



Franco-British Co-operation: A Booster to the PA2 Design Definition Challenge in 2006

by *Louis Cazaubon*

Louis Cazaubon is the Project Director of the French aircraft carrier programme for the industrial prime contractor, MOPA2. Here he outlines the form of the Anglo-French co-operation in the design and development of the future aircraft carriers of the two countries, and the aim of reaching 80% commonality.



The UK's future aircraft carrier, CVF

In late 2005, the French Minister for Defence launched the design definition phase of the PA2 aircraft carrier programme (PA2 stands for porte-avions 2, or second aircraft carrier). The PA2 will be based on the carriers now being designed in the United Kingdom under the two-vessel Carrier Vessels of the Future, or CVF, programme.

'The project has now entered a decisive phase'

The similarities between the two countries' needs, budgetary constraints and schedules convinced France and the United Kingdom to co-operate on their future carrier programmes. After announcing in 2004 that the PA2 would use conventional propulsion, France opted for the CVF concept on the basis of a PA2 feasibility study, completed in June 2005, which concluded that 80% design commonality was indeed a realistic target.

Memorandum of Understanding

The project has now entered a decisive phase. The Franco-British Memorandum of Understanding (MoU) signed on 6

March 2006 by the French Minister for Defence and the British Defence Secretary stipulates the conditions for co-operation. Under the MoU, the British will share CVF product studies with the French, who will be free to use them for the PA2 programme. Access to these documents will allow the industrial prime contractor, MOPA2, to work with its customer to identify the common baseline design for the French carrier.

By contributing to research and development (R&D) costs for feasibility and design studies led by the UK Aircraft Carrier Alliance and for the definition of the common baseline design until the end of 2006, France is acquiring access to, and the right to use, CVF design data, presently the property of BAE Systems and Thales UK.

Now that the MoU has been signed, MOPA2 (the PA2 project prime contractor team and a newly created subsidiary between DCN and Thales Naval France) is analysing the design documents thus made available with a view to validating the tailoring of the British CVF design to the French Navy's needs. The aim is to prepare a PA2 design review for the coming summer. This review will lead to the definition

studies of the PA2 carrier in the second part of 2006, and to the drafting of an overall bid for the development and the manufacturing of the carrier by the end of the year.

As time is strictly limited, the race is now on. The team, seconded by French contractors to the Aircraft Carrier Alliance's head office in Bristol, where the British CVF programme teams are based, has been expanded. French contractors are thus contributing to the CVF demonstration phase. The French specialists assigned to the Alliance team are working with their British counterparts on CVF risk reduction and the best possible synergies with the PA2 programme.

'The French specialists are working with their British counterparts on CVF risk reduction synergies with the PA2 programme'

Commonality and Differences

The common baseline design for the CVF and PA2 carriers covers their general architecture and design (including hull form, structural design and dimensions, twin island arrangement and provisions for catapults and arresting gear) and common systems (including turbine-based electrical power system, electric propulsion and aircraft elevators). This corresponds to an overall commonality of around 80%.

The main differences between the French and British vessels concern their

air wings and associated requirements. The Royal Navy will use STOVL (short take-off and vertical landing) aircraft, specifically the Joint Strike Fighter (JSF), which require a bow ski-jump. The French Navy will operate Rafale combat aircraft and Hawkeye E-2C early warning aircraft which require two catapults (specifically American-designed 90-metre C13-2 steam catapults) for launch and triple arresting wires on the angled runway for recovery. The CVF hangar deck will also need to be tailored to the requirements of the French naval air arm (l'Aéronautique navale) and its advanced support systems.

Beyond the symbolism of European

co-operation, Paris and London hope to achieve economies of scale by building three largely similar carriers instead of two. By making their know-how and experience in carrier design available to the integrated team, French contractors hope to identify and exploit synergies for the detailed design and procurement phases. The aim is to keep tailoring to a minimum while accommodating both customers' needs. The French side will be free to propose to the British side design changes suggested or demanded by the French Navy. Although the CVF schedule leaves little time for such initiatives, the British partners appear open to the idea.



The future French aircraft carrier, CVF-FR, which is based on the CVF design

For the moment, the potential for synergies during the shipbuilding phase looks more limited in view of the contracting arrangements proposed by UK shipbuilding companies. Contracting for the PA2 has yet to be finalised. In addition to DCN and Thales Naval France, the arrangements will draw on the skills of Chantiers de l'Atlantique and other French industrial firms.

'The aim is to keep tailoring to a minimum while accommodating both customers' needs'

In Conclusion

In conclusion, the final development and construction cost of the three carriers will depend largely on synergy levels during the detailed design and common procurement phases and during in-service support.

To exploit these synergies, while rising to the challenge issued by governments to contribute to Europe's common defence vision, contractors on both sides of the Channel must commit unstintingly to co-operation. On our side, MOPA2 and their French partners commit unambiguously to the success of such a challenging goal. ■



The main differences between the French and British vessels concern their air wings. The Royal Navy will use STOVL aircraft, but the French Navy will operate Rafale and Hawkeye early warning aircraft. (© Crown Copyright, images from www.defenceimages.mod.uk)