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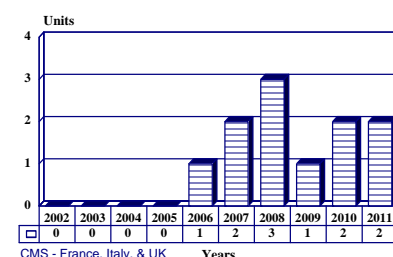
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Combat Management System (CMS) - Archived 05/2003

Outlook

- Forecast International projects that 11 combat management systems will be purchased by the French, Italian, and United Kingdom navies over the next decade
- Look for the first combat management system to become operational with the French Navy sometime in 2006
- Expect the second and third combat management systems to be delivered to the Italian and UK navies in 2007

10 Year Unit Production Forecast
2002 - 2011



Orientation

Description. A combat management system (CMS) is an integrated naval command system that controls anti-submarine warfare (ASW) and anti-air warfare (AAW) operations. This report examines two combat management systems: one being developed by France and Italy, the other being developed by the United Kingdom.

Sponsor

French & Italian Horizon Frigates

French Ministry of Defense

14 rue Saint Dominique

75007 Paris

France

Web site: <http://www.defense.gouv.fr/sga>

Ministero della Difesa

(Italian Ministry of Defense)

Via XX settembre 8

00187 Rome

Italy

Tel: 06.4691.1

Web site: <http://www.difesa.it>

United Kingdom Type 45 Destroyers

Contracts Branch CB/SW32

Procurement Executive

Ministry of Defence

Portsmouth

Portsmouth

Hampshire PO6 4AB

United Kingdom

Tel: +44 1705 379411

Contractors

French & Italian Horizon CMS

DCN Shipyard

France

Thales

173 boulevard Haussmann

75415 Paris Cedex 08 (France)

Web site: <http://www.thalesgroup.com>

Finmeccanica

00195 Rome - 4, Piazza Monte Grappa

Italy

Tel: 06 324731

Fax: 06 3208621

Web site: <http://www.finmeccanica.net>

Datamat

Via Laurentina, 760

Rome, Italy

CAP 00143

Tel: +39 06 5027.1

Fax: +39 06 50.511.407

Web site: <http://www.datamat.it>

UK Type 45 Destroyer

BAE Systems Marine

Marine (VSEL)

Barrow-in-Furness

Cumbria LA14 1AF

United Kingdom

Tel: +44 (0) 1229 823366

Web site: www.baesystems.com

E-mail: Web site has contact form page

Vosper Thornycroft

Victoria Road

Woolston

Southampton

S019 9RR

United Kingdom

Tel: 023 8042 6000

Fax: 023 8042 6010

Web site: <http://www.vosperthornycroft.co.uk>

Status. France and Italy are coproducing four Horizon frigates. The United Kingdom is manufacturing 12 Type 45 Destroyers. A combat management system will be installed on each of these vessels.

Total Produced. None

Application. To control ASW and AAW operations.

Price Range. A price cannot be determined at this time.

Technical Data

French and Italian Combat Management System. Major systems will include the Principal Anti-Aircraft Missile System (PAAMS), the NH 90 and EH-101 helicopters, the SLAT anti-torpedo system, and MU 90 torpedoes. PAAMS consists of a command and control core, ASTER missiles, a Sylver vertical launch system (VLS), and an S1850M long-range radar. SLAT will be able to detect and classify incoming torpedoes, then evaluate and respond to the threat. SLAT's system

software will display the optimal anti-torpedo response, including soft-kill methods. SLAT will interface with the frigate's anti-torpedo systems and countermeasures, including decoy launchers.

United Kingdom Combat Management System. Like France and Italy, the United Kingdom will employ the Principal Anti-Aircraft Missile System (PAAMS). The UK will also operate Lynx HMA.8 helicopters. The helicopters will be armed with Stingray torpedoes.

Variants/Upgrades

No variants exist for the French, Italian, or UK combat management systems.

Program Review

Background. Project Horizon, also designated the Common New Generation Frigate (CNGF), was a tri-national program that started in the early 1990s to fill a need for an AAW frigate for the French, Italian, and UK navies. Initially, Project Horizon frigates were scheduled to enter service sometime between 2002 and 2005. Their primary role was to protect task groups against air attack. The ships were to incorporate the Principal Anti-Aircraft Missile System (PAAMS) using French ASTER-30 missiles and the Italian European Multifunction Phased Array Radar (EMPARG). Proposed designs of the new ship varied from 3,850 ton modified Type 23 frigates to a new and very powerful 7,200 ton warship.

In 1992, the UK MoD awarded feasibility study contracts for a CMS to be installed on the Horizon frigates. One contract was awarded to a consortium headed by Ferranti International. The second contract

was awarded to BAeSEMA (now BAE Systems) and Racal (now Thales). Thales (formerly Thomson-CSF) was appointed as the third consortia leader.

Problems on the Horizon. In 1993, BAeSEMA (now BAE Systems) received a Royal Navy contract for technical assistance in the specification and analysis of the Project Horizon combat management system. Problems with the design of the CMS erupted in early 1994. The design problems led to long delays that pushed back the planned entry-to-service date.

As a result of these difficulties, the UK was less inclined to accept interim solutions. Moreover, the UK was promoting the development of a more advanced AAW system based on active array radars. This would mean the elimination of the EMPARG radar. This was not acceptable to either the French or the Italians. The EMPARG radar was the only major Italian system being

installed on the new frigates. Further, a change in radar threatened the use of the entire ASTER-30 missile system.

In February 1994, the CNGF Joint Project Office (JPO) released a statement suggesting that unless CMS contracts were placed soon, the differential in time requirements between CMS development and other development areas would result in more delays. These problems had already caused a two-year delay in the project. The third consortia dropped out around this time, leaving the EUROCOMBAT consortium and the HEPICS (Horizon European Project Integrated Combat System) EEIG consortium as CMS contenders.

In March 1995, the service entry date of Project Horizon suddenly became classified information. Speculation that the project was experiencing additional delays surfaced. These rumors were confirmed when the UK General Accounting Office published a criticism of the Project Horizon program, suggesting that the realistic in-service date was 2005 (not the announced date of 2002).

In May 1996, the initial CMS design review was finished. Two European consortia, EUROCOMBAT and HEPICS EEIG, were selected to start a two-year Project Definition 1 (PD1) phase. Each consortia was given £8 million (US\$13 million) to fund the PD1 study. One key issue to be addressed in the PD1 was the actual interface between the CMS and the other equipment such as PAAMS, EWS, and the Fully Integrated Communications System (FICS).

The PD1 was completed in June 1998, with one consortia selected to undertake the PD2 phase (it is not known which consortia won the contract). Funding for PD2 was anticipated to total £4 million (US\$6.5 million). The winning consortium was to undertake all development and initial production of the CMS system. Production of four systems was scheduled for delivery in 1999. The initial production would provide one system to the Shore Integration Facility and one system to each of the first three vessels.

UK Dissatisfied: Project Canceled. The UK was dissatisfied with the never-ending delays Project Horizon was experiencing. More importantly, UK officials were not happy with the direction the project was taking. On April 25, 1999, Project Horizon was officially canceled. The UK had pulled out of Project Horizon and one month later the tri-frigate program was terminated.

Recent Developments. The project to develop a joint combat management system for the United Kingdom, France, and Italy looks different today. Instead of the European frigate originally planned, Horizon has become a bilateral program between France and Italy. The size of the program has been reduced as well: only four frigates are to be built instead of the original 20. The United Kingdom, which originally planned to purchase 12 Horizon frigates, is going it alone with its Type 45 Destroyer, leaving France and Italy building only two Horizons each.

The French and Italian Program. The Horizon frigate will have an automated combat management system. Major systems will include the PAAMS, NH 90 and EH-101 helicopters, the SLAT anti-torpedo system, and MU 90 torpedoes.

The first Horizon is scheduled to become operational with the French Navy sometime in 2006. The first *Orrizonte* (Italian for Horizon) will be delivered to the Italian Navy in 2007. Both countries will receive their second frigates by the end of 2008. Horizon will replace the French Naval action force frigates *Suffren* and *Duquesne*. *Orrizonte* will replace the Italian Navy AAW ships *Audace* and *Ardito*.

The United Kingdom Program. In August 2000, the United Kingdom announced plans to build a new anti-air warfare destroyer. The vessel is called the Type 45 destroyer. Forecast International projects that the UK will manufacture 12 of these ships. Expect the first three vessels to enter service from 2007-2009, and the last ship to be operational by 2014. A combat management system will be installed on each of these vessels.

Funding

The French and Italian ministries of defense are funding the development and construction of the four Horizon frigates (which include combat management systems). The United Kingdom Ministry of Defence is funding the design and production of the 12 Type 45 destroyers (which include combat management systems).

Recent Contracts

| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|-------------------|--------------------------------|-------------------------|
|-------------------|--------------------------------|-------------------------|

| <u>Contractor</u> | <u>Award (\$ millions)</u> | <u>Date/Description</u> |
|-------------------|--------------------------------|---|
| Horizon SAS | 2,700.0 | Oct 2000 – Contract awarded for the design, development, and production of four frigates. |
| BAE Systems | 1,800.0 | Dec 2000 – BAE Systems awarded a Demonstration for Manufacture (DFM) contract to design and build the first three Type 45 destroyers. |

Timetable

| <u>Month</u> | <u>Year</u> | <u>Major Development</u> |
|--------------|-------------|--|
| Feb | 1992 | Initial feasibility study contracts awarded for the combat management system |
| Jan | 1993 | BAE Systems receives technical assistance contract for the combat management system |
| Feb | 1994 | CNGF Joint Project Office releases statement suggesting delays in the development of the CMS |
| | 1995 | UK General Accounting Office publicly criticizes CMS project for failing to meet its deadlines |
| May | 1996 | EUROCOMBAT and HEPICS EEIG awarded contracts for the CMS PD1 phase |
| June | 1998 | CMS PD1 phase completed |
| April | 1999 | UK pulls out of the three-nation CMS project |
| Aug | 2000 | UK announces the construction of its new anti-air warfare destroyer, the Type 45 |
| Sep | 2000 | France and Italy sign an agreement to develop a joint combat management system |
| | 2006 | The first Horizon frigate, carrying a combat management system, expected to be delivered to the French Navy |
| | 2007 | The first Orrizonte (Italian for Horizon), carrying a combat management system, expected to be delivered to the Italian Navy |

Worldwide Distribution

Distribution of the CMS developed by France and Italy will be limited to France and Italy. Distribution of the UK Combat Management System will be limited to the UK.

Forecast Rationale

A combat management system (CMS) is an integrated naval command system that controls anti-submarine warfare (ASW) and anti-air warfare (AAW) operations. This report examines two combat management systems: one being developed by France and Italy, the other by the United Kingdom.

As indicated by the **Ten-Year Outlook** chart, Forecast International projects that 11 combat management systems will be purchased by the French, Italian, and United Kingdom navies over the next decade. The need

to replace aging combat management systems is driving French, Italian, and UK demand for the product.

The Horizon frigate, and its accompanying CMS, will replace the aging French Suffren class frigate, as well as the Italian Audace class destroyer. The Type 45 destroyer, and its accompanying CMS, will replace the aging UK Royal Navy Type-42 destroyer. After many difficult years, it appears each nation is purchasing the CMS it wants. As always, Forecast International will analyze and report on the CMS developments of these three countries as they arise.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

| Designation | Application | Thru 01 | <u>High Confidence Level</u> | | | | <u>Good Confidence Level</u> | | | <u>Speculative</u> | | | Total 02-11 |
|--------------------------|--|---------|------------------------------|----|----|----|------------------------------|----|----|--------------------|----|----|-------------|
| | | | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | |
| COMBAT MANAGEMENT SYSTEM | FRENCH-ITALIAN HORIZON FRIGATES (FRANCE) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| COMBAT MANAGEMENT SYSTEM | FRENCH-ITALIAN HORIZON FRIGATES (ITALY) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| COMBAT MANAGEMENT SYSTEM | TYPE 45 DESTROYER (UK ROYAL NAVY) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 7 |
| Total Production | | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 1 | 2 | 2 | 11 |