Submarine combat system

SUBTICS® is DCNS innovative combat system for submarines, sea-proven with French Navy SSN and SSBN, and with the SSK of several foreign navies. Highly modular and configurable, SUBTICS® can be integrated either on new platforms or as part of a modernisation programme for existing platforms.

Missions
SUBTICS® addresses the growing challenges of modern submarines missions in “blue” and “brown” waters:
- anti-surface and anti-submarine warfare,
- intelligence gathering,
- land-attack and deep strike,
- sea denial and area clearing,
- naval force support.

SUBTICS® is evolving to address new missions such as anti-air warfare and UUV/UAV deployment.

Detection and classification performance
Clear and reliable tactical situation
Safe, rapid, and flexible weapon engagement
Safe shallow water navigation
Naval force integration
French Navy operational feedback
Innovative human machine interface
KEY POINTS

Detection and classification performances
Derived from French Navy requirements, SUBTICS® proposes the best performances of the market:
- **sonar:** detection, classification and identification, ranging from ultra-low to high frequencies for radiated noises and pulses, including transient signals,
- **optical/optronic:** high detection range and accuracy in daylight/night/IR modes,
- **RESM/CESM:** high detection range; stealth early warning; direction finding, automatic classification.

French Navy operational feedback
Capitalising on more than thirty years of French Navy operational feedback on various crisis theaters, DCNS is constantly improving SUBTICS® system. French Navy submarine crews regularly participate to validation campaigns in the laboratory or at sea. Foreign navies buying SUBTICS® and the periodic upgrade service will benefit from this unique operational feedback from the French Navy for their superiority at sea.

Clear and reliable tactical situation
Thanks to its new generation of automatic tactical picture elaboration algorithms, and innovative HMI, SUBTICS® introduces a real gap in tactical picture clarity and reliability for:
- manoeuvre decision in a dense tactical environment,
- safe return to periscope depth,
- weapon engagement in antisurface and antisubmarine warfare.

Safe, rapid, and flexible weapon engagement
Tactical weapon systems are implemented over short but demanding periods, for which safety, rapidity and flexibility are critical characteristics. SUBTICS® proposes:
- the widest missile and torpedo firing domains on the market,
- excellent tube reloading time limits in total safety for operators,
- a wide range of missiles and torpedoes already integrated and the integration of any other customers chosen weapons.

To ensure shallow water safety of navigation, SUBTICS® introduces innovations through:
- A new navigation aid system with advanced functions for position uncertainty management, numerical cartography and bottom mapping,
- an automatic steering function tailored to the submarine’s specific steering laws,
- an innovative HMI displaying relevant data from the combat system and steering system.

Naval force integration
Submarines will have the capacity to interoperate with a national or international naval force. SUBTICS® proposes:
- VLF to SHF integrated communication system tailored to customer needs,
- stealth reception on wire and loop antennas,
- NATO L11, L16JRE, L22 and non-NATO Link V multiple tactical data link capability,
- clear remote tactical picture with advanced filtering.

SUBTICS® COMPONENTS
**INNOVATIVE HUMAN-MACHINE INTERFACE**

![Simpler, intuitive and user friendly HMI](image1)

**Simpler, intuitive and user friendly HMI**
Thanks to the civil state-of-the-art SUBTICS® HMI, young submariners will quickly become efficient operators for most complex missions, reducing the need of long specialist training courses.

**Operator centered on mission success**
SUBTICS® automates most of the operator’s routine tasks and proposes numerous of tactical and contextual tools to reduce the operator workload allowing the operator attention on mission success.

**Operation room integrated HMI**
SUBTICS® is natively interfaced with the Integrated Platform Management System (IPMS) and the steering console, and proposes an innovative operation-room arrangement to optimise operations within the operation room.

![Standardised Web HMI technology](image2)

**Standardised Web HMI technology**
SUBTICS® non-intrusive HMI and standardised Web technology opens new opportunities for: extensions to mobile devices such as touchpads, third-party view integration and the integration of legacy systems for modernisations.

**COMMON SHARED INFRASTRUCTURE | PARTNERSHIPS**

The SUBTICS® modular and open architecture relies on a common shared infrastructure that is fully compliant with international standards for data, video and audio distribution and based on COTS hardware components. Through an ambitious development plan, SUBTICS® will periodically integrate rapid hardware improvements in processing performance and power consumption. This new infrastructure natively integrates DCNS cybersecurity by design requirements and allows cyber maintenance services.

![DCNS is open to partnerships with local industry](image3)

DCNS is open to partnerships with local industry in the frame of work-sharing during system production or transfer of technology. Through several win-win programmes, DCNS has developed real know-how in transfer of technology activities for quick skill acquisition. DCNS can share with a local partner its advanced collaborative engineering processes and tools and software development environment to guarantee a cost-effective integration of local-industry developments for the SUBTICS® system and ensure local autonomy for through-life support.

**SUBTICS® HIGH VALUE-ADDED SERVICES**

**A process centered on the customer need**
In the negotiation phase, DCNS may help the customer to optimise the SUBTICS® prize and performances thanks to reliable methods and tools to evaluate the performance levels of different configurations, such as detection range, acoustic advantage or weapon probability of kill.

**On shore Training Centre**
In addition to on-board training functions, the SUBTICS® Shore Based Training Centre allows several training configurations from individual initial training courses to advanced crew training courses.

**DCNS’s commitment to performance at sea**
In the design phase, the customer is closely associated with the customisation process to meet its specific operational requirements and to tailor the HMI to the crew working practices.

**On shore Mission Data Analysis Centre**
SUBTICS® Ashore Mission Data Analysis Centre exploits the data recorded during the submarine patrol for: mission replay; mission analysis with multiple data source compilation; target classification and acoustic and non-acoustic signature analysis; integration of target signature in on-board classification databases.

**Long-term support and periodic updates**
DCNS is the only company on the export market able to take on the role of design authority for both the combat system and the submarine platform, and therefore to commit to combat-system performance at sea.

**On shore Mission Data Analysis Centre**
SUBTICS® takes full benefit from large number of systems under development or maintenance for the French Navy and foreign navies to guarantee a long-term support during the full life cycle of the system.
Credentials

New ships:
- Pakistan Agosta 90B SSK, 3 systems in operation at sea.
- Chile Scorpene® SSK, 2 systems in operation at sea.
- Malaysia Scorpene® SSK, 2 systems in operation at sea.
- France Le Terrible SSBN, 1 system in operation at sea.
- India Scorpene® SSK, 5 systems under production, 1 system at sea.
- France Barracuda SSN, 6 systems under production.
- Brazil SBR SSK, 4 systems under production.

Modernisations:
- South-eastern Asia A12/A17 SSK, 4 systems in operation at sea.
- France Rubis SSN, 6 systems in operation at sea.
- South America U209 SSK, 5 systems in operation at sea.
- France Le Triomphant SSBN, 2 systems under production, 1 system in operation at sea.