Naval Mission Solutions

Guaranteed mission system performance with Thales on Board

- Going beyond performance of individual subsystems
- Covering total Sensor to Shooter performance guarantee
- The Naval Mission Solution team reduces mutual risks
- Certified project management accelerates commissioning of ships
- Dynamic scope of delivery: from full Naval Mission Solution to Key Services
Customer understanding comes first
Navies, coastguards and other maritime agencies, all face different challenges in the maritime domain. Different tasks, various ship types, heterogeneous systems deployed, all focus on the single objective: Successful naval missions.

The Naval Mission Solution Team consisting of contractor’s personnel, Thales’ former Navy officers, IPMA certified project managers, and the best-in-class system engineers cooperate in a professional atmosphere. Together, we understand the language to ensure a Mission System fully aligned with today’s complex operational tasks and with maximum availability throughout the ship’s life-cycle.

Tailored approach to organization of the end user and shipyard
New-build, modernization or overhaul, every project’s unique and gets a fully dedicated Naval Mission Solution Team. The team provides local engineering, possible remote support and a good working relationships with all involved parties. Thales focuses on longterm partnerships to achieve successful Naval Mission Solutions and connects industry with end user.

Proven track record
Thales leverages technology advancements in Naval Mission Solutions as achieved in recent projects like:
• Greece (Laskos & Elli-Class)
• Indonesia (Sigma-Class)

TACTICOS achieves horizontal integration advantages

• Removes traditional stovepipes with world’s-leading standards in real-time systems (e.g. OpenSplice-DDS)
• Cuts the number of interfaces to a minimum per subsystem
• Achieves the best operational, functional, and technical interface
• Guarantees data exchange with control of aging legacy systems
• TACTICOS enables System Development Centers to customize the hardware and software according to local needs
Morocco (Sigma-Class)
Venezuela (Guaicamamuto & Caribe Class)
Germany (Sachsen Class)
Colombia (Almirante Padilla Class)

Thales applies open technologies and project management across various platforms for navies, coastguards and other maritime agencies around the world for new build, modernization and overhaul.

Pragmatic integration approach, no Science
Thales provides the Naval Mission Solution in various roles and is aware of cultural differences between end users. Turn-key engineering management establishes total integration of navigation, sensors, TACTICOS, weapons and communications. Both system to system integration and system to platform integration.

An essential asset for the delivery of the Naval Mission Solution is the Key Service List. This pragmatic list contains the selection of all available integration services. It is refined and tuned to the needs of the contractor, and thereby clearly defining responsibilities between all parties involved.
Our customers obtain a fully operational Mission System demonstrated in front of the end user where all targets are hit in the Live Firing Trials, with guaranteed performance.

- Performance guarantees already specified and agreed at contract signature,
- Without any open actions or loose ends,
- And in full transparency to the customer
**TACTICOS the leading Mission System integration platform**

For two decades, TACTICOS has been the world’s leading Naval Mission and Combat Management System. Matching 21st century needs of navies, coast guards and other maritime agencies. More than 165 times deployed and in use over 18 navies. Open standards technology in TACTICOS and its massive amount of subsystems interface implementations, make it a unique Mission System integration platform. Unrivalled in performance and stability. The pedigree of TACTICOS as Mission System integration platform is based on the OpenSplice-DDS operating system (developed by Thales, now declared an open standard by OMG). It is supported by the latest tools in architectural design, system performance analysis, topside arrangement design, static and dynamic alignment and electromagnetic compatibility (EMC).

**Reference and customized Mission Solutions**

Close collaboration with end users enables Thales to design Mission Systems, each consistent with operations nowadays performed by navies, coast guards and other maritime agencies. Operational scenarios are designed and evaluated with the end user in the safety, security and defence sectors. Optimal performance between sensor, effector, communication, navigation and TACTICOS is realized in the engineering centres, allowing the customer to directly benefit from a proven Mission Solution.

These pre-integrated Mission Solutions match to mission needs, at affordable through-life costs, and enhance smooth transfer of the ship from shipyard to end user. Of course Thales still implements and integrates special requirements set by end user. Therefore our adaptable Mission System Integration scope can vary to accommodate every possible contractual model.

Thales created reference Naval Mission Solutions for segments from the low to the high spectrum in defence & security.

**Benefits**

- Pre-integrated Mission Solutions enable 21st century required War Fighting and Maritime Security Operations with short delivery times to the end user.

- Adaptable Mission System Services scope depending on the contractual model and end user special requirements.
### Mission Solution Services

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**Legend:**
- **•** Included
- **●** Optional
Customized and clear Mission Solution Services create satisfaction.

Before presenting the adaptable scope of the Mission Solutions Services, Thales starts with listening to the situations of all parties involved. Sensitivity to the bonds of trust in these relationships is of paramount importance for the delivery of a world-class Mission Solution. With full understanding for privacy, discretion preserved. After concise exploration of needs, Thales provides real expertise and art in the definition of the Mission Solution closely together with end user, shipyard and industrial partners. The scope of Mission Solution Services is here customizable to the agreed level of performance, costs and desired schedule.

The Mission Solution Services table presents the typical Mission Solution Services and is flexibly instantiated to the needs in every project. These services contain defined processes, documented steps and plans, identified decision points and formalized deliverables for each step. A flexible approach and world-wide proven for a variety of platforms, cultures, subsystems and performance levels. These services can be locally performed by local industry or with assistance by Thales.
A complete pallet of integration services for the Naval Mission Solution

**Procurement**
- Program Management Services
- Equipment Supplier Management Services
- Industrial Partnering

**Architecture, design and development**
- Mission Solution Definition
- System Performance Analysis
- Safety Engineering
- Topside Arrangement Solution
- EMI/EMC Solution
- Platform Support Services
- Cabling Support Services

**Program Management**
- Program Management Services
- Equipment Supplier Management Services
- Industrial Partnering

**System / System**
- Mission Solution Definition
- System Performance Analysis
- Safety Engineering
- Topside Arrangement Solution
- EMI/EMC Solution
- Platform Support Services
- Cabling Support Services

**System / Platform**
- Below Deck Arrangement Solution
- Under Water Arrangement Solution
- Installation Support Services

**Logistic / Training**
- Integrated Logistic Support Services
A complete pallet of integration services for the Naval Mission Solution.

- TOKAT and engineering to local Industry
- In-Service Support
- Commissioning
- On-Site Support Services
- Risk Management
- System Integration & Harbour Trials Execution
- Static and Dynamic Alignment Execution
- Sea Acceptance Trials Execution
- Live Firing Trials Execution
- Land Based Test & Training Site
- Training and TOKAT to Navy
- Live Firing Trials
- Static and Dynamic Alignment
- Risk Management
- Training and assessment
- On-site support services
Program management

Program Management supports the contractor in the management of the program by decreasing the costs and risk profile to the contractor. Program Management comprises the necessary activities during the runtime of the contracted program to perform a successful implementation of the Naval Mission Solution on schedule in accordance to the contractor requirements and specifications. THALES has proven experience in dealing with complex naval programs containing several equipment suppliers and/or subcontractors.

The Thales’ Naval Mission Solution Team will always work in active collaboration with the contractor and key program to ensure the success of the project, recognizing the mutual risk-reduction benefits of our excellent working relationship with all equipment suppliers in a program.

Thales continuously invests in adoption of program management to world standards, inclusion of industry “best practices” and “lessons learned”. The track record of Thales for large system integration programs ensures that Thales is ready before “Day 1” to start the work for the program. Due to extensive experience in similar programs, Thales is focused and proactive in managing and coordinating all activities.

Thales supports the contractor in the technical management of Mission System Equipment Suppliers. On-time realization with short delivery times and no outstanding actions are of key importance. By supplying a pre-integrated Mission Solution fully adapted to the task, Thales is convinced to provide an attractive and on-time solution to the customer.

Naval Mission Solutions
Thales’ values a safe Mission for the crew that operates and relies on the platform and the Naval Mission Solution. Therefore, as a renowned system integrator, Thales ensures a Mission Solution which is always designed in full compliance with regulatory requirements like IMO-SOLAS and safe to operate regarding RADHAZ, HERP, HERO, and HERF.

All Naval Mission Solutions are designed to guarantee mission system performance:
- Go beyond performance of individual subsystems,
- Cover total Sensor to Shooter performance guarantee,
- The Naval Mission Solution team reduces mutual risks,
- Certified project management accelerates commissioning of ships,
- Dynamic scope of delivery

Thales’ customers obtain a fully operational Mission System demonstrated in front of the end user where all targets are hit in the Live Firing Trials, with guaranteed performance:
- Performance guarantees already specified and agreed at contract signature,
- Without any open actions or loose ends,
- And in full transparency to the customer.
Integration of the system to platform enables the contractor to position, connect and install the Mission System on board the ship in-time and in an efficient way. THALES ensures the delivery of experience to all related parties, either in a new build, modernization or overhaul program. A wide-variety of topics can be covered to support the contractor depending on the scope of the program e.g. review topside arrangement, assess room allocation/deck arrangements, cable routing and separation, power distribution, provide communications connectivity matrix and readiness checks. The experience of THALES is a key element to reduce integration risks for the contractor.

Thales leads the field of Naval EMC engineering in the Netherlands and has the knowledge and experience to design for minimum interference, maximum performance and ensure safety concerning radiation hazards (RADHAZ) to personal, ordnance and fuel. Preventing Electromagnetic Interference (EMI) and RADHAZ challenges minimizes the risk of costly additional tests needed to locate the EMI / RADHAZ source of the problem on board.

The Topside Arrangement Solution ensures optimal performance by solving the challenges attached to simultaneous operating of shipboard antenna systems and equipment susceptible to electromagnetic fields. The Thales’ modeling and simulation approach determines the optimal location of antennas, sensors and effectors. This prevents expensive corrections, reducing the risk of rework and facilitating the in-time delivery of the vessel, while optimizing individual subsystem performance w.r.t. Electromagnetic Compatibility (EMC), coverage and non-transmit zones.

As creator of the Integrated Mast and long-standing contractor in modernizing and overhauling naval vessels, Thales has successfully demonstrated customer understanding and advises naval shipyards in defining the platform to support the Mission System. Knowledge of systems and platform is the key element to reduce risk. A sound understanding of the platform provides proper re-establishment of weight, power, and Heating, Ventilation and Air Conditioning (HVAC) balance.
Traditionally many navies perform In-Service support themselves. However, trends in technology lead to increasing system complexity which in turn calls for highly skilled In-Service support staff. On the other hand, budget limitations demand a reduction of staff. To assist customers in the increasing burden of the In-Service support, Thales provides a choice of service levels for optimised operational availability and reduced cost of ownership. These service levels are On demand, Service Level Agreement, Contract for Availability and Contract for Capability.

Local partners are involved in the design and development after extensive Transfer Of Knowledge And Training (TOKAT). This enables cooperation with and across local partners in order to create the best solution for the end user. The TOKAT package transferred to local partners by Thales can also include integration and In-Service Support activities.

To perform operational functions effectively, systems need to be reliable, easily maintainable and safe. The Integrated Logistic Support (ILS) services provided by Thales make this possible in a cost-effective way while reducing the maintenance burden of today’s high-tech solutions. Thales thinks in terms of supportability from the earliest design phase throughout the total life-cycle. A broad spectrum of innovative ILS solutions can be offered for the support of successful Naval Missions.

In a new and proven in-service support concept, Contractor Logistic Support (CLS) arrangements offer an agreed level of system availability for a fixed price. These performance-based solutions include execution of maintenance tasks as well as availability of spare parts based on commitments regarding overall system availability. By outsourcing responsibilities for the long term, system availability will increase and through life costs of systems are reduced.
# TACTICOS Solutions Family Overview

## Safety

- **Commander**
  - Support basis sensors: Navrad & AIS
  - Sea chart support
  - Task, route and pattern planning
  - Search and rescue package
  - Shareable local situation picture even over low bandwidth radio networks

## Littoral Security

- **TACTICOS 100**
  - Commander +
    - UDOP
    - AIS
    - Sea chart support
    - Legal evidence recording
    - Maritime Interdictions Operations - gun control

- **TACTICOS 150**
  - TACTICOS 100 +
    - Relation Mapping
    - Trend visualization & anomaly detection
    - Air Control
    - Non-tactical IP networking
    - UAV support (option)

## Ocean Security

The first choice for ocean-going maritime security agencies. It provides capabilities for both littoral and high-seas operations against pirates, smugglers and terrorists. TACTICOS 150 supports long-endurance oceanic patrols and work with a variety of off-board assets including sea boats, boarding teams, helicopters and unmanned vehicles.

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### General Policing
- Search and Rescue
- Anti Air Warfare
  - Self Defence
  - Area Defence
- Anti Surface Warfare
- Anti Submarine Warfare
- Naval Gunfire Support
- Ballistic Missile Defence

### Optional Features
- Include data sheet
- Optional data sheet
- Download data sheet

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**Included**

**Optional**
The focus of TACTICOS 500 is to provide layered air defence with guns and missiles; support concurrent engagements (air, surface and subsurface). It supports a task force staff and provides coordination for area defence with typically 12-20 operator positions.

The TACTICOS 1000 is an add-on that provides the ability to perform very wide area defence against ballistic missiles.

A specific, highly modular solution to provide small patrol craft and fast interceptor craft with C2 and action support. Based on a clever combination of low-cost building blocks that can be packaged into a lean yet mean combat system with sensors and machine gun(s).

THALES

www.thalesgroup.com/Tacticos
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