



ASC

shipbuilding capability



NAVAL COMBATANT
CAPABILITY STATEMENT





Executive Summary

In terms of difficulty, one commentator recently described the Air Warfare Destroyer (AWD) project as 9 or 10 on a scale of 1 to 10. By comparison, that same commentator described the ANZAC frigate project as 3 to 4 and the Collins submarine project as 7 to 8.

There can be no doubt that the AWD project will test the ability of Australian industry to design and construct a complex naval ship. Submarines are generally considered more complex than ships, however it has been roundly recognised that the AWD project has some very complex features not found on submarines. Given this, ASC is the natural choice to be the lead contractor for future naval combatant projects, including the AWDs:

- ASC is home to Australia's **high-end skills** capability for complex naval ship systems with over 200 engineers and technical specialists;
- ASC has the **most experienced ship design and engineering team in Australia**, utilising the most modern technology;
- ASC's expertise in **integrating over 100 complex systems** on the Collins submarine is comparable in complexity to the requirements for the AWD project;
- ASC has, through the Collins submarine project, over 15 years experience as a **lead contractor** with responsibility for managing thousands of suppliers and sub-contractors in whole-of-ship integration;
- ASC's experience in **modular ship construction** incorporating complex naval ship systems is unparalleled in Australia;
- ASC has demonstrated experience in **developing and maintaining configuration management** and baseline control in a safety-critical environment for the Collins submarine fleet;
- ASC has developed an **Integrated Logistics Support (ILS)** system delivering real cost savings and efficiency gains through-life;
- ASC's Outer Harbor facility is Australia's **most modern shipbuilding facility**; and
- ASC has experience in **alliance contracting** in the context of its Through-Life Support (TLS) contract.

We are proud of our past because it places us in the best position to deal with the challenges of the future. Our experience demonstrates that ASC has the capability to undertake future naval combatant projects.




John Prescott AC
Chairman

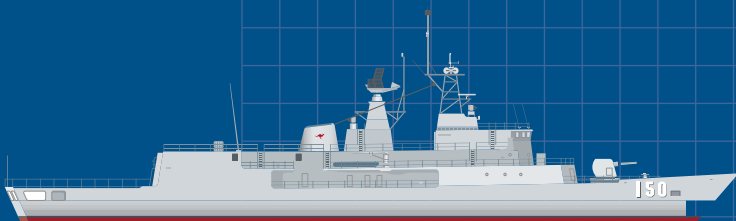



Greg Tunny
Managing Director

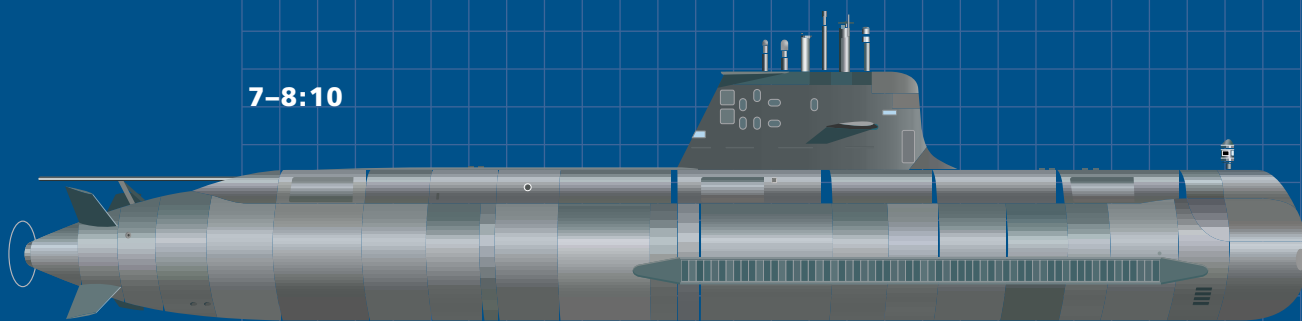
Complexity Comparisons

SCALE OF DIFFICULTY

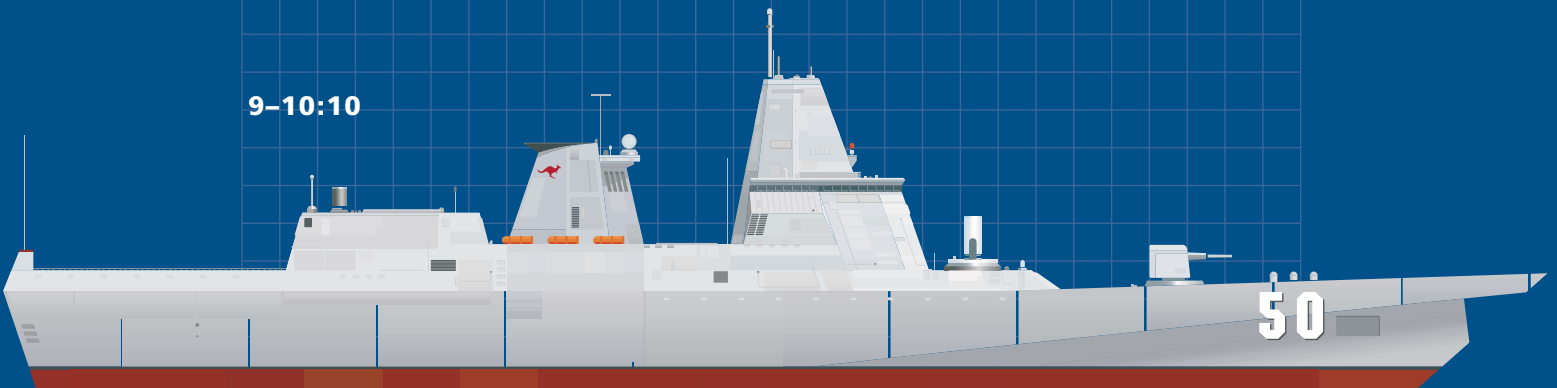
3-4:10



7-8:10



9-10:10



	FRIGATE*	COLLINS CLASS SUBMARINE	AIR WARFARE DESTROYER*
Mean displacement (tonnes)	3,600	3,400	6,000
Number of systems	60	108	120
Number of suppliers	600	1,600	1,500
Crew size	163	43	180
Patrol duration (hours)	340	1,700	430
Number of parts to assemble	170,000	500,000	600,000
Number of hours to assemble	1,200,000	2,500,000	3,800,000
Construction time (months)	22	60	42
Price (A\$million)	600	1,000	1,500

*represents indicative figures



ASC's People

ASC employs over 900 people including a team of over 200 engineering and technical specialists.

These staff, sourced both locally and from overseas, are trained in a broad range of engineering disciplines and represent Australia's high-end skills capability for complex naval ship systems. The team is able to draw on ASC's unparalleled experience in complex maritime defence projects in its work of developing design and design enhancements, and introducing new operational capabilities and continuous improvements in reliability. ASC's depth of project management expertise means that multiple complex engineering projects can be undertaken simultaneously.

ASC's knowledge and expertise has been, and continues to be, enhanced by direct involvement with key government organisations, universities, specialist technology providers and international capability partners.

ASC has established an international recruitment program to expand its engineering and technical specialists skills base.

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ASC EMPLOYS OVER 200 PROFESSIONAL ENGINEERING STAFF

Combat /communications /weapons engineers	17
Detail designers	31
Electrical/electronic engineers	11
Logistics engineers	8
Structural /materials /welding engineers	12
Mechanical engineers	41
Naval architects	6
Signature/acoustic engineers	2
Systems/software engineers	29
Project managers /engineers	7
Technical officers	46
Total	210

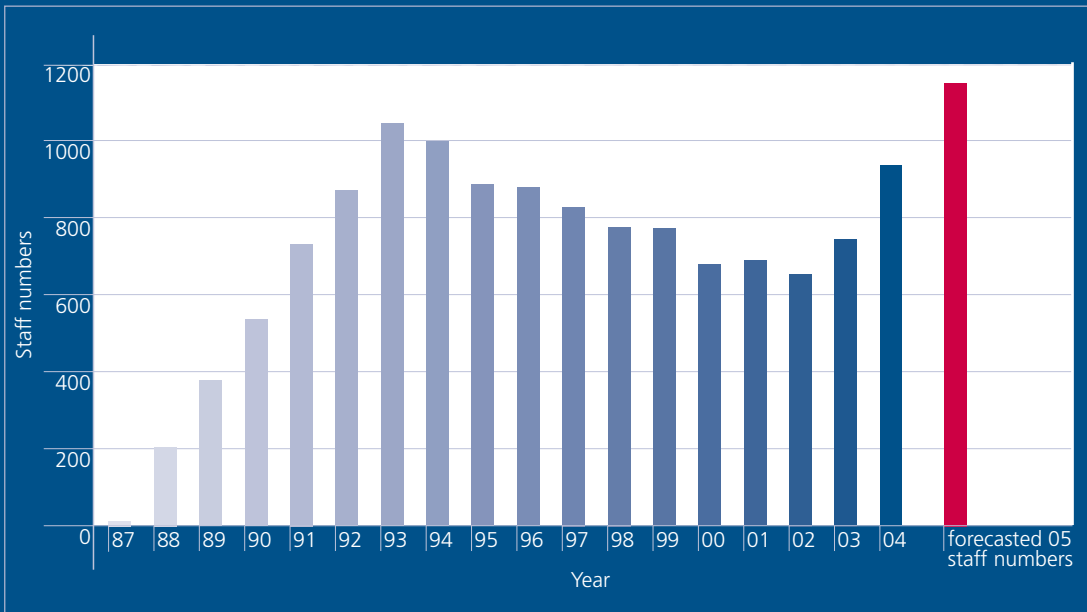


ASC has embarked on a program to increase its complement of Chartered Professional Engineers to over 70 by December 2004.

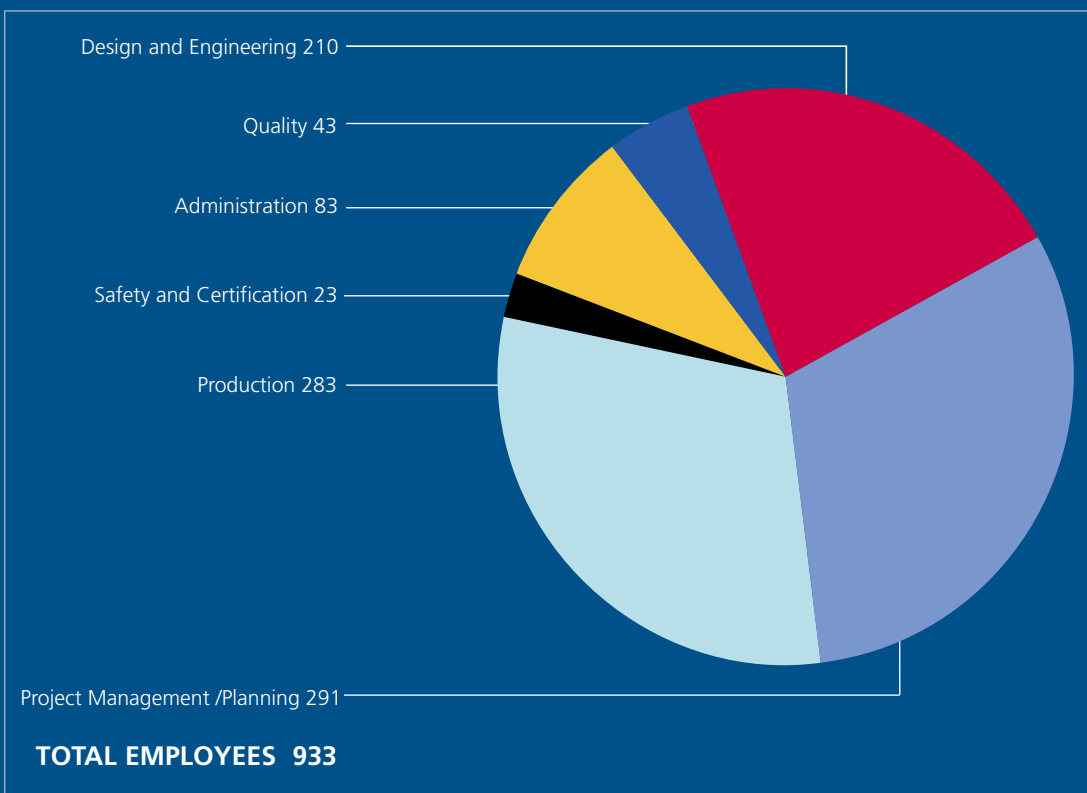




TOTAL NUMBER OF STAFF



STAFF DISBURSEMENT





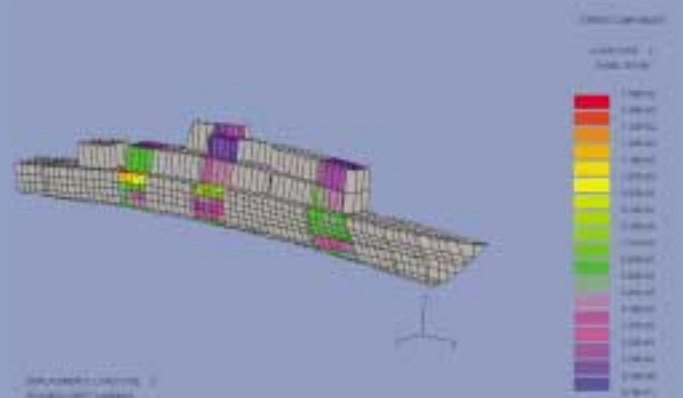
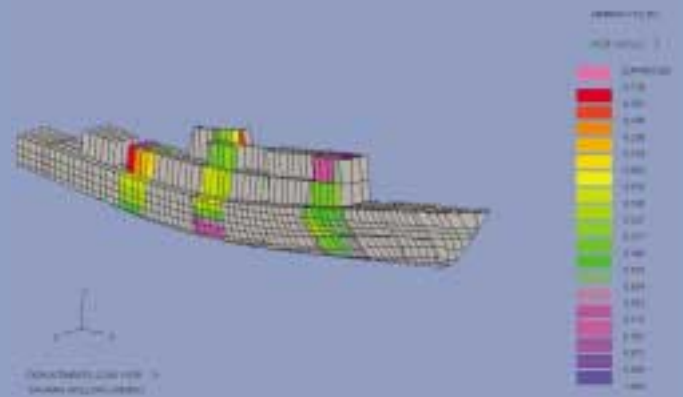
Ship Design

ASC has the range and depth of skills and the experience necessary to undertake complex ship design projects from project definition through to implementation and construction.

SKILLS

Key capabilities and skills include:

- Naval architecture
- Structural analysis
- Mechanical systems
- Electrical systems
- Control systems
- Communication systems
- Combat systems
- Weapons systems
- Software engineering and development
- Integrated logistics support
- Modelling and simulation
- Welding
- Materials engineering
- Fracture mechanics
- Shock analysis
- Composites
- Hydrodynamics
- Acoustics/noise
- Fluid dynamics
- Piping systems
- Electronics
- Systems engineering
- Configuration management
- Project management
- Subcontractor management
- Tests and trials

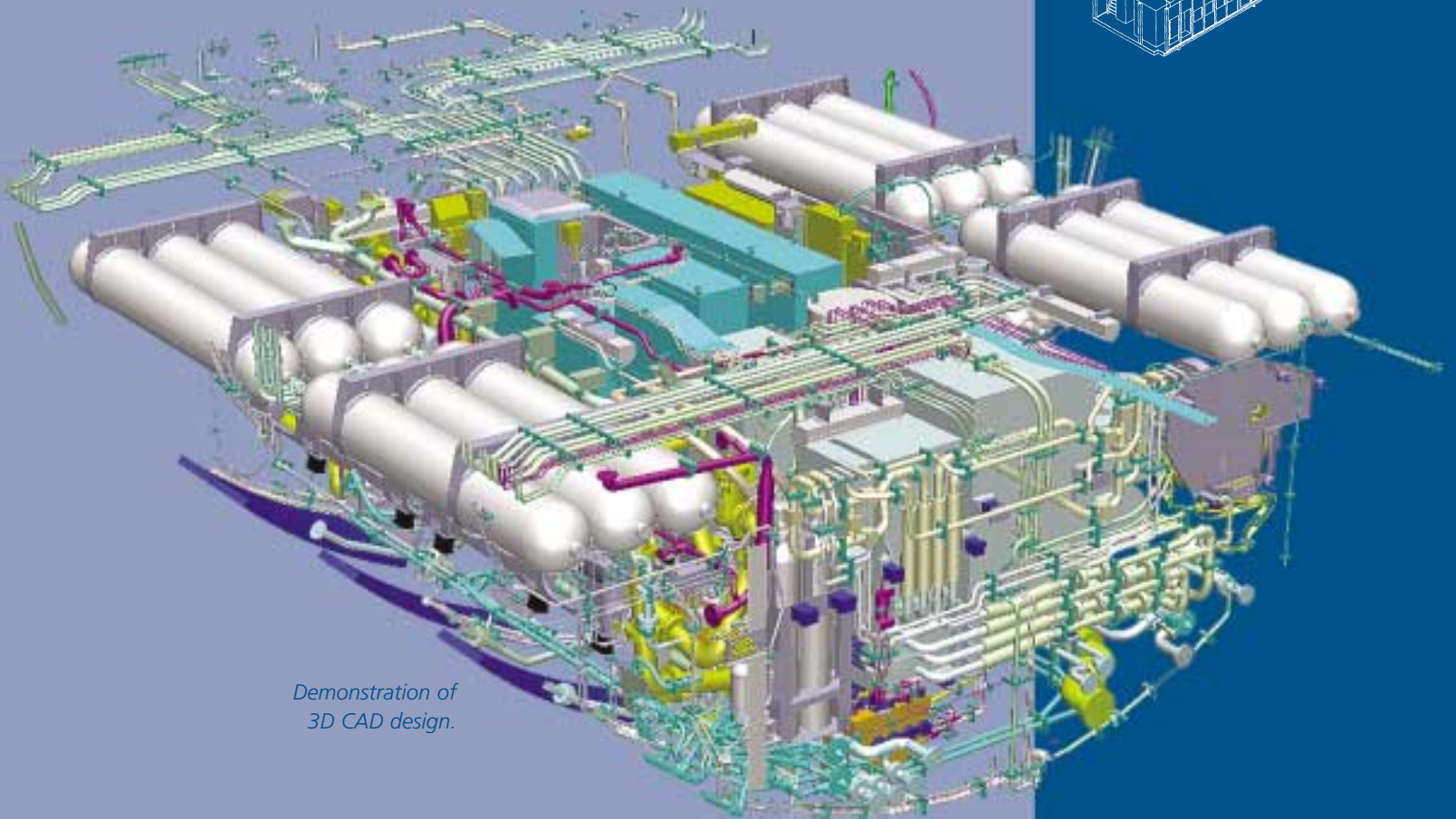


Finite element analysis.

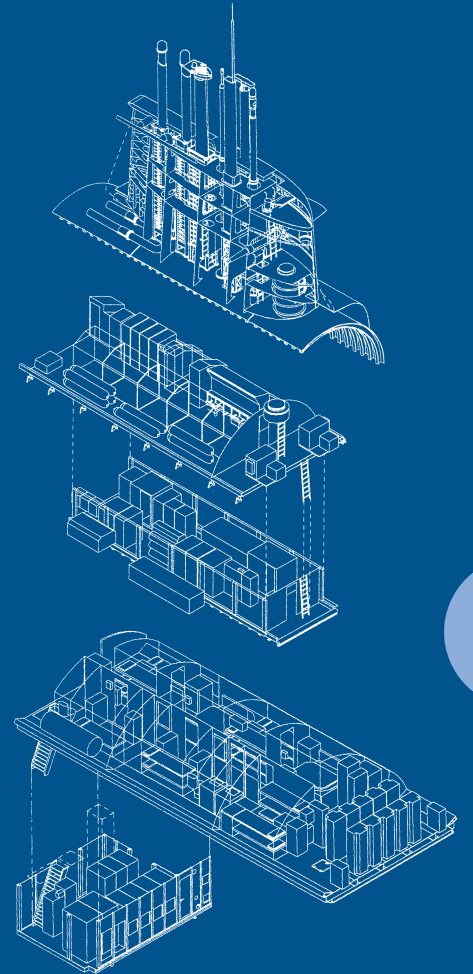
ENGINEERING TOOLS

ASC has invested significantly in the use of modern engineering tools in achieving quality and cost effectiveness in design development, including:

- Computer aided design tools
- 3D assembly and visualisation
- Fluid flow modelling
- Electrical power system modelling
- Finite element analysis
- Dynamic structural analysis
- Fracture mechanics analysis tool
- Mathematical modelling
- Dynamic system modelling



*Demonstration of
3D CAD design.*





Systems Integration

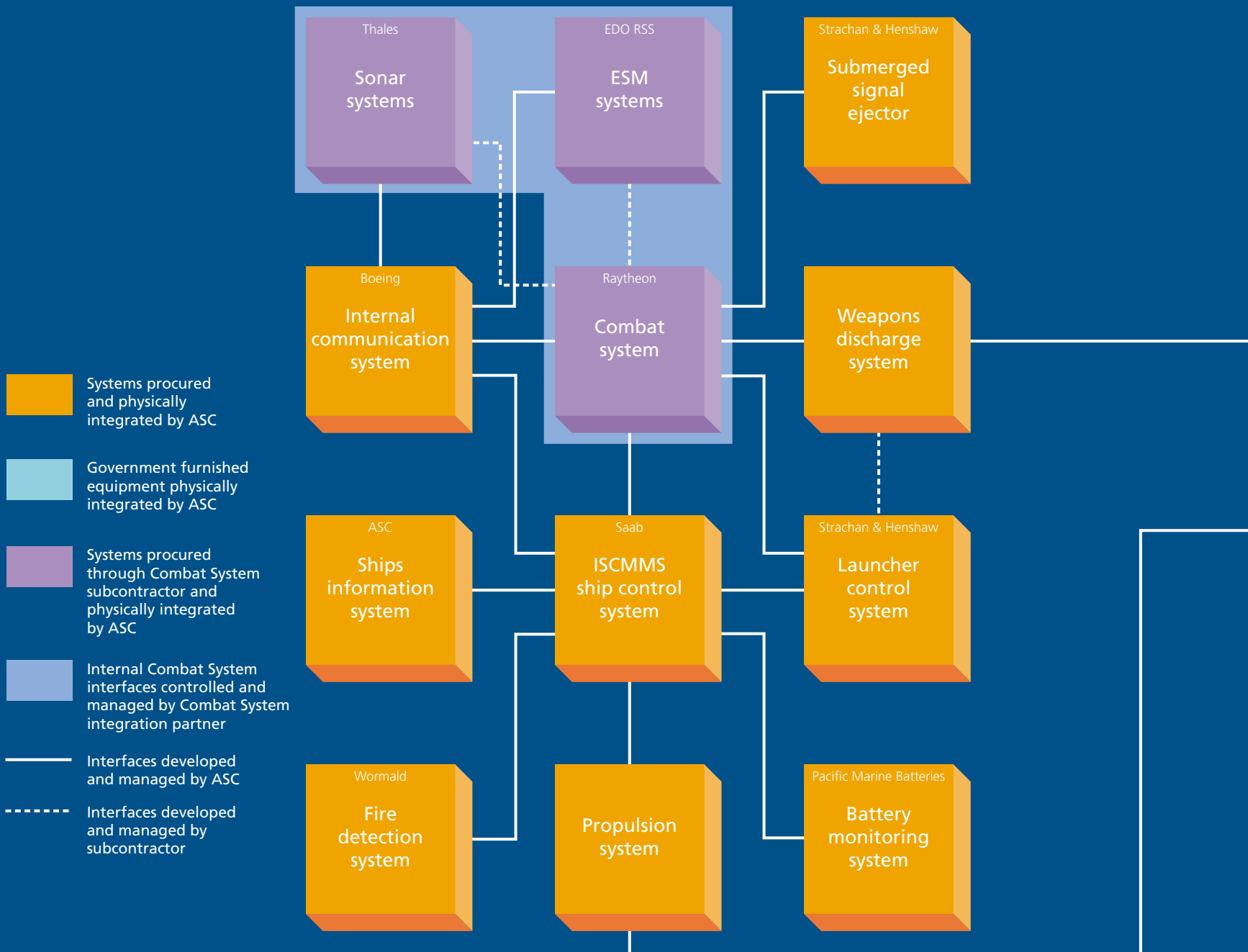
Systems integration is the activity of technically interconnecting and testing individual systems and equipment to provide a fully functioning vessel with the required operational capability.

A submarine is a system of systems. A Collins Class submarine contains 108 systems all of which need power and cooling and many of which need to communicate and interact with each other in order to achieve full operational capability.

With equipment and systems being specified and procured from many different sources, the systems integrator needs to understand the characteristics of each item to enable them to be successfully integrated, supported and developed through-life.

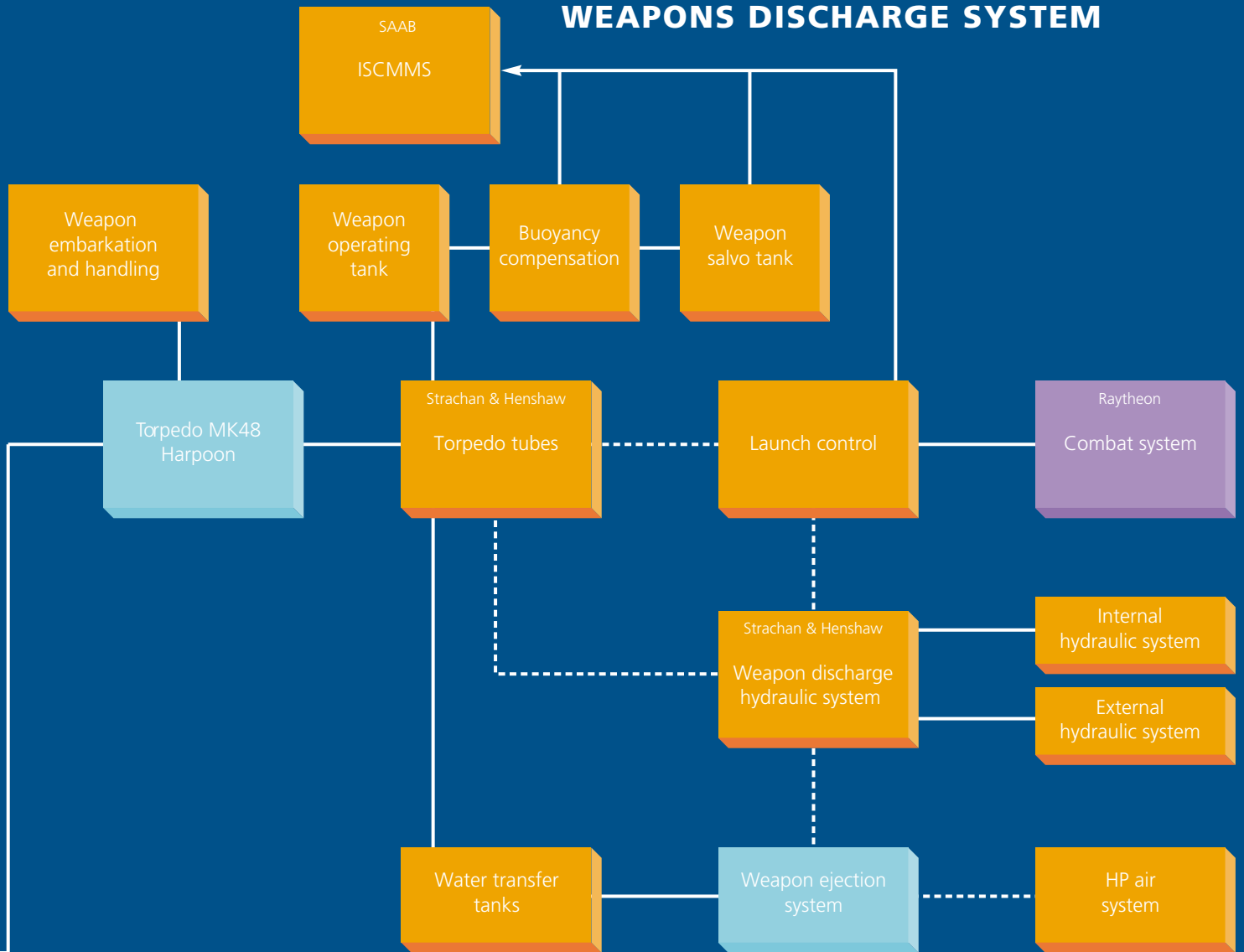
Like the Collins Class submarines, the AWDs will also constitute a complex system of systems. The systems integration task for the AWDs will be even more challenging because of the scale and complexity.

HIGH-LEVEL SYSTEMS INTEGRATION

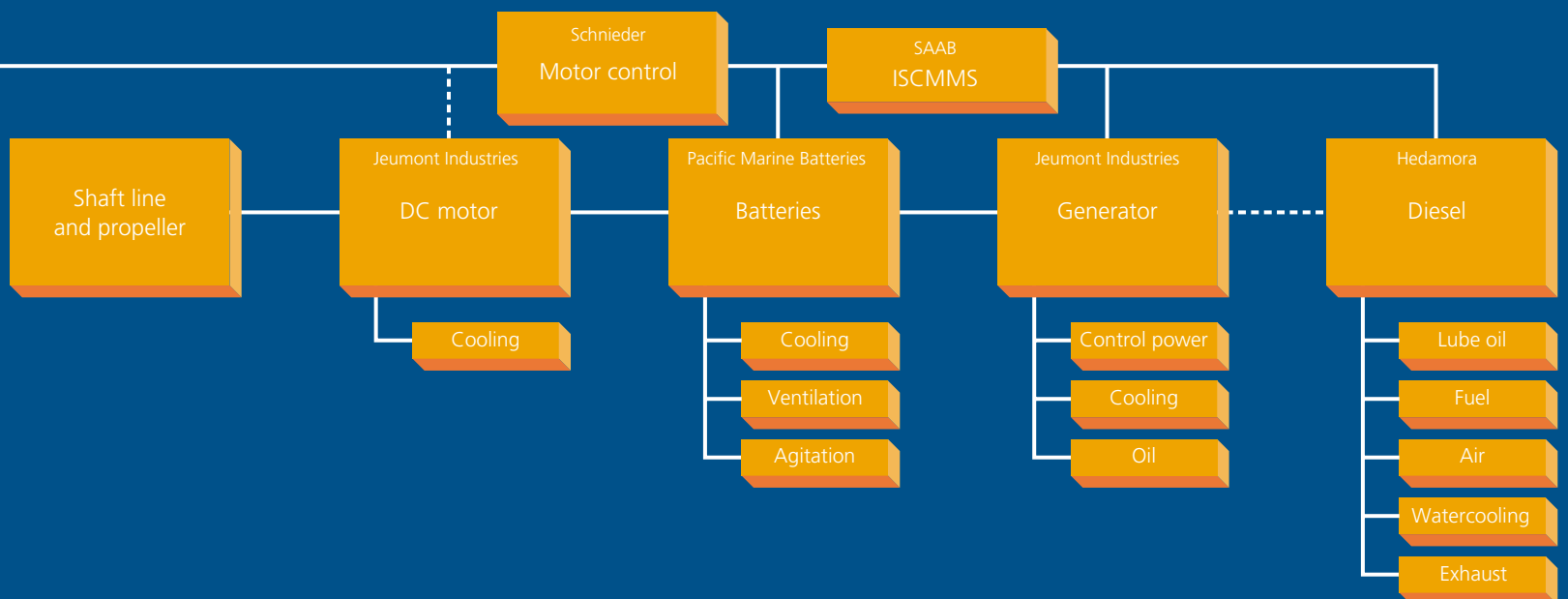




WEAPONS DISCHARGE SYSTEM



PROPULSION SYSTEM





Weapons and Combat System

ASC has experience in managing and integrating combat and weapons systems onto major platforms.

In addition to physical integration, ASC has taken the lead role in managing the interface between the weapons system and the platform in which it is installed, successfully specifying, supervising and testing the weapons system/platform interface.

Liaising with Commonwealth authorities, combat system suppliers, US weapon authorities and other system authorities, ASC has exercised overall responsibility for delivering a fully-functional and integrated weapons system to the RAN.

ASC's weapons activities include:

- Physical integration of weapon and weapon system elements;
- Definition, specification and testing of weapon electrical interface;
- Development of integrated weapon system specifications;
- Development of special purpose test equipment for land-based and submarine-based testing and validation;
- Specification and validation of all external interfaces between functional units;
- Development of engagement system harbour and sea acceptance trial documents; and
- Management of the weapon qualification (certification), including testing and conduct of trials up to Category 5 (practice weapon).

ASC engaged Raytheon Australia as its combat system integrator. Raytheon was responsible to ASC for the development and integration of the combat system and its shore-based test facilities.

ASC managed the combat system compliance against specification and controlled external interfaces. ASC was additionally responsible for the overall platform integration of the combat system, including the production of hyperlinked electronic manuals used for support and maintenance.



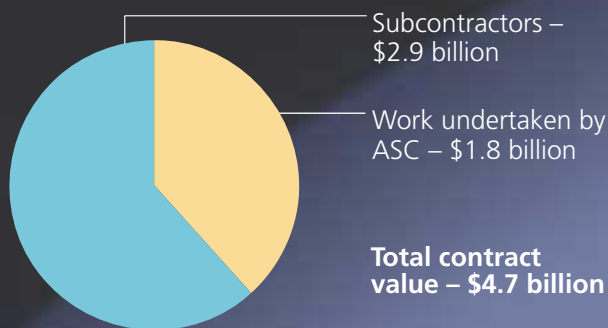
Subcontractor Management

ASC has experience in managing over 1600 individual contractors and suppliers, of these 346 were from overseas countries.

The overseas suppliers were required, under the submarine build contract, to support a minimum 70% Australian industry content for the platform. At the conclusion of the contract, ASC achieved an outstanding 73.5% Australian industry content.



ASC'S SUBMARINE CONTRACT



ADI BENDIGO (VIC) • ADI MARIBYRNONG • Adams Foundry (Vic) • Pump Technology (Vic) • Sands Hill (Vic) • Timcast (WA) • Comsteel (Vic) • Rapid Roller (Vic) • **ASC ENGINEERING PTY LTD (SA) • BAE SYSTEMS AUSTRALIA (AUS)** • DSTO (SA) • Hill Equipment (SA) • Alwin Fischer (SA) • R.F.I Industries (Vic) • VIPAC (SA) • Claropan (Fr) • Priority Engineering (SA) • Process Rubber & Plastics (SA) • Schlumberger (UK) • Stacoswitch (USA) • DSTO (SA) • Hill Equipment (SA) • Alwin Fisher (SA) • KempSAFE (UK) • **ABB** • RFI Industries (Vic) • VIPAC (SA) • **BUCHANAN AIRCRAFT CORP (QLD)** • Barracuda Technologies (SW) • Liset Engineering (Qld) • **BUNGE INDUSTRIAL STEELS (NSW)** • BHP (NSW) • **CBI CONSTRUCTORS (NSW) • COMSTEEL LTD** • Baker and Provan (NSW) • Newcastle Engineering (NSW) • Phelps (NSW) • PMC Newcastle (NSW) • **CUSTOMISED TRAINING AGENCY (WA) • DELTA HYDRAULICS (TAS) • FURMANITE (VIC) • FUTURETECH (NSW) • GAS TECHNOLOGY AUSTRALIA PTY LTD (NSW)** • Bruel & Kjaer (D) • Crouse Hinds (USA) • East Coast Printed Circuits (NSW) • Graseby Ionics (U) • **GEC MARCONI AUSTRALIA (NSW) • HAWKER DE HAVILLAND (SA) • HCB MARINE (NSW)** • De Haan Rotterdam (NL) • STUV ex (Bel) • Tuyenman B.V (NL) • Van Rietschoten Houwens (NL) • **HI FRASER (NSW) • HILL EQUIPMENT & REFRIGERATION CO PTY LTD (SA)** • Jacobs Radio Australia (Vic) • **J & E HOFMANN ENGINEERING PTY LTD (WA) • JOY AUSTRALIA (NSW) • AMEC ENGINEERING** • Richardson Pacific (Vic) • **KELAIR AUSTRAL PTY LTD (NSW)** • Bornemann GmbH (Frg) • **LOGICA ((NSW) • MACLAREN PUBLICATIONS**

MCMAHON WHITE & ASSOCIATES (NSW) • MEMTEC (NSW) • Fawcett-Christie Hydraulics • M.E. Mack • Normalair (Vic) • Veem Engineering (WA) • **MIELE AUSTRALIA PTY LTD (SA)** • Miele & GIE GmbH & Co (Frg) • **NORMALAIR-GARRETT AUSTRALIA (VIC) • OCEAN TECHNOLOGY INC • PACIFIC MARINE BATTERIES (SA)** • AKZO • C/Extrusions • Colan Products (SA) • Combining Instruments • Dow • E & J Building (Vic) • GNB (SA) • ICI (SA) • Interlox • Lysaght • Pasmenco (SA) • Priority Engineering (SA) • SAHT (SA) • F.C. Randle (SA) • Mossops (SA) • SILEC (SA) • Skand (SW) • Tasilo (NSW) • Varta Batterie AG (Frg) • Dr. Grammel • **PERRY ENGINEERING (SA) • PROCESS PUMPS LTD (VIC) • R&D PUMPS (SA) • REXROTH HYDRAULICS PTY LTD** • Rexroth GmbH (Frg) • **DELTA HYDRAULICS • ROCKWELL ELECTRONICS AUSTRALIA (VIC)** • Rockwell Collins (Frg) • Collins Defence Comms (USA) • **Diekmann & Klapper (Frg)** • E-Systems (USA) • Exicom (Aus) • GEC Video Systems (Vic) • Lucas Bradley (UK) • Marconi Underwater Systems (UK) • **INTERNATIONAL SEAL (UK)** • Morris Productions (NSW) • Motorola (Aus) • Phontech (Nor) • Plantronics (USA) • Plessey Naval Systems (UK) • RF Devices (NSW) • **Rockwell-Advanced Electronics Systems (USA)** • Rockwell Collins GmbH (Frg) • Siemens Australia (Vic) • SILEC (Fr) • Syntec (Aus) • TEAC (Aus) • **RAYCO (VIC) • SAFT BATTERIES (NSW) • SGS AUSTRALIA PTY LTD (AUS) • SIEMENS PLESSEY CONTROLS LTD (NSW) • STAU CORPORATION PTY LTD (SA) • FURMANTLE** • Bredel pumps (NL) • **STEELGLOW PTY LTD (SA)** • Hi Fraser • **STRACHAN & HENSHAW AUSTRALIA (SA)** • Strachan & Henshaw (UK) • Valm Busted Engineering (Vic) • **TECHNOLOGY AUSTRALIA PTY LTD (VIC) • ULTRAVILET TECHNOLOGY OF AUSTRALIA (SA)** • Ryco Hydraulics • **W.E.SMITH ENGINEERING (NSW)** • Adams Foundry (Vic) • N.W.Hutchinson Pty Ltd (Vic) • Orrville Bronze & Aluminium Co (USA) • **BTR-Serck Heat Transfer Ltd (UK) • MacTAGGART SCOTT (UK) • WOLF MANUFACTURING (QLD)** • ADI (Vic) • George Gilberts • **WORMALD ADVANCED SYSTEMS ENGINEERING (NSW)** • Black Box Australia (Vic) • Computer Resources Co (NSW) • Creative Strategies (NSW) • ERNI Austral (Vic) • Farnell Electronics (NSW) • INFOCOM Computer Systems (NSW) • Mayer Krieg & Co (NSW) • Miden Pacific (NSW) • NTA Natcom (NSW) • R & D Carbahn (Vic) • **TRANSFIELD (Vic)** • Sun Microsystems (NSW) • Sun Direct (Vic) • Teletronics (NSW) • Workstation Plus (NSW) • **WORMALD ENGINEERING (SA) • VEEM** • Concrete Constructions Group (SA) • Kinhold (SA) • MacDonald Wagner (NSW) • Woods Bagot (SA) • **WORMALD INTERNATIONAL AUSTRALIA (NSW) • NOVENCO ANDERBERG (DEN) • JUEMONT SCHEIDER (FR) • WE SMITH HUDSON** • Brambles Holdings (Aus) • **BAE SYSTEMS** • GEC Marconi Australia (NSW) • **BOEING (USA)** • GEC Marconi Defence (NSW) • ALM Dulmison • Captron • COMFRIG • Consulast • Emal • GEC • Le Carbone-Lorraine (Aus) • Northside Fabrications • NSD • Printronics • Raychem • Rojone • **CALZONI S.R.L (ITALY)** • Southern Transformers • Transformer Manufacturing Co • University Paton • Varley Engineering • Godfrey Howden Engineering • Hothmann Engineering • IESC (NSW) • **JUEMONT INDUSTRIES** • Artemis • Bureau Veritas • Dawson Waldron (NSW) • Euroatlas gmbh • Harris Technology • Kuoni (NSW) • **WARTSILA** • Lowndes Lambert • Merlin Gerin (Fr) • Nilsen Electric (SA) • Promet Valve Co (SA) • **MICHEL BEARINGS (UK)** • Sofraco Engineering (NSW) • Thompsons Kelly & Lewis (Vic) • Davies & Baird (Vic) • Pope Electric Motors (NSW) • WE Smith Engineering (NSW) • Adams Foundry (Vic) • BTR-Serck • N.W. hutchinson • Westinghouse Electric • ADI Bendigo • **PACIFIC MARINE BATTERIES** • BHP • Ajax Chemicals • Associated Gaskets • Australian Pulp & Paper Mills • Basic Time • **RAYTHEON AUSTRALIA LTD** • BHP • Tolco Fabrication • Brambles Transport • Brown & Dureau • CIBA Geigy • Container Corporation • **SAAB SYSTEMS** • C & Cool Rooms • Custom Call Communications • **SCHNEIDER PTY LTD (FRANCE)** • ETRS • GEC Alstom • HALMAC • Hunter Engineering • Inductoheat • **JUEMONT SCHNEIDER (FR)** • Johnson's Transport Industries • Mincost Office Equipment • MM Metals • Mannesman Demag • General Cranes • Meinhardt & Partners • Newtech Innovations • O.H.O'Brien • Overall Forge • Pacific Cranes • Weir Strachan & Henshaw • Paynter Dixon • BWC Concrete • BHP • Country Improvements • Hastie & Smith • J.D. Hall • Meinhardt & Partners • Thomas Roofing • BHP • QANTAS • Rely Technology • Richard Foot • Rutherford Cables • Sankeys • SANCOM Computers • Schenectady Chemicals • Seak Containers • SH • Taubman's • Timcast • TNT • Tyree Westinghouse • Walter Wright & Co • West Footscray Engineering • **AAB MOTORS AB** • BBC York GmbH • DMT Marinetechnik (DC) • DV Services • EG & G Seal • Timcast (WA) • Hofmann Engineering • **THALES UNDERWATER SYSTEMS(UK/FRANCE)** • Magnatek Euroatlas GmbH • AWA Defence Industries • Magnatek Defence Systems (USA) • Mannesmannrohren Werke AG • Vulkan Kupplungs • **RIVA CALZONI (IT)** • ABU Precision Tooling • Brunmary Constructions • Brockman Engineering • Dunham Engineering • George Hovitt Pty Ltd • Lawrence & Hansen • P.C. Perfection Engineering Pty Ltd • R&D Hydraulics • Sallman Engineering Pty Ltd • S.C.H. Engineering • Schulz Executive Partitions • **HEDEMORA DIESEL AB (SW)** • ADI Nav Eng Division • ADI Bendigo • Wormald Technology • BHP • H.I Fraser • MM Cables • Taubmans • **MEASUREMENT RESOURCES** • VEEM Engineering • IMO AB • Ovako Steel • SAAB (Sw) • Svenkstal • Trelleborg • **APV BAKER (UK)** • Alberton Electrical • Danfoss • Dwyer Instruments Ltd • Muller Pty Ltd • Honeywell Australia • Parsons Tabo Australia • Supaswep Pty Ltd • William H Evans Pty Ltd • Woods, GEC Australia • Danfoss Ltd • Dwyer Instruments Ltd • Eurocoils Ltd • **UNITED FASTENERS** • Honeywell Controls Systems • Jerome Engineering • Sweetman Fasteners • Machine Control Ltd • Richard Craven Ltd • SRCA • Woods • Colchester Ltd • Avon Industrial Polymers Ltd • Cathelco Ltd • CJB Developments • BICC • Compare Reavell • Hale Hamilton • Link Miles • Clough Engineering • CSA • ICAL • QANTAS • MacTaggart Scott & Co • Findlay Irvine Ltd (UK) • IDM Electronics (UK) • Lebus Int Engineering (UK) • **Osprey Electronics Ltd (UK)** • Perry Engineering (SA) • Veem Marconi Radar Projects • Marconi Underwater Systems • Buchanan Aircraft Corp. • GEC-Marconi Systems Pty Ltd • GEC Re-inforced Plastics Ltd (UK) • Halmatic Ltd (UK) • W & Tod (UK) • **MACKAY CONSOLIDATED** • Michel Bearings • Perry Engineering • Allied Technology • Slingsby Engineering Ltd • Stone Manganese Marine Ltd • **STRACHAN & HENSHAW**



Platform Integration

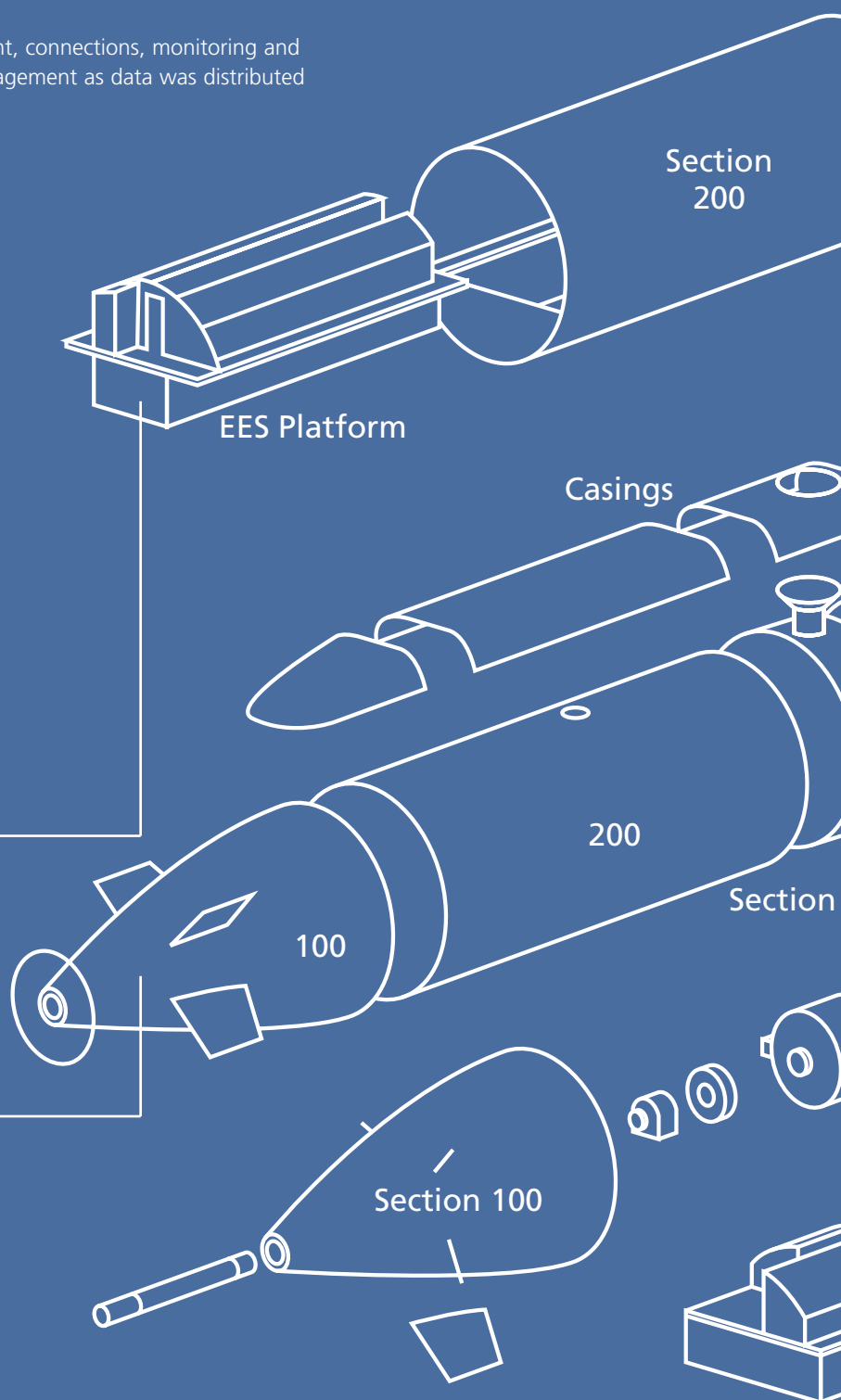
ASC has specified, integrated and installed equipment and material from over 150 major contractors and hundreds of smaller suppliers in its role as whole-of-ship integrator.

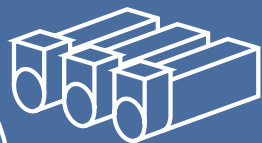
Platform integration data was provided to ASC by all equipment suppliers in accordance with interface specifications provided by ASC.

Parameters included electrical power, cooling, noise, weight, connections, monitoring and electromagnetic interference, all under configuration management as data was distributed between the various suppliers during the design phase.

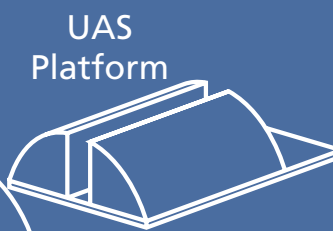
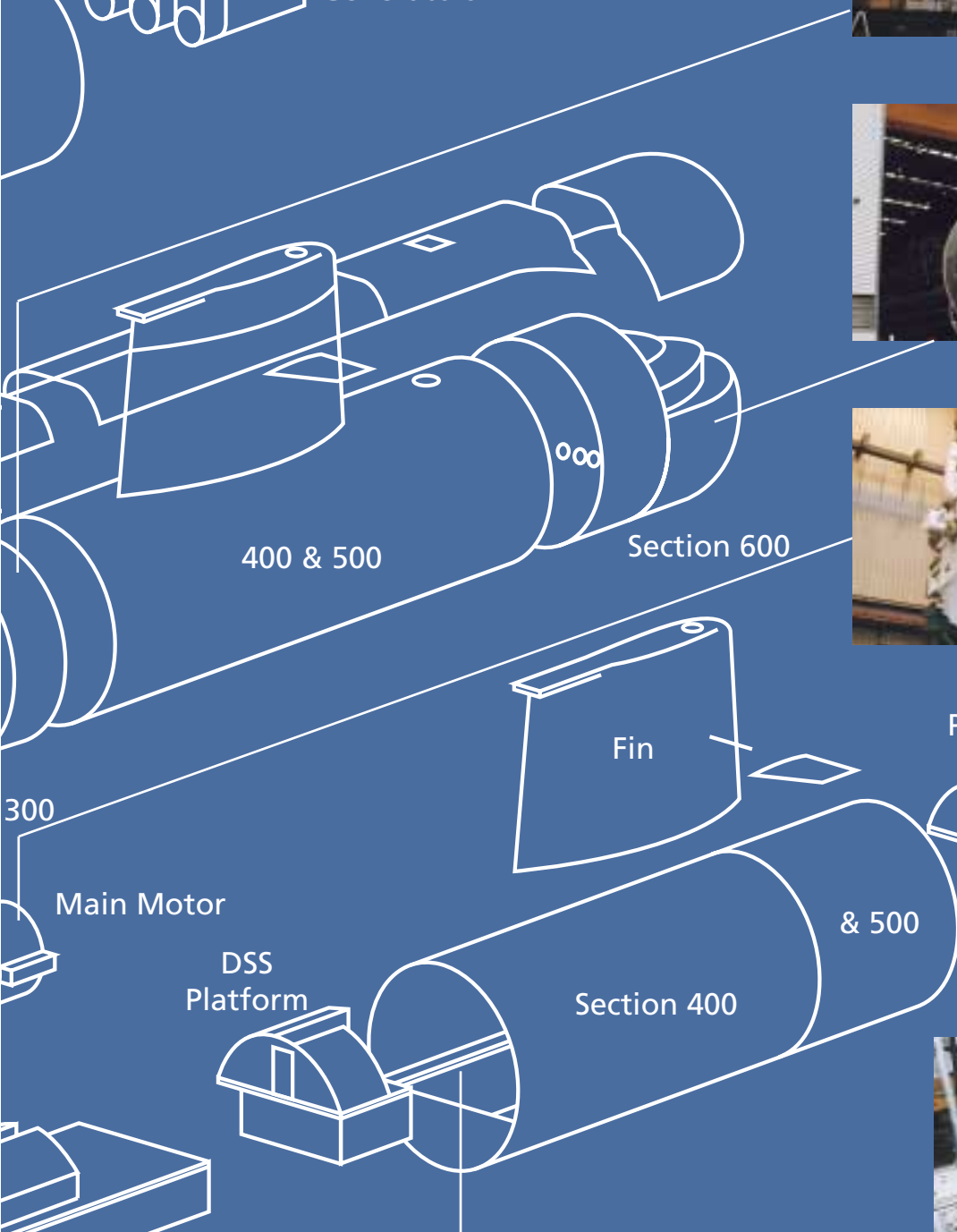
SUBMARINE OUTFITTING STATISTICS

Piping	23,500m
Major cable lengths	7,000
Cable connections	200,000
Cable	75,000m
Batteries	400 tonne





Diesel Generators



UAS Platform





Configuration Management

The management of baselines and the controlled application of change are important elements of ensuring the success of any engineering project.

Knowing the precise physical configuration of ship systems and equipment ensures efficient implementation of design changes and assurance of compliance to specifications.

ASC uses the Configuration Management Information System (CMIS) database in the identification and control of all physical and functional characteristics of the elements that make up the product baseline of a system.

Configuration Management includes the upkeep and distribution of technical documentation that describe the baselines of systems. There are an estimated 350,000 individual technical documents associated with the Collins Class submarines.

COLLINS CLASS CONFIGURED ITEMS

Design drawings	70,727
Subcontractor drawings	46,892
Parts lists	46,717
Subcontractor parts lists	22,079
Specifications	42,865
Standards	1,250
Reports	10,391
Miscellaneous documents	29,062
Supportable items	43,000



Integrated Logistics Support

ASC's Integrated Logistics Support (ILS) team has the skills and experience to address supportability requirements through all phases of the lifecycle of a capability.

ASC has developed a world class ILS package that provides comprehensive and cost-effective support for the Collins Class' mission and support systems, from conception to the end of the submarines' operational lives.

The simultaneous support of design, sustainment and operational needs through the life of the platform is a key feature of ASC's ILS capability.

ASC's experienced ILS team can manage and develop integrated solutions that meet the logistic support requirements of any future naval programs. The team has capabilities in the areas of:

- Failure mode effect and criticality analysis, reliability analysis;
- Hazard and operability studies;
- Supportability analysis;
- Availability, reliability and maintainability analysis;
- Development of maintenance provisioning and operating documentation;
- Design, development and conduct of training, including courseware and documentation; and
- Logistic information management systems development and support.

ILS STATISTICS FOR COLLINS PROJECT

Product/activity	Quantity
Systems, operator and equipment manuals	222
Procedures for organisational and intermediate level maintenance	21,889
Detailed depot level maintenance procedures	548
Maintenance task analysis records	513,961
Equipment breakdown and support assessment lists	350
Illustrated parts lists	2,300
Equipage items	4,427 YP HALF FRAMES
Spares items	10,497
Initial spares recommendations	1,700
Recommended buy lists	310
Support and test equipment items	1,329
Blocks developed from reliability block diagrams	35,684
Items covered by failure mode, effects and criticality analysis	14,086
Reliability centred maintenance statements and level of repair assessments	41,076
Safety and operability and removal route analysis	107

ASC's Facilities

ASC has the most modern shipbuilding facility in Australia, originally developed to build and support submarines.

Located in Outer Harbor, Adelaide, the purpose-built site offers easy road and rail access and is easily expandable with no urban or planning constraints.

Few companies in the world have successfully developed industries and facilities that can support submarine construction and research shows that companies that have the infrastructure to build submarines invariably build surface ships.

Companies with shipbuilding and submarine building capability:

COUNTRY	SHIPBUILDER	SURFACE VESSELS	SUBMARINES
Brazil	Arsenal de Marinho	✓	✓
Germany	HDW	✓	✓
Germany	Thyssen Nordeeswerke	✓	✓
India	Mazagon Dock	✓	✓
Italy	Fincantieri Muggiano	✓	✓
Japan	Mitsubishi HI	✓	✓
South Korea	Hyundai Shipbuilding	✓	✓
South Korea	Daewoo Shipbuilding	✓	✓
Spain	IZAR Cartagena	✓	✓
Sweden	Kockums	✓	✓
Turkey	Golcuk NSY	✓	✓
United Kingdom	BAE	✓	✓
United States of America	Northrop Grumman (NNS)	✓	✓
United States of America	General Dynamics	✓	✓

KEY PRODUCTION SKILLS

ASC's production workforce consists of highly trained skilled trades people. Workshop capabilities include:

- Fabrication and welding of carbon steel, high yield quench and tempered micro alloy steels, chrome molybdenum steels, stainless steel, copper nickel alloys and aluminium alloys. Welding processes employed include MMAW, SAW, GMAW and FCAW.
- Fabrication, welding and testing of pipes from 6mm to 800mm diameter. Materials include carbon steel, copper nickel, stainless steel and copper. Capacity to bend up to 115mm diameter pipe using CNC machines. Pressure testing facilities to 40 MPa.
- Mechanical assembly, installation and alignment of shafting, installation of diesel generators, weapon systems, mast and periscopes, hydraulic systems, valve blocks and pumps.
- Installation of electrical and electronic equipment, cabling and connectors/terminators to military standards.
- Machining capability, including a light machine shop, portable boring/facing equipment and large size CNC machines.

SHIPLIFT, DOCKING AND TRANSFER SYSTEM HALLS

The shiplift at ASC is a Synchrolift articulated platform design.

A rail based transfer system connects the shiplift, construction halls and paint building allowing the movement of large sections and complete vessels from one work area to another. The transfer system bogies are fitted with self-contained hydraulic jacking systems to raise or lower the cradles. A swivel head mechanism on each bogie permits 90-degree rotation, affording a high level of manoeuvrability when using the cross rails of the transfer system.



WHARF FACILITIES

Support services available on the wharf include AC and DC shore supplies, battery-charging equipment, water and air supplies, telephones and communication equipment and alarm services. Fuelling and de-fuelling is also possible while alongside using the connection points on the wharf.

Small workshop areas, offices and amenities are also located on and near the wharf area.



WAREHOUSING

A large, undercover material control warehouse and secure equipment storage area is available adjacent to the construction halls. In addition, material storage areas are provided within the construction halls and at adjacent sites.



HARDSTAND AREA

The fully sealed, bitumen/concrete hard stand area allows for the docking of vessels and provides ready access and ample space for maintenance activities. Scaffolding and safety equipment is also available and the rail transfer system allows for transverse movement of vessels across the hard stand, providing a very flexible work area. Electrical services, sea water supplies, compressed air, telephone, fire fighting and lighting services are available from service modules on the hardstand area.



LABORATORY FACILITIES

ASC operates a NATA registered laboratory for performing a range of non-destructive testing and examinations.



PAINTING AND BLASTING

The dedicated painting and blasting facility meets strict EPA pollution control regulations. This building is accessible via the transfer system and can accommodate large sections.



CONSTRUCTION AND ASSEMBLY HALLS

The two side-by-side construction halls offers enormous benefits for construction and/or maintenance work, as the work is largely unaffected by weather conditions.

Craneage in each hall includes a traversing overhead beam crane and traversing wall cranes. Each hall has workshop areas for pipework, mechanical, electrical, welding and general fabrication work to be conducted. Planning, quality control and supervisory functions are co-located within the workshop areas.



PRECINCT DEVELOPMENT

The Osborne Maritime Precinct masterplan envisions a site optimised for the consolidation and fit-out of warship modules.

Key features include: 45 hectares of ASC land dedicated to naval shipbuilding and supporting industry; 22 hectares of government land for lease or sale to supporting companies wishing to consolidate and outfit naval vessels up to 30,000 tonnes; plans for a new shiplift, a transfer system and wharf operated as a multi-user facility; dredging of the Port River to berth large vessels; space for additional fit-out sheds; and provision of supporting infrastructure and utility services.





Alliance Contracting

The project delivery of complex modern naval ship systems demands a different approach to contracting.

Contractual arrangements that have the flexibility to deal with changing circumstances are critical to the success of high-value projects. Alliance contracting emphasises the importance of the relationship between the parties and is ideally suited to projects such as the AWDs.

ASC's TLS Contract with DMO is a form of alliance contracting which was developed by DMO and ASC to deal with the complexity of the Collins Class submarines. The key features of the TLS Contract are:

- Identification of and commitment to achieving shared strategic objectives;
- Establishment of a co-operative relationship between the parties;
- Commitment by ASC to achieve value-for-money outcomes and to reduce costs;
- Joint planning of work activities;
- Provision of incentives for performance;
- Sharing of productivity gains;
- Remuneration arrangements that drive performance;
- Simplified dispute resolution procedures;
- An appropriate intellectual property regime; and
- Indemnities to cover project risks.



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