



Scorpene submarine: six are being built by MDL for the Indian Navy

# DCNS: 'Sea' the Future

**D**CNS fervently believe that the sea is central to our planet's future. As a world leader in naval defence and an innovator in the energy sector, the Group is developing advanced technology and solutions to secure the future and develop the planet's potential in sustained manner. Its specific strategy is built on proven ability to meet an operator's needs by combining "exceptional" know-how with "unique" industrial resources. DCNS designs and builds submarines and surface combatants, develops associated systems and infrastructure, and offers a full range of services to naval bases and shipyards. The Group has also expanded its expertise into civil nuclear engineering and marine renewable energy. "As a responsible corporate citizen, DCNS was one of the first major defence groups to achieve full certification to ISO 14001", state company officials.

The DCNS continues to grow, as recorded in first half of 2013. Patrick Boissier, Chairman and CEO of the DCNS Group, said: "In the course of the first half of 2013, we recorded an increase in revenue, confirming our growth potential. Operating profit did not see the same growth due to the impact of certain operational difficulties and increased investment in R&D."

In the absence of major new contracts, the Group booked orders worth €578 million in the first half of 2013, compared with €813 million in H1 2012. At end June, the order book was worth €13.23 billion, compared with €14.2 billion a year earlier, which, however, represents four years' output. First-half revenue rose to €1.63 billion, compared with €1.4 billion a year earlier, thanks to good progress on industrial programmes for the French Navy (FREMM frigates, *Barracuda* submarines

and through-life support for front-line ships) plus others for international navies (notably Brazil, India and Russia).

Operating profit before impact of PPA (purchase price allocation) for the first half of 2013 amounted to €95 million, or 5.8% of revenue, compared with €98 million, or 7% of revenue, for the same period last year. The Group encountered operational difficulties in certain industrial programmes, primarily in the civil nuclear engineering sector. It also stepped up R&D investment relative to H1 2012 in order to maintain its technological leadership in key markets. An action plan has been launched to increase operating profitability.

From 17 to 23 June, DCNS launched a major exercise campaign off the coast of Toulon in the Mediterranean Sea (see later).

Building on its expertise in the development and integration of complex



data systems dedicated to the naval defence domain, DCNS is applying its know-how in the area of maritime security and state action at sea (coastguard, police, customs...). as is, for example, the case with the recent deployment of its Marylin system designed to improve the effectiveness of sea search and rescue missions whilst at the same time allowing the coordination of the concerned services. This new system has just been installed in all regional surveillance and rescue operational centres (*CROSS - Centres régionaux opérationnels de surveillance et de sauvetage*) of the Department of Maritime Affairs.

DCNS teams are also coordinating the European research project I2C, supported by the European Union. I2C, which was initiated in October 2010 for a duration of 4 years, is a system designed and developed by DCNS with its partners.

The aim is to detect and identify (in real time) illegal and criminal activities conducted at sea. I2C allows the dynamic analysis of vessel trajectories and activities, database access and automatic alerts as a function of the established

rules in consultation with the operational authorities.

To accomplish these missions, the system correlates and exploits all information gathered from multiple sources: surveillance data from coastal radars, airplanes and vessels (via AIS), observation satellites, etc. The analysis of these data allows the real-time constitution of the most precise synopsis possible of the situation for use by the operational manager. He thus has at his disposal reliable information to make operational decisions and plan the necessary interventions. It is a powerful decision-support tool.

The exercise campaign of July 2013, coordinated by DCNS, deployed significant resources: Zeppelin aerostat, maritime patrol aircraft, surface drone, coastal surveillance stations) and involved around ten experts. This operation aimed to evaluate the I2C system and its vessel surveillance performance in the exclusive economic zone (EEZ), which extends up to 200 nautical miles (about 320 kilometres) out from the coastline. In effect, the system ensured permanent

monitoring of the activities of almost 50,000 vessels of all sizes, under all weather conditions and up to a distance of 200 nautical miles from the coast.

I2C aims to be complementary to existing national surveillance systems and offers the continuous correlation of many other streams of maritime information originating from multiple sources such as weather and sea-state forecasts, vessel identity and history, geographical data, port movements, intelligence, etc. These multiple sources of information are exploited by a powerful algorithmic simulation software tool. For each alert, it provides precise hypotheses concerning the nature of the illegal activity. Furthermore, the operator may himself apply “detection rule” settings to detect any particular type of suspicious situation. This project is supported by the European Union through the Framework Programme for Research of the Maritime Chapter of EUROSUR (EUROpean SURveillance). It aims to develop a common (multinational and interoperable) border surveillance system.

# The Water World of DCNS

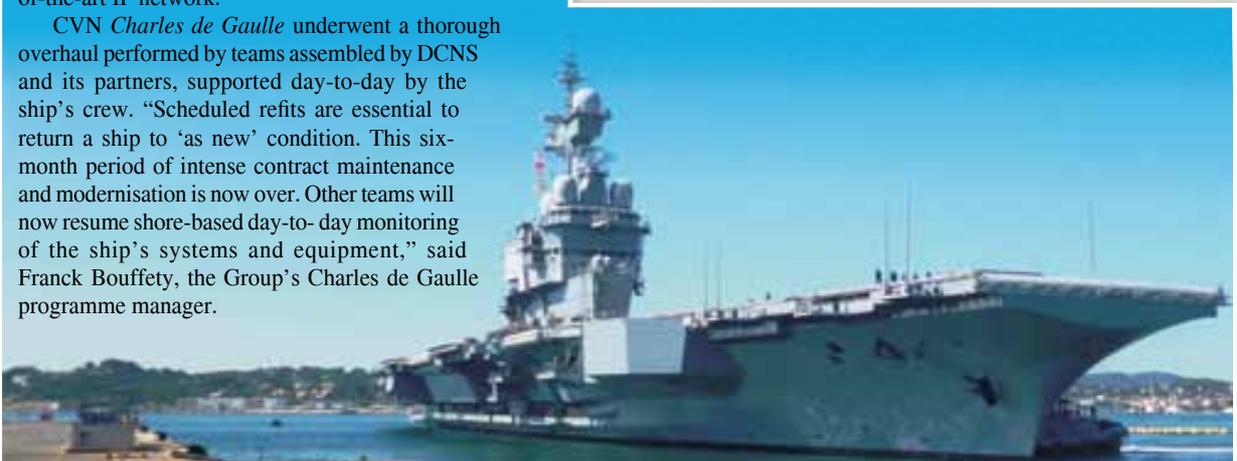
## DCNS completes CVN Charles de Gaulle refit

The French Navy's Fleet Support Service (SSF) signed off on completion of the intermediate refit of nuclear-powered aircraft carrier Charles de Gaulle after six months' work by DCNS. From hull to combat system, including compliance tests to the latest environmental standards, communications suite modernisation or the refurbishment of the accommodation and recreation areas, the project involved some 950 people and one million man-hours' work.



In addition to scheduled maintenance, the refit was used to undertake significant modernisation. The work was performed in the Vauban drydock at the Toulon naval base. The ship was given a complete facelift that included repainting of a total area of 26,000 square metres and the complete refurbishment of one of the main galleys. Other modernisation work included the replacement of the stabilisation computer. The propulsion system and other shipboard systems and equipment were inspected, overhauled and tested to ensure optimal performance in operation. Some 35 kilometres of cabling was also installed with a view to the later installation of a state-of-the-art IP network.

CVN *Charles de Gaulle* underwent a thorough overhaul performed by teams assembled by DCNS and its partners, supported day-to-day by the ship's crew. "Scheduled refits are essential to return a ship to 'as new' condition. This six-month period of intense contract maintenance and modernisation is now over. Other teams will now resume shore-based day-to-day monitoring of the ship's systems and equipment," said Franck Bouffety, the Group's Charles de Gaulle programme manager.



## FREMM frigate Provence floated out



On 18 September 2013, FREMM frigate *Provence* was floated out of its building dock at the Lorient shipyard. With five FREMM multi-mission frigates at different stages of assembly and construction, this float-out (or pre-outfitting launch) – always a major milestone – highlights the Group's expertise in concurrent shipbuilding. Eleven of the 12 FREMM frigates on order are for the French Navy.

Operations began with flooding of the building dock. Following a number of other steps, the ship was gently floated out of the building dock. Executing a manoeuvre lasting 15 minutes, tugs then moved the frigate to a nearby outfitting berth.

Over the coming months, DCNS specialists and subcontractor teams will install the ship's systems. The next major milestone will be installation of the *Provence*'s masts and sensors, including her radars, antennas, cameras and jammers.

DCNS began building the *Provence*, the third *Aquitaine*-class FREMM frigate for the French Navy, in December 2010. These highly automated surface combatants require a complement of just 108, or less than half the number required to man earlier generation vessels with similar capabilities. The FREMM multi-mission design concept combines missions including anti-air warfare (AAW), anti-surface warfare (ASuW) and anti-submarine warfare (ASW). On 23 November 2012, following delivery of first-of-class FREMM frigate *Aquitaine* for the French Navy in compliance with the relevant contractual requirements, European Joint Armament Cooperation Organisation OCCAR signed off her acceptance on behalf of French defence procurement agency DGA.

## Sea trials of FREMM frigate for Royal Moroccan Navy

The FREMM multimission frigate on order for the Royal Moroccan Navy is pursuing sea trials off the French coast in preparation for delivery end of this year. In June, DCNS successfully completed a third series of trials to test performance of the ship's combat system. The crew and DCNS specialists completed the latest trials off the Brittany coast, this series of tests being designed to check the performance of the combat system's main sensors. Operational scenarios were executed to check the consistency of the data analysed and displayed by the combat system sensors with the results obtained during shore-based simulations. Specific tests included target engagement sequences using Aster anti-air missiles and MM40 anti-ship missiles, fire control tests for the 76-mm main gun and exhaustive testing of the multifunction radar. Other vessel capability tests involved helicopter approach control and the deployment of various towed devices.



## DCNS begins sea trials of FREMM frigate 'Normandie'

FREMM frigate *Normandie*, second of the *Aquitaine* class for the French Navy, went to sea for the first time on 25 October. This milestone marks the beginning of the ship's sea trials, which will take place off Brittany and are expected to last till the end of the year. The main aim of these preliminary trials is to test performance of the ship's propulsion and navigation systems.

"This milestone represents the culmination of the combined efforts of many people working towards common goals, including DCNS personnel, teams provided by DCNS partners and suppliers, the French Navy crew and representatives of the French defence procurement agency (DGA) plus the European Joint Armament Cooperation Organisation (OCCAR)," said FREMM programme manager Anne Bianchi. "The construction of this second-of-class FREMM frigate for the French Navy is proceeding on schedule and on budget. FREMM frigates are among the most technologically advanced and competitively priced on the world market. Thanks to their many innovations, FREMM multimission frigates can respond to all types of threats with unparalleled flexibility and availability."

Tests will be conducted at a sustained pace during day and at

night, the first three days devoted to the 'familiarisation' phase during which the crew and other personnel test the ship's safety systems and equipment, including fire-fighting, flood control and emergency response systems and evacuation procedures as well as manoeuvrability and mooring performance. The tests will focus on the propulsion system. The FREMM's high-performance hybrid CODLOG (COMBINED Diesel eLECTRIC Or Gas) power package combines a gas turbine for mechanical propulsion at speeds exceeding 27 knots and electric motors for quiet, low-speed propulsion. This phase will also include extensive testing of the ship's navigation (log, position, heading) and other basic systems.

On completing these preliminary trials, FREMM frigate *Normandie* will return to DCNS's Lorient shipyard for several weeks of quayside work. In early 2014, the ship will return to sea for a second series of trials, focusing on the combat system.

