NAVAL COMMUNICATIONS SYSTEMS

LEONARDO

LAND & NAVAL DEFENCE ELECTRONICS

NAVAL COMMUNICATIONS SYSTEMS

FULLY INTEGRATED COMMUNICATIONS SYSTEMS

The company has a strong tradition in the supply of naval systems. In fact, we supplied the first naval communications to Italian and Royal Navy ships in 1896. Since then, we have grown to become a subsidiary of Finmeccanica, employing 17,000 people worldwide, manufacturing and supplying modern, fully integrated, internal and external communications systems, designed to meet the needs of a wide variety of naval platforms and to enable the digitization of the maritime battlefield.

AN EXPERIENCED PARTNER

Finmeccanica is the third largest defence and Aerospace contractor in Europe and eighth in the world. We work closely with our sister companies to develop improved integration strategies for aviation, combat and command & control systems, and provide a comprehensive, throughlife naval communications capability.

The company also has an excellent record in partnering with prime contractors and systems integrators to deliver complex or demanding requirements. This wide range of interactions creates an environment that inspires innovation.

We have delivered communications systems into naval programmes in Italy, the UK and over 40 countries including the USA, France, Turkey, China, Malaysia and New Zealand. Over 250 naval platforms have been fitted with the company's equipment. With offices and production plants in Italy, the UK, Turkey, Germany, Romania, Brazil and the USA, we are is a truly global provider of integrated communications systems.

Our integrated communications systems are:
- Modular, scalable, flexible and rapidly reconfigurable
- Interoperable with military and civilian communications
- Integrated with ships' systems and guest military and civilian equipment
- Secure – hosting NATO and national encryption algorithms
- Designed according to requisite military and civilian standards.

Advanced solutions have been provided to meet the ever growing communications needs of a wide variety of vessels serving many Navies worldwide

Our systems make effective use of:

- Standard Interfaces and protocols (including IP) – facilitating access for all systems users and a wide range of technology insertion options
- Automated management, maintenance and control to reduce manpower
- Simple, user-friendly and intuitive graphical interfaces which remain error tolerant even under pressure
- Resources and space – typically requiring fewer, smaller cabinets
- Common modules – reducing spares requirements, simplifying logistic support and training and facilitating emergency repairs
- Mature design and implementation life-cycle processes enable us to work with the shipyard to reduce project risk
- Simulation, integration and test facilities to prove system configuration and validate system outputs before installation, avoiding more costly adjustments afterwards
- Our experience of a wide range of military platforms means that we have previously resolved many issues that can arise during implementation. This reduces the risk of programme delays.

CAPABILITY

Network Enabled Capability

We are uniquely placed to lead the delivery of Network Enabled Capability. We have proven, in-service, modular, scalable, secure systems, for land, sea and air, designed to function at the heart of modern military operations; enabling interoperability with allies, joint forces and civil authorities for effective exploitation of information. The company is a founder member of EURO MIDS.

Naval capability

The company has played a leading role in numerous naval communications programmes. Our role as prime contractor or lead systems integrator is effectively supported by our full suite of company designed and manufactured products and our detailed understanding of the technology, platform and operational requirements.

We provide:

- Strategic communications systems
- Messaging and information systems
- Cryptographic equipment
- Naval radios
- Satcom
- Maritime networks
- Navy shore stations
- Specialist antennas
- Electromagnetic modelling
- Ruggedisation and marinisation of COTS products
- Integration of COTS.

We also provide Information Assurance services, including digital forensics, vulnerability testing and ICT security consultancy.

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Manufacturing capabilities
The greater understanding and flexibility that come from designing and manufacturing the product, and the ability to resolve for any missing links, enables us to work in partnership with shipyards and prime contractors to make significant reductions in programme risk.

R&D capability
Our R&D capability began with Guglielmo Marconi's early radio experiments. Today, we direct and exploit the latest thinking to produce innovations in software, hardware, sensors and enclosures that will ensure that our customers' communications systems continue to provide world leading performance. This investment in innovation drives our complete range of world-class HF, UHF, crypto, satellite communications and management systems products, constantly developing and enhancing our portfolio and delivering significant benefits to our users, including a clear upgrade path and, uniquely; a single source for the entire communications capability life-cycle.

Maritime capability
In addition to naval systems, the company is also the leading supplier of maritime electronics to the commercial and leisure markets, with the most comprehensive international after-sales support, including internet and mail-order facilities.

We provide equipment, surveys and onboard maintenance services for GPS, VHF and MF/HF radio, marine radar, satellite communications, weather information receivers, INMARSAT, GMDSS, voyage data recorders, emergency beacons and echo sounders.

Adapting COTS
Our extensive experience with COTS technology enables us to benefit from the considerable investment in fastmoving, high volume telecommunications markets.

In conjunction with our proven range of cryptographic equipment, information systems, switching, radio and other bearer systems, COTS products often provide a route to innovative, best-value, market-leading solutions.

Optimum use of common modules and proven COTS equipment simplifies support requirements, and delivers integrated communications to budget and on time. Our unique ability to design, supply and integrate sophisticated military capability, adapt COTS and MOTS products, and to satisfy the demands of the commercial marine market puts us in an ideal position to support naval logistics and fleet auxiliary operations in particular.

PROJECT SUPPORT

The company offers a complete package in support of the prime contractor, designer, shipbuilder, system integrator and end user, whether for new build, refit or repair, entire capability or partial scope, uniquely, providing all of the following:
- System design
- System testing and validation documentation
- Equipment selection and installation design to optimise performance against budget, space, cabling constraints
- Topside modelling and simulation to define antenna arrangements for signal strength, interference effects and blind spot performance
- Internal electromagnetic modelling for wire-free installations
- Security and safety assessments
- Comprehensive installation and maintenance packages including maintainer training
- Logistic support studies
- Effective, local, whole-life logistic support
- Complete supply chain management ensuring full traceability and configuration control.

The company is structured to ensure that we will provide all support services, to recognised military standards, to establish and maintain the required communications capability throughout the capability life-cycle.

A COMPREHENSIVE APPROACH

The company has a full understanding of the technologies with which the communications system must integrate and considers the whole ship while addressing the communications requirement. Our team of communication systems integrators draws on in-company expertise in safety, security and navigation products to ensure that information needs are met in the most effective manner.

Our designers work with customers to optimise usability and satisfy operator needs. We assess the organisational impacts, the opportunities to reduce infrastructure and the improved methodologies released by new technologies, in addition to the central issues of interoperability, security, training, capability maintenance and support, to ensure information is with the right person, in the right place at the right time.

From innovative new build communications solutions to capability upgrades of existing ship fits, we have the depth of electronic systems integration expertise to enhance the operational capability of all sized of vessels.

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SUPPLYING ALL NEEDS

	Communications	Security	Safety
What	Fully Integrated modular systems providing Strategic and Tactical, Internal and External (Ship to Ship, Ship to Shore, Ship to Air) services	Products and services supporting personal security, information security, physical security and naval security roles	Extensive experience in the design and installation of leading systems for crew protection. Vessel safety and battle damage control
How	- LF/HF (including ALE mode)/ V-UHF bands - Military (UHF/SHF bands) and civilian (L/Ku bands) satellite - Software Defined Radio - IP networks - Management and control - Information management and distribution - Data compression - Interphone/intercom, voice and alarms broadcast, telebrief, emergency and wire free - Shore lines access - Tactical data links - Automatic naval messaging - Video conference - Marinisation and Waterproofing	- High Grade encryption - Secure messaging - Secure telephones - Bulk encryption - CCTV/sensors - Information Assurance - TEMPEST - COMSEC aspects - Electronic Key Management - Digital forensics - CLAS consultancy - ECM consultancy	- GMDSS/EPIRB - Voyage Data Recorder - NR headsets - Wireless intercom - PMR/TETRA/PRR - ISSAT – situational awareness - AIS - SART - CCTV/sensor systems - Rad Haz modelling - IFF - Collision warning - CBRN nano sensors - Radio safety certification - METOC

Where	- Fully Integrated Communications System for Type 45, Horizon, FREMM and Cavour Carrier programmes
	- Swedish HF 2000 programme
	- Software Defined Radio ESSOR consortium
	- RN NAMC messaging
	- External communications for US Navy LHD (WASP class)
	- Secure HF for operationally deployed RN and US Navy Task Groups
	- Military satellite terminals
	- NATO ship-shore-ship buffer stations
	- NATO BRASS
		- High-grade voice, data and IP cryptographic products to UK, Italy and NATO fleets
		- Supply and support 75% of the UK's high-grade data and voice cryptographic equipment
		- Common criteria/ITSEC evaluations for UK and Italian MoD
		- CLEF available
			- IFF delivery for the UK CVF programme
			- Royal Navy IFF support authority for over 50% of the fleet and IFF design authority for Mk10/12 and Carrier IFF
			- Noise reduction headsets for Type 23 and HMS Ocean
			- TETRA wire free system, for the FREMM onboard emergency telephone
			- Personal Role Radios supplied worldwide
			- Agents for:
			  – Broadgate, GME, Jotron
			  – Thrane & Thrane

Navigation	Welfare	Through-Life Support
Integration of best of breed equipment from a broad range of suppliers. Designing and installing navigation solutions for world-leading shipping companies	Technology to improve quality of life onboard, provide relief from stress and contact with family. Helping to maintain high levels of wellbeing, motivation and crew retention	Proven global support operation providing full range of services for the prime contractor, designer, shipbuilder, systems integrator and end user to ensure lifetime capability maintenance
- Sonar - Radar - Radar modelling - Integrated bridge - Collision warning - Situational awareness - Auto pilot - Charts/plotters - GPS/DGPS - Gyrocompass - Heading data - Seafloor mapping	- Human factors engineering interactive web applications - Satellite TV - Personal calls - Internet access - Web conferencing - Environmental monitoring - Remote medical diagnostics	- Prime contractor - Project management - System integration, testing and validation - Configuration management - Obsolescence management - EM modelling - Training including CBT - Installation services - Mobile/distributed repair, servicing, - Radio safety certification authority - Service/Help Desk - Airtime provision - Agent/distributor for COTS products
- Agents for: - Alphatron - Koden - Navitron - Olex - TRAX	- Type 45, Horizon, FREMM entertainment and internet services - Agents for: - Iridium - SeaTel	- Lead communications system integrator on the Type 45, Italian FREMM and Horizon programmes - Type 45 and CVF topside electromagnetic modelling - Exclusive provider of radio safety surveys, port state control and general inspection services to the UK DETR and the UK Maritime & Coastguard Agency

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