeservices/index.htm>

Other Locations:

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Station Road, Bishopton, Glasgow, PA7 5NJ, United Kingdom

Tel: +44 (0) 1505 832025

Fax: +44 (0) 1505 832052

Ashby Road, Loughborough, Leicestershire, LE11 3TU, United Kingdom

Tel: +44 (0) 1509 635292

Fax: +44 (0) 1509 635299

Business:

- Property & Environmental Services provide professional Real Estate and Environmental Management services to BAE Systems.
- Minimising operational costs and maximising disposal income, and where necessary, undertaking work to prepare surplus properties for alternative development, leasing or sale.
- Financial and operational responsibility for surplus sites passes to Property & Environmental Services.

- Assisting in community regeneration where a property disposal is a significant loss to the local area.
- Property and environmental due diligence services in support of acquisitions, disposals and joint ventures.
- Contaminated land consultancy and site remediation contracting, including the management of Asbestos issues.
- Contaminated Land Strategy management within the UK.

Systems Engineering Innovation Centre (SEIC)

Holywell Park, Loughborough, Leicestershire LR11 3TU

Tel: 01509 635203

Fax: 01509 635232

email: seic@lboro.ac.uk

The SEIC is the result of an ambitious plan to establish a unique national resource based in the East Midlands that will have global implications for all sectors of UK industry and academia.

Underpinned by funding from the East Midlands Development Agency (emda), BAE Systems and Loughborough University are collaborating in this exciting venture to create what is planned to become a unique national resource for Systems Engineering in the UK with global implications for all sectors of UK industry and academia.

Through its collaborative research projects, the SEIC is focused on systems engineering aspects which provide a framework for the integration of people, processes, tools and technology in order to improve the management of risk, product configuration and technology insertion for the development of innovative products.

Ventures

PO Box 87, Warwick House, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU, United Kingdom

Tel: 01252 383718

Fax: 01252 383488

For more information contact: ideas@baesystems.com, or contact us via our website: <http://www.baesystems.com/ventures/index.htm>

The Ventures Organisation was formed to maximise the value generated by the commercial application of BAE Systems Intellectual Property, technology and knowledge.

A subsidiary of BAE Systems, Ventures provides specific services to the Group:

- Idea discovery (technology audits, patent mining)
- Technology / market assessment (typically involving a small group of external technology partners)
- Exploitation (licensing, technology transfer)

These activities are designed to generate new revenue opportunities, mainly through the licensing of Intellectual Property Rights (IPR) and resultant royalties. Ventures also manages a portfolio of existing start-ups / investments, seeking value through equity share.

Ventures' is made up of a small team skilled in licensing, technology, commercial, finance and project management.

Ventures' success as an organisation will be gained through:

- Establishment of entrepreneurial new ventures evolving from early-stage ideas to independent businesses, or licensing of BAE Systems IPR in return for an income stream or a passive equity stake, targeted at achieving optimum returns. Management of a portfolio of investments with a view to maximising the return by following a structured plan through to exit.
- Development and implementation of processes to generate, capture and assess ideas identified by BAE Systems employees for profitable commercial exploitation.
- Devising a system to allow BAE Systems Business Groups and the relevant employees to share in the success of any profitable venture.
- Development, communication and implementation of a staged process of venturing, to include decision making processes and definition of the roles and responsibilities of stakeholders.

BAE SYSTEMS Capital

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Business:

BAE Systems Capital provides innovative financing solutions to support the Group's business. Its aim is to be the leading provider of financial services in BAE Systems core markets.

The way in which our customers acquire equipment and services is constantly evolving. To ensure BAE Systems continues to be a global leader, able to service customers' changing requirements, BAE Systems Capital has developed sophisticated financial products to support its core business.

As customers seek to broaden their procurement options, and begin to acquire defence assets through long-term capability-based contracts, innovative financing will become an increasingly important requirement.

In the UK we have witnessed the growth of capability procurement through initiatives such as Public Private Partnership (PPP) and Private Finance Initiative (PFI). Increasingly BAE Systems will be partnering with its customers in the defence sector to provide access to private sector financing. This opens up new opportunities for the financial community to work together with BAE Systems Capital.

BAE Systems Capital is backed by the full resources of BAE Systems, providing it with an excellent global presence and market position. These allow it to act as a highly credible originator and manager of financing transactions for its customers.

BAE Systems Capital is the provider of financial solutions and support to the BAE Systems Group. It is also the natural partner of any business unit requiring financial advice or seeking to provide a financial solution to a customer's procurement requirement.

Please contact BAE Systems Capital to find out what we could do to assist your business in developing new procurement models for your products.

Awards to Industry

Date	Division	Award
1967	Ferranti Defence Systems Ltd and Ferranti	Technical Innovation for Lightweight Inertial Platform and numerically controlled machine tools
1969	The Marconi Co Ltd	Export Achievements
1971	Marconi Instruments Ltd	Technological Achievement for innovation in radio-frequency power meters
1972	Ferranti Industrial Electronics Ltd	Technical Innovation for Automatic Draughting Equipment
1972	The Marconi International Marine Co Ltd	Export Achievement
1975	Marconi-Elliott Avionic Systems Ltd	Technological Achievement for innovation in a navigation and weapon aiming system for aircraft
1976	Hawker Siddeley Aviation	Technological Achievement for the design and development of the Airbus A300 wing
1976	Marconi Communications Systems Ltd	Technological Achievement for the B3404 integrated telecine unit
1977	British Aerospace, Military Aircraft Division	Export Achievement
1977	The Marconi International Marine Co Ltd	Export Achievement
1977	Marconi Instruments Ltd	Export Achievement
1977	Marconi Instruments Ltd	Technological Achievement for digital storage VHF spectrum analyser
1977	Marconi Space & Defence Systems Ltd	Technological Achievement for radar for missile guidance
1978	Royal Ordnance	Export Achievement
1978	Marconi-Elliott Avionic Systems Ltd	Export Achievement for avionic systems for aircraft
1979	British Aerospace, Dynamics Division	Export Achievement
1979	Marconi Space & Defence Systems Ltd	Export Achievement
1980	Marconi Radar Systems Ltd	Export Achievement
1981	Marconi Communications Systems Ltd	Technological Achievement for the HF fast-tuning radio communication equipment with digital remote control
1982	British Aerospace, Military Aircraft Division	Export Achievement
1982	British Aerospace, Woodford	Export Achievement for sales of the BAe 748
1982	Ferranti Industrial Electronics Ltd	Technological Achievement and Export Achievement, for Combined Map and Electronic Display (COMED)
1983	British Aerospace, Military Aircraft Division	Export Achievement
1983	Marconi Avionics Ltd	Export Achievement

1983	Marconi Avionics Ltd	Technological Achievement for airborne systems for processing underwater acoustics data
1984	British Aerospace	Technological Achievement for the Dynamics Division Sea Skua Missile
1984	British Aerospace, Dynamics Division	Export Achievement
1984	Royal Ordnance	Export Achievement
1984	Marconi Space & Defence Systems Ltd	Export Achievement
1985	British Aerospace, Commercial Aircraft Division	Technological Achievement for the BAe 146 passenger aircraft
1985	British Aerospace, Commercial Aircraft Division	Export Achievement
1985	Marconi Command & Control Systems Ltd	Export Achievement
1986	British Aerospace, Space & Communications Division	Technological Achievement for the Giotto spacecraft
1986	British Aerospace, Dynamics Division	Export Achievement for guided weapons systems
1986	British Aerospace, Civil Aircraft Division	Export Achievement for civil aircraft
1986	British Aerospace, Civil Aircraft Division	Export Achievement for civil aircraft and military training aircraft
1986	Marconi Radar Systems Ltd	Technological Achievement for Martello transportable long range surveillance radar systems
1987	British Aerospace, Civil Aircraft Division	Export Achievement for the BAe 146 civil aircraft and spares
1987	British Aerospace, Civil Aircraft Division	Export Achievement for the BAe Jetstream 31 civil aircraft and spares
1987	Marconi Instruments Ltd	Export Achievement for electronic measuring instruments
1988	British Aerospace, Commercial Aircraft Division & Royal Aircraft Establishment	Technological Achievement joint award for the development of wings for the Airbus A320 Airliner
1988	British Aerospace, Civil Aircraft Division	Export Achievement for the BAe 146 civil aircraft and spares
1989	British Aerospace plc	Export Achievement for civil and military aircraft, weapons, electronic, space and communications systems
1989	Marconi Instruments Ltd	Technological Achievement for a computer controlled test set (2955 series) for testing radio transmitters and receivers
1991	British Aerospace, Military Aircraft Division	Export Achievement for military aircraft, associated equipment and systems
1991	GEC-Marconi Technological Communications Ltd	Achievement for the Scimitar H high frequency combat radio

1992	British Aerospace, Commercial Aircraft Division	Export Achievement for the sales of commercial aircraft and spares: wings for the Airbus
1992	Marconi Electronics Ltd	Technological Achievement for the integrated microwave receiver for satellite television
1994	British Aerospace, Airbus	Technological Achievement for the design of the common Airbus 330/A340 wing
1994	Matra Marconi Space (Portsmouth)	Export Achievement for technical excellence in NATO IV, EUTELSAT II, HISPASAT, KOREASAT, INMARSAT 3 and SCOT
1995	British Aerospace, Military Aircraft	Export Achievement for the sales of military aircraft and equipment
1995	IFR Ltd (Marconi)	Technological Achievement for RF frequency synthesis using fractional-N techniques
1995	Spectrum Technologies plc	Export Achievement
1997	Avro International Aerospace (now BAE Systems, Aircraft Services Group)	Export Achievement
1999	British Aerospace, Airbus	Export Achievement for Airbus airliner wing design and manufacture
2000	Matra BAe Dynamics (UK) Ltd	International Trade
2000	Spectrum Technologies plc	Queens Award for International Trade
2001	AMS Radar Systems	Winner - East of England Excellence Award Best Process Category Winner - UK Business Excellence Awards
2001	AMS Operations UK	AT Kearney Global Excellence in Operations Award UK Best Electronics & Electrical Factory Award
2001	AMS UK (various divisions)	EFQM Excellence in Europe Award – Special Recognition
2001	BAE Systems, North America, Controls	Controls received Boeing's prestigious Silver Eagle Award for outstanding performance on the C-17 Systems Controllers and Cockpit Indicators contract. The award recognised the successful transition for SCCI Production from another supplier on a compressed schedule to meet aircraft delivery requirements
2001	BAE Systems, North America, Information Systems	Large Business of the Year 10 Leader Award
2001	BAE Systems, North America, Information Systems	Finalist – Best Workplace in San Diego
2001	BAE Systems, North America, Information Systems	Special award for achievement – Best small business program initiative – Woman owned business performance category from the San Diego Supplier Development Council
2001	BAE Systems, North America, Information Systems	Special award for achievement – Exemplary benefits from a small business program from the San Diego Supplier Development Council.

2001	BAE Systems, North America, Information Systems	Award of Appreciation for our CPR/AED Training Program – American Red Cross
2001	BAE Systems, North America, Information Systems	Excellence Award for Outstanding Energy Management from San Diego Gas and Electric 129
2001	BAE Systems, North America, Information Systems	Certification ISO 9001 – Passed 3 year reassessment with zero non-compliances at San Diego and Columbus Operations
2001	BAE Systems, North America, Information Systems	Kenneth G. Gardels Award (annual) – To ArlissWhiteside from the Open GIS Consortium Inc
2001	BAE Systems, North America, Information and Electronic Systems Integration	IEWS received the Department of Defense's "Freedom Award" for its commitment to support its employees who also serve in US National Guard or Reserve components
2001	BAE Systems, North America, Information and Electronic Systems Integration	IEWS Software Engineering is assessed Level 4 of the Software Capability Maturity Model, joining just 5% of US companies at that level
2001	BAE Systems, North America, Information and Electronic Systems Integration	IEWS received the "Pro Patria" award for outstanding support of military reserve service from the employer support of the US National Guard and Reserve
2001	BAE Systems, North America, Information and Electronic Systems Integration	Advanced Systems business unit earned Platinum Certification for its employee involvement program, QUEST, at three locations: Greenlawn, NY; Braintree, MA; and Lansdale, PA. Certification is earned from the Center for Suggestion System Development. BAE Systems Advanced Systems is the first and only company so far to have earned Platinum Certification at multiple locations for its employee involvement program
2001	BAE Systems, North America, Technological Services	BAE Systems Technical Services received the Military Traffic Management Command (MTMC) Quality Award for outstanding service to the Department of Defense
2002	Avionics	Queens Award for Enterprise for continuous innovation and development in the field of Helmet Mounted Display technology
2002	C4ISR Land Platform Comm.	Queens Award for Enterprise in International Trade
2002	Sea Systems Export Warships	Queens Award for Enterprise in International Trade
2002	BAE Systems, Technical Services (North America)	BAE Systems has received the Military Traffic Management Command's (MTMC) Quality Award for 2001
2002	BAE Systems Export Warships	Queens Award for Enterprise in International Trade

2002	BAE Systems North America	BAE Systems Ordnance Systems receives Manufacturing excellence Award
2002	BAE Systems Controls (North America)	BAE Systems receives Environmental Protection Agency (EPA) award for HybriDrive™
2002	AMS Operations UK	Winner – Industry Week ‘European Best Plant’ Awards Manufacturing Excellence Awards – double finalist (voted 3rd best manufacturer in UK) ‘Green Apple’ national award for environmental practices
2002	AMS Operations Italy	Winner – International Best Factory Awards (continuous improvement category)
2002	AMS Customer Support UK	National Sales Awards Finalists – Customer Care Team of the Year
2002	AMS Radar Systems	Finalist – UK Business Excellence Awards (best overall company)
2003	AMS	Winner – Eastern Region Award for Health & Safety – Health & Safety Executive
2003	AMS Operations	Scottish health at Work (SHAW) Gold Award
2003	AMS Operations (north)	Winner – UK Business Excellence Awards (large commercial category)
2003	AMS Operations (south)	Finalist – UK Business Excellence Awards (large commercial category)
2003	Aerostructures	First silver FEED (Excellence In Equality and Diversity) award in Europe .
2003	Avionics	Became the only European Defence company with multi-site accreditation at Software Capability Maturity Model Level 5, the highest achievable
2003	Avionics	Won the Professional Engineering award for People Effectiveness in the finals of the Institution of Mechanical Engineers’ (IMechE) Manufacturing Excellence (MX) Awards
2003	Information & Electronic Warfare Systems	IEWS Receives Corporate Medical Award
2003	BAE Systems plc	BAE Systems receives military management quality award for 2002
2003	Avionics	BAE Systems Avionics achieves software excellence standard of cmm level 5
2004	BAE Systems – North America	Achieves world-class systems/software rating
2004	BAE Systems – Australia	Prestigious award for Nulka designer
2004	BAE Systems – BAeHAL	Achieves world-class systems/software rating

COMPANY EVOLUTION

April 1977	British Aerospace (BAe) formed as a nationalised corporation by the merger of British Aircraft Corporation, Hawker Siddeley Aviation, Hawker Siddeley Dynamics and Scottish Aviation.
January 1981	British Aerospace formed as a public limited company (PLC), acquiring the assets and business of the nationalised corporation.
February 1981	UK Government sold 51.57% of its shares to public. Foreign shareholding initially limited to 15%. (Later raised to 29.5%).
May 1982	Sperry Gyroscope acquired (£42 million).
November 1983	Sowerby Research Centre established at Filton, Bristol as BAe's scientific research organisation.
May 1985	UK Government sold its remaining BAe shares but kept special £1 share to ensure Company continues under UK control.
April 1987	Royal Ordnance plc acquired (£190 million).
August 1987	Steinheil Optronik GmbH acquired (£17 million).
December 1987	Ballast Nedam Group acquired (£47 million).
During 1987	BAe invested in Reflectone Inc, current holding 52.7%; and System Designers plc (24%), renamed SD-Scicon plc.
August 1988	The Rover Group plc acquired (£150 million), renamed Rover Group Holdings plc.
November 1988	Steinheil Optronik acquired 30% interest in Competence Center Informatik GmbH.
January 1989	British Aerospace plc became HQ management organisation controlling wholly-owned subsidiaries, each marketing its own specialised products under its own name.
March 1989	National Remote Sensing Centre Ltd formed to integrate and commercialise the operations of the National Remote Sensing Centre and the Earth Observation Data Centre.
August 1989	Limit on foreign shareholding raised to 29.5% Arlington Securities Plc acquired (£278 million).
December 1989	Marconi Space Systems (Portsmouth) and Matra Espace (Velizy/Toulouse, France) merged to form Matra Marconi Space, Europe's first multi-national space company, owned 51% by Lagardere (France) and 49% by GEC (UK)
January 1990	Spectrum Technologies Ltd formed by BAe Starbird Satellite Services Ltd established as a partnership with Worldwide Television News.
March 1990	Bishopsgate Systems Ltd acquired for £6 million.
April 1990	Microtel Communications Ltd formed.
	Honda acquired 20% interest in Rover Group Ltd in exchange for 20% reciprocal holding by Rover in Honda of the UK Manufacturing Limited.
May 1990	Ballast Nedam Construction formed and acquired major parts of the business of Rush and Tompkins.
	British Aerospace (Liverpool Airport) Ltd formed and acquired 76% shareholding in Liverpool Airport plc.
	49% interest acquired in Kelsey Instruments Ltd.
	51% shareholding acquired in Satellite Management International Ltd.
July 1990	Nanoquest Defence Products Ltd formed and acquired the Nanoquest Products Division of Bio-Rad Laboratories, USA.
December 1990	British Aerospace-Ansett Flying College Pty Ltd formed as a joint venture to establish a pilot training service in Australia.
January 1991	British Aerospace Systems and Equipment Limited established as a separate trading company.
March 1991	Heckler & Koch GmbH, the German small arms, machine tool and general engineering company, acquired.
May 1991	London Business Aviation Limited formed.
June 1991	Euroflag srl formed in Rome as a European joint venture company to design, develop and build a new medium lift military transport aircraft.
July 1991	Shareholding in SD-Scicon plc sold.
	30% interest acquired in Hutchison Telecommunications (UK) Ltd in exchange for BAe's wholly-owned subsidiary Microtel Communications Ltd.
August 1991	BAeSEMA Ltd formed as a joint venture company with the SEMA Group.
	Muiden Chemie, a Dutch ammunition propellant manufacturer, acquired by Royal Ordnance.

January 1992	British Aerospace Defence Limited began trading as a wholly-owned subsidiary of BAE on 1st January 1992. The three previously separate defence companies – British Aerospace (Military Aircraft) Ltd, British Aerospace (Dynamics) Ltd and Royal Ordnance plc, plus Systems and Services Division now operate as divisions of British Aerospace Defence Ltd.
February 1992	Three new wholly-owned companies, formed to replace British Aerospace (Commercial Aircraft) Ltd; British Aerospace Airbus Limited, British Aerospace Regional Aircraft Limited and British Aerospace Corporate Jets Limited.
April 1992	British Manufacture & Research Limited (BMARC), producer of medium-calibre guns and ammunition, acquired. Aerostructures Hamble Limited, a wholly-owned subsidiary, sold.
May 1992	British Aerospace Corporate Jets Limited renamed Corporate Jets Limited.
June 1992	The businesses of Bishopsgate Systems Ltd, Satellite Management International Ltd and Starbird Satellite Services Ltd consolidated into British Aerospace Communications Ltd. British Aerospace Communications Ltd to trade as a company separate from British Aerospace Space Systems Ltd.
September 1992	British Aerospace and the Taiwan Aerospace Corporation signed a Memorandum of Understanding (MoU) to form a 50/50 joint venture to produce Avro RJ Regional Jets.
October 1992	Assembly of the ATP aircraft transferred to Prestwick, Scotland and became part of the Jetstream family of regional turboprop aircraft. Jetstream Aircraft Limited formed.
November 1992	A major restructuring of the communications business took place to reduce British Aerospace's involvement and halt its investment in a non-core business. British Aerospace Communications Limited ceased trading.
January 1993	Aviation Services formed as a Third Party Maintenance Organisation for civil Airbus A300/A310 aircraft
April 1993	Shareholding in Kelsey Instruments Ltd sold.
June 1993	Sale agreed of British Aerospace Corporate Jets Ltd, and Arkansas Aerospace Inc to Raytheon Company.
July 1993	Legal structure changed with the formation of British Aerospace (Operations) Ltd, British Aerospace (Dynamics) Ltd and Jetstream Holdings Ltd.
August 1993	British Aerospace plc finalises a £1.5 billion five-year revolving credit facility to refinance its existing bank lines and extend its debt maturity profile.
October 1993	British Aerospace (Dynamics) and GEC-Marconi form a joint venture company, UKAMS Limited, to manage and develop their involvement in the naval Principal Anti-Air Missile System (PAAMS) guided weapons project.
December 1993	Sale agreed of Ballast Nedam BV to a consortium of Hochtief AG, Internationale Nederlanden Group and the Ballast Nedam Pension Fund.
March 1994	Sale agreed of Rover Group to BMW AG. British Aerospace signs agreement with CSC for the provision of IT services. Sale agreed of 80% of Spectrum Technologies Limited. British Aerospace plc retains 20%.
June 1994	British Aerospace changes funding of 30% shareholding in Hutchison Telecommunications (UK) Ltd by way of a £250 million interest bearing credit to Hutchison Telecom.
July 1994	British Aerospace property management reorganised with the formation of BAE Properties Ltd. Sale agreed of British Aerospace (Space Systems) Ltd to Matra Marconi Space for £56million. British Aerospace (Dynamics) and Constructions Mecaniques de Normandie (CMN) sign an agreement covering the integration and marketing of BAE guided weapons on the CMN range of naval vessels.
December 1994	Airbus Finance Company (AFC) begins trading following the launch of a US\$1.5 billion revolving credit facility transaction.
January 1995	Subsidiary, Nanoquest Defence Products Limited becomes part of British Aerospace Systems and Equipment Limited. Farnborough Supercomputing Centre, a collaborative venture by the Defence Research Agency, British Aerospace plc, GEC Marconi Ltd and Cray Research (UK) Ltd, is opened. Proposed joint venture in Regional Aircraft with Aerospatiale and Alenia is announced. GEC acquires VSEL.

March 1995	Portfolio of retail, commercial and leisure properties sold for £107m.
June 1995	British Aerospace and Saab Military Aircraft sign joint marketing and production agreement to offer Gripen 4th generation fighter in export markets.
August 1995	British Aerospace announces the sale of its 50% shareholding in The Burwood House Group plc to ASDA Group plc.
December 1995	British Aerospace Defence Ltd and Dassault Aviation sign a Memorandum of Agreement for the establishment of a joint venture company in the field of military aircraft technology.
January 1996	The Regional Aircraft joint venture, Aero International (Regional), begins operations. British Aerospace forms new Asset Management Division incorporating AMO and JSX.
April 1996	British Aerospace plc announces the acquisition of AWADI, an Australian defence company, for A\$50 million.
May 1996	British Aerospace and Lagardere agree terms for the formation of a missiles joint venture.
June 1996	AMO and JSX renamed Asset Management-Jets (AMJ) and Asset Management-Turboprops (AMT) respectively, operating organisations of British Aerospace Asset Management. British Aerospace opens new subsidiary company, British Aerospace Deutschland GmbH, in Bonn.
August 1996	British Aerospace plc announces it has signed an agreement with Lagardere Groupe SCA to form a joint venture in guided weapons, guided weapon systems and related activities. Joint venture to be called Matra BAe Dynamics. British Aerospace Australia acquires remaining 50% of the Australian Air Academy, its business activities will be co-ordinated with those of British Aerospace Flying College British Aerospace Flying College and Australian Air Academy renamed British Aerospace Flight Training (UK) Ltd and British Aerospace Flight Training (Australia) Pty Ltd respectively.
September 1996	Royal Ordnance and Oerlikon-Contraves AG Defence sign a collaborative agreement to develop, market and jointly manufacture the 35mm Millennium Inner Layer Ship Defence System. British Aerospace Australia acquires the Shorts (Northern Ireland) armoured vehicle business.
January 1997	Partners of Airbus Industrie sign an MoU to restructure Airbus Industrie into a limited liability company, a single corporate entity (SCE).
March 1997	British Aerospace Royal Ordnance, GIAT Industries (France) and Rheinmetall (Germany) set up a joint venture company, RGR Armament GmbH, to develop tank main armament.
April 1997	British Aerospace and Lockheed Martin Corporation form an international team (SIKA) to compete to develop the solution for Tactical Reconnaissance Armoured Combat Equipment Requirement/Future Scout Cavalry System (TRACER/FSCS); the team includes Vickers and General Dynamics Land Systems.
May 1997	Reflectone Inc, which designs, manufactures and sells flight simulators and systems, becomes a wholly-owned subsidiary of British Aerospace plc. British Aerospace Training Systems invests in the newly formed Oasis International Leasing Company. British Aerospace announces it is to end production of Jetstream 41 turboprop aircraft.
June 1997	British Aerospace joins Lockheed Martin's Joint Strike Fighter (JSF) team.
July 1997	British Aerospace acquires 49% of STN Atlas Elektronik GmbH, the German based systems integration business, for approximately £90 million.
July 1997	Aviation Services re-delivers its first A300B4 passenger-to-freighter conversion.
October 1997	Matra BAe Dynamics agrees acquisition of a 30% interest in German guided weapons business LFK, a subsidiary of Daimler Benz Aerospace. British Aerospace signs agreement to acquire Siemens Plessey Systems (UK) and Siemens Plessey Electronics Systems (Australia) for approximately £319 million subsequent to regulatory approval.
November 1997	British Aerospace forms new business unit 'British Aerospace Defence Systems' from 50% shareholding in BAeSEMA, 49% shareholding in STN Atlas and other company defence systems activities, including Siemens Plessey Systems subject to completion.

- December 1997** British Aerospace sign a Co-operation Agreement with Kazanah Nasional Berhad of Malaysia to develop Malaysia's capability in design and manufacture of aerospace products.
- 1998** GEC acquires TRACOR.
Alenia Marconi Systems, the Joint Venture established between GEC and Finmeccanica, begins operations.
- March 1998** British Aerospace disposes of its 26.1% interest in Orion Network Systems Inc for \$143 million in cash.
British Aerospace reduces its shareholding in Orange plc with the disposal of shares representing 16.11% in Orange plc for £763.8 million. British Aerospace retains a 5% interest in Orange.
- April 1998** British Aerospace completes the acquisition of Siemens Plessey Systems (SPS) from Siemens AG following regulatory approval. SPS renamed British Aerospace Defence Systems Limited.
Aero International (Regional) partners – British Aerospace, Aerospatiale and Alenia – agree on company dissolution.
British Aerospace agrees the acquisition of a 35% interest in Saab AB, the Swedish aerospace and defence company, for £269 million subject to regulatory approvals.
British Aerospace founds its Virtual University. The Virtual University will link education, training and development for the British Aerospace workforce with the acquisition of new technologies and strategic research.
Foreign shareholding limit raised to 49.5% with a new limit of 15% on the number of Ordinary Shares that any single foreign owner may hold.
- June 1998** British Aerospace plc finalises a £750m revolving credit facility to refinance its existing facility and fund corporate projects.
- July 1998** UKAMS becomes a wholly-owned subsidiary of Matra Bae Dynamics.
- September 1998** British Aerospace and Rolls Royce jointly invest £1.5million in partnership agreement with the Universities of Cambridge, Sheffield and Southampton to research into future engineering design processes.
British Aerospace agrees the acquisition of the remaining 50% shareholding in BAeSEMA from SEMA Group for £77m – including the 51% shareholding that SEMA holds in Paradigm – subject to regulatory approval.
British Aerospace and Dassault Aviation SA forms European Aerosystems Ltd based on the joint venture previously announced in December 1995.
- October 1998** British Aerospace announces sale of Arlington Securities, its property development subsidiary, to a consortium led by PRICOA Property Investment Management for £285m.
British Aerospace subsidiary Royal Ordnance sells its liquid engines business to Atlantic Research Corporation, USA.
- November 1998** British Aerospace completes its £77m purchase of the remaining 50% share of BAeSEMA.
- January 1999** British Aerospace and GEC agree to create a global aerospace and defence company merging British Aerospace with GEC's Marconi Electronic Systems business.
BAeSEMA and Defence Systems Limited merge to create Land and Sea Systems, part of the Defence Systems Group.
- February 1999** British Aerospace combines its Construction Management and Ground Systems teams with Consultancy Services to form British Aerospace Aviation and Construction Consultancy.
- May 1999** British Aerospace and Sumitomo Precision Products form joint venture company, Silicon Sensing Systems, to exploit silicon motion sensing technology.
- June 1999** British Aerospace launches a seven year bond exchangeable for the company's remaining 5% stake in Orange plc.
- October 1999** British Aerospace Aviation Services signs global teaming agreement with AVBORNE Heavy Maintenance Inc, USA to co-operate in the maintenance support of A300B4 Freighters for operators in North America.
British Aerospace and Finmeccanica sign Heads of Agreement to expand AMS to include British Aerospace's activities in surface-based radar, land and naval systems.
British Aerospace, Finmeccanica and Aerospatiale Matra sign Heads of Agreement to establish a JV to include Matra Bae Dynamics, Aerospatiale Matra Missiles and the missiles systems division of AMS.

- November 1999** New BAE, the amalgamation of British Aerospace and Marconi Electronic Systems, is launched. The company will be called BAE Systems.
- December 1999** BAE Systems announces the acquisition of Govan shipyard on the Clyde in Scotland, from Kvaerner. The agreement establishes Clydeport plc as landlords of the site with BAE Systems leasing the land and the buildings for 20 years.
BAE Systems Regional Aircraft expanded to include the previous Asset Management organisation.
- January 2000** BAE Systems North America acquires Watkins-Johnson Telecommunications Group. Regional Aircraft announces new Web-based maintenance and reliability system.
- February 2000** BAE Systems North America acquires Femtometrics.
BAE Systems North America sells its Marconi Actuation Systems Inc subsidiary to Smiths Industries Aerospace for the price of \$100 million.
In compliance with the British Aerospace/Marconi Electronic Systems merger undertakings regarding restriction of the continuing use of the Marconi name and creation of separate shipbuilding subsidiary Marconi Marine (VSEL) Limited, Barrow and Marconi Marine (YSL) Limited, Scotstoun were renamed BAE Systems Marine Limited and BAE Systems Marine (YSL) Limited, respectively.
- March 2000** Regional Aircraft launches Avro RJX programme.
- April 2000** Industrial and Financial Systems AB (IFS) and BAE Systems announce their intention to form a joint venture software and solutions company.
- May 2000** Regional Aircraft launches Jetstream 41 MACRO (Material And Component Repair and Overhaul) programme.
Matra Marconi Space merges with the space division of DaimlerChrysler Aerospace to become Astrium, Europe's leading space company, owned ultimately 75% by EADS and 25% by BAE Systems.
- June 2000** BAE Systems in conjunction with its Airbus partners, announces the formation of a new Airbus Integrated Company (AIC).
In compliance with undertakings to the Office of Fair Trading (OFT), the assets of BAE Systems Marine (YSL) Limited were transferred to BAE Systems Marine Limited which remains part of BAE Systems but with special trading status. BAE Systems Marine Limited is now a separate, wholly-owned subsidiary of BAE Systems. It comprises Marine's shipyard activities at Barrow, Scotstoun and Govan, trading with its own resources and separate profit and loss accounts and with the ability to supply to parent company or alternative prime contractors on a fair and equitable basis.
Regional Aircraft and West Air Sweden launch ATP Freighter programme.
- July 2000** Regional Aircraft launches new Trading and Services Business.
Aviation Services launches the Total Maintenance Support Solutions (TMSS™) service for Airbus operators.
- September 2000** BAE Systems North America acquires Lockheed Martin Control Systems
Regional Aircraft starts final assembly of the first Nimrod MRA4 aircraft.
- November 2000** BAE Systems acquires Lockheed Martin Aerospace Electronic Systems (AES).
- December 2000** Regional Aircraft awarded contract to provide support for an Atmospheric Research Aircraft to 2012.
Creation of Aircraft Services Group by the merger of Aviation Services and Regional Aircraft.
- April 2001** BAE Systems, EADS and Finmeccanica announce they have signed an agreement to form a joint venture in missile systems. Joint venture to be called MBDA.
First flight of Avro RJX Regional Jet on 28th April 2001.
BAE Systems sells BAE Systems Canada Inc. to ONCAP.
BAE Systems sells Flight Simulation and Training Inc. to CAE Canada.
- May 2001** BAE Systems and Xchanging Ltd form together.
- July 2001** New Airbus integrated company formed called Airbus SAS. BAE Systems holds 20%.
- September 2001** AMS acquires Airport Systems International inc and Gematronik GmbH.
- December 2001** MBDA SAS created through the merger of Matra Bae Dynamics, Aerospacible Matra Missile and the guided weapons business of AMS on 18th December. BAE Systems holds 37.5%.
New AMS joint venture created through the merger of existing AMS joint venture with the Combat and Radar Systems business on 18th December 2001. The new business is equally owned by Finmeccanica and BAE Systems.
- March 2002** BAE Systems sells Jetstream 31 to Highland Airways.

- April 2002** BAE Systems North America completes the sale of its Camouflage, Concealment and Deception (CCD) business, located at Lillington, North Carolina.
- May 2002** BAE Systems Regional Aircraft and MESABA Airlines launch joint maintenance facility, located in Cincinnati, Ohio.
BAE Systems and de Havilland Support Ltd (DHSL) sign a Heads of Agreement to transfer technical responsibility for the Scottish Aviation Bulldog aircraft, from BAE Systems Regional Aircraft to DHSL.
- July 2002** BAE Systems extends its partnership with McLaren for five years.
BAE Systems and Segway LLC form a partnership to market the Segway™ Human Transporter (HT) in the UK.
BAE Systems and Boeing sign missile defence memorandum of understanding.
BAE Systems and EADS form joint venture company, Paradigm Secure Communications Limited.
- August 2002** BAE Systems North America complete the sale of expendable defensive countermeasures business, located in Lillington, N.C., and East Camden, Ark. The negotiated \$67.5 million cash sale to Esterline Technologies was originally announced July 15. Closing of the sale followed completion of regulatory reviews and approvals.
- September 2002** Transfer of technical responsibility for all Scottish Aviation Bulldog aircraft from BAE Systems Regional Aircraft at Prestwick to de Havilland Support Ltd (DHSL).
BAE Systems and VT Group acquire Johnson Controls Limited's 26 per cent share of Flagship Training Limited (Flagship). Both companies had previously held a 37 per cent share in Flagship but this agreement now provides for 50/50 joint ownership.
- October 2002** BAE Systems signs historic co-operation agreement with VT and Babcock for the Future Aircraft Carriers.
- November 2002** BAE Systems North America completes the sale of its Advanced Systems' Gaithersburg operation to Integrated Defense Technologies, Inc. for \$146 million.
BAE Systems North America completes acquisition of Corbett Technologies, Inc., for \$15.
- December 2002** BAE Systems plc completes the sale of Heckler & Koch small arms business to Heckler & Koch Beteiligungs GmbH.
BAE Systems North America acquires Condor Pacific Industries Inc., for \$58.5 million.
- January 2003** BAE Systems and HISPANO-SUIZA create FADEC international, a joint venture to provide commercial aircraft engine controls.
The U.S. Navy award BAE Systems a \$298 million contract for continued support of the Navy's Aegis Combat System.
BAE Systems awarded a contract worth over £150 million from the UK MoD for the continuation of the Harrier GR9 sustainment and upgrade programme.
The UK MoD selects BAE Systems as UK Aircraft Carrier prime contractor.
- February 2003** BAE Systems North America today announced that it has reached a definitive agreement to purchase all of the stock of MEVATEC Corporation of Huntsville, Alabama for \$82 million.
BAE Systems C4ISR has entered discussions with Northrop Grumman to join the Northrop Grumman-led international team that was down-selected by the UK Defence Procurement Agency (DPA) to fulfil one of two Systems Integration Assurance Phase (SIAP) contracts for the next stage of the £800+ million WATCHKEEPER programme.
Regional Aircraft wins a five-year JetSpares contract with British Airways CitiExpress. The deal is expected to generate revenues in the region of £19 million over the five-year period.
BAE Systems North America has reached a definitive agreement with Advanced Power Technologies, Inc. (APTI), to purchase the corporation for \$27 million in cash.
BAE Systems announces agreement with the MoD to re-structure Nimrod and Astute contracts.
- March 2003** BAE Systems North America has completed acquisition of MEVATEC Corporation of Huntsville, Alabama, for \$82 million.
BAE Systems North America completes acquisition of Advanced Power Technologies, Inc for \$27 million.

April 2003	BAE Systems CS&S Operational Services acquires Piper Group.
May 2003	BAE Systems sells 27.5% (economic interest) in Astrium NV.
June 2003	Lockheed Martin and BAE Systems to partner on Missile Defence.
July 2003	BAE Systems and Finmeccanica move to establish a major European partnership.
August 2003	BAE Systems and Rheinmetall agree restructuring of STN Atlas joint venture. Atlas Elektronik GmbH acquires the Naval Systems and Production activities of the STN Atlas Joint Venture. BAE Systems agrees to purchase GKN's 29% stake in Alvis plc.
September 2003	BAE Systems sells interest in Aeronautical Technologies Company Limited Holding S.A. (Luxembourg) and Advanced Technologies and Engineering International Ltd (Hong Kong). BAE Systems completes purchase of GKN's 29% stake in Alvis plc.
November 2003	BAE Systems sells Flight Training (Europe), SL and BAE Systems Flight Training (Services), SL to an in-house management team. BAE Systems and Boeing sign Tanker MOU. BAE Systems completes sale of Acoustics systems facility to Ultra Electronics.
December 2003	The UK MoD and BAE Systems sign £82m Tornado contract. The UK MoD Awards £207m VC10 contract to BAE Systems.
January 2004	BAE Systems and Geotopo establish mentor-protégé relationship. The UK MoD awards BAE Systems £100m Harrier GR9 contract.
March 2004	BAE Systems Hawk trainer – India implementation MOU signed. BAE Systems and Finmeccanica achieve an important milestone in the Eurosystems transaction.
April 2004	BAE Systems to purchase STI government systems Atlas Elektronik GmbH acquires the business of Maridan ApS.

Abbreviations

AAR	Air-to-Air Refuelling
AEW&C	Airborne Early Warning & Control
AOG	Aircraft On the Ground
AJCN	Adaptive Joint C4ISR Node
ALARM	Air Launched Anti-Radiation Missile
AMRAAM	Advanced Medium Range Air-to-Air Missiles
ANSER	Autonomous Navigation and Sensing Experimental Research
APKWS	Advanced Precision Kill Weapons Systems
APS	Avionic Partnered Solutions
APU	Auxiliary Power Unit
ASF	AEW&C Support Facility
ARRC	Allied Rapid Reaction Corps
ASRAAM	Advanced Short Range Air-to-Air Missile
ASTA	Aircrew Synthetic Training Aids
ASUW	Anti-Surface Unit Warfare
ASW	Anti-Submarine Warfare
ATC	Advanced Technology Centre
ATIRCM	Advanced Threat Infra-Red Countermeasures
AUVSI	Association for Unmanned Vehicle Systems International
BME	Battlespace Management Evaluation
C4ISR	Command, Control, Communications, Computing Intelligence Surveillance & Reconnaissance
CAD	Computer Aided Design
CASE	Controlled Airspace Synthetic Environment
CAT	Corporate Air Travel
CDI	Communications & Defence Infrastructure
CEV	Combat Engineer Vehicle
CIT	Combined Interrogator/Transponder
C-MANPADS	Counter Man-Portable Air Defense Systems
CMDS	Counter Measures Dispensing System
CMWS	Common Missile Warning System
CNIR	Communications, Navigation, Identification and Reconnaissance
COBLU	Co-operative OUTBOARD Logistics Update
CORDA	Centre for Operational Research and Defence Analysis
COTS	Commercial Off-The-Shelf
CS&S	Customer Solutions & Support
CS&SP	Communication Systems & Special Projects
CSOC	Consolidated Space Operations Contract
CTA	Cased Telescope Ammunition
CTOL	Conventional Take-Off and Landing
CTWS	Cased Telescope Weapon System
CVR(T)	Combat Vehicle Reconnaissance (Tracked)
DAHA	Deployable ATM Hub Assembly
DASS	Defensive Aid Sub Systems
DEBRA	Divers Electronic Beach Reconnaissance Aid
DIRCM	Directional Infra-Red Countermeasures System
DLO	Defence Logistics Organisation
DPA	Defence Procurement Agency
DSLFI	Digital Subscriber Line Fibre Interface
DTR	Defence Training Review Team
DVI	Direct Voice Input
ECM	Electronic Counter Measures
ECCM	Electronic Counter-Counter Measures
EMI	Electro Magnetic Interference
EMP	Electromagnetic Pulse
EP	Enhanced Performance
ES	Equipment Support
ESM	Electronic Support Measures
ESSM	Evolved Sea Sparrow Missile

EW	Electronic Warfare
EWD	Electronic Warfare Division
FAA	Federal Aviation Administration
FADEC	Full Authority Digital Engine Control
FCS	Future Combat System
FDD	Flight Data Display
FLIR	Forward Looking Infra-Red
FOAS	Future Offensive Air Systems
FRES	Future Rapid Effect System
FSC	Future Surface Combatant
FSL	Fleet Support Limited
GIS	Geospatial Information Systems
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
HALO	Hostile Artillery Locating System
HIDAS	Helicopter Integrated Defensive Aids System
HMSS	Helmet Mounted Symbology System
HNBS	Harrier Night Bombing System
HOTAS	Hands-On-Throttle-And-Stick
HSD	Horizontal Situation Display
HSTF	Hawk Synthetic Training Facility
HUD	Head-Up Display
HUMS	Health and Usage Monitoring System
IASSF	Integrated Avionics Software Support Facility
IDECM	Integrated Defensive Electronic Countermeasures
IDS	Integrated Defense Solutions
IEP	Integrated Electric Propulsion
IEWS	Information & Electronic Warfare Systems
IFF	Identification Friend or Foe
IFPA	Indirect Fire Precision Attack
IIR	Imaging Infra-Red
ILFPS	Integrated Lift Fan Propulsion System
ILS	Integrated Logistics Support
IN/GPS	Inertial Navigation/Global Positioning System
IRCM	Infra-red Counter Measures
IS	Infrastructure Systems
ISD	Inertial Systems Division
ISIS	International Security Surveillance and Intelligence Systems
ISS	Information Systems Sector
ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
JCTS	Joint Casualty Treatment Ship
JISS	Joint Intelligence Support System
JSF	Joint Strike Fighter
JSSTD	Joint UK/US Surface Ship Torpedo Defence
JTIDS	Joint Tactical Information Distribution System
LIF	Lead-In Fighter
LINAPS	Laser Inertial Automatic Pointing System
LINS	Laser Inertial Navigation System
LIRCM	Laser Infra-red Counter Measures
LOBS	Liaison Officer's Briefcase System
LPD(A)	Landing Platform Dock (Auxiliary)
LSD	Landing Ship Dock
LSI	Lead Systems Integrator
LWR	Laser Warning Receiver
MANPADS	Man-Portable Air Defense Systems
MASC	Maritime Airborne Surveillance Capability
MASS	Military Air Solutions & Support
MAW	Missile Approach Warners
MC&G	Mapping, Charting & Geodesy
MDC	Missile Defence Centre
MEMS	Micro-machined Electro-mechanical Systems

MERS	MCM Evaluation and Range System
MFD	Multi-Function Display
MFTS	Military Flying Training System
MHDDs	Multi-Function Head Down Displays
MIDASS	Management in Domain-based Secure Systems
MIDS	Multiple Information Distribution System
MMICs	Monolithic Microwave Integrated Circuits
MPA	Maritime Patrol Aircraft
MSD	Multi-Sensor Display
MSI	Mission Systems Integration
MSDSL	Multi-rate Symmetric Digital Subscriber Line
MSS	Mission Support System
MWS	Missile Warning System
NCW	Network Centric Warfare
NEC	Network-Enabled Capability
NEMP	Nuclear Electromagnetic Pulse
NITEworks	Network, Integration, Test & Experimentation works
NRSC	National Remote Sensing Centre
NSR	North Sea Range
NSS	Networked Systems & Solutions
NVG	Night Vision Goggles
OBOGS	On Board Oxygen Generation System
OEMS	Original Equipment Manufacturers
OMS	Operational Mission Simulator
ONI	Office of Naval Intelligence
OPVs	Offshore Patrol Vessels
PAAMS	Principal Anti-Air Missile System
PAG	Product Assurance Group
PBH	Power By the Hour
RAAF	Royal Australian Airforce
RATE	Replacement Automatic Test Equipment
RTC	Ruggedised Transport Case
RWR	Radar Warning Receiver
SAAM	Surface-to-Air Anti-Missile
SAR	Search And Rescue
SCAD	Submarine Countermeasure Acoustic Device
SCP	Security Co-operation Participants
SDD	System Development and Demonstration
SDT	Saudi Development and Training
SEIC	Systems Engineering Innovation Centre
SETA	System Engineering and Technical Assistance
SIIDAS	Sensor Independent Integrated Defensive Aid System
SMS	Stores Management System
SSD	Sensor Systems Division
STOVL	Short Take-Off Vertical Landing
THAAD	Theater High Altitude Area Defense
TIALD	Thermal Imaging Airborne Laser Designator
TTRO	Tanking, Transport & Reconnaissance Operations
UAV	Unmanned Aerial Vehicles
UCAV	Unmanned Combat Air Vehicles
UGTS	Uncooled Gunners Thermal Sight
UMS	UAV Management System
USMC	US Marine Corps
UUV	Unmanned Undersea Vehicle
VEMS	Versatile Exercise Mine Systems
VGS	Visual Guidance System
VTAS	Voice Throttle And Stick
VU	Virtual University
WSO	Weapons Systems Operators
XHRS	Xchanging HR Services
XPS	Xchanging Procurement Services

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