

Carrier Strikes an Imposing Position

David Pearce takes a look at the progress of HMS Queen Elizabeth, the first of the QE Class aircraft carriers.

Even on a bitterly cold Rosyth morning, one can't fail to be impressed by the sheer majesty of the emerging hull shape that is HMS Queen Elizabeth, the first of the UK's new QE Class aircraft carriers. On completion it will be similar in size and weight to the Queen Mary 2 and will be capable of routinely operating 12 Joint Strike Fighters out of its planned compliment of 40 as part of the UK's Carrier Enabled Power Projection Programme. With Initial Operating Capability for HMS Queen Elizabeth planned for 2020, this is one of the largest engineering projects currently being undertaken in the UK.



The final bow unit to the carrier HMS Queen Elizabeth, completing assembly work on the forward part of the ship's hull – courtesy of the Aircraft Carrier Alliance, Spring 2013

Tasked with delivering the QEC ships is the Aircraft Carrier Alliance (ACA), a unique partnering relationship between Babcock, BAE Systems, Thales UK and the MoD - the latter acting as both partner and client. The ACA is 'a co-operative relationship between Client and Industrial Partners formed and designed for the express purpose of delivering a project', and is responsible for delivering the QE Class to the UK Ministry of Defence and ultimately the Royal Navy. Upwards of 70% of HMS Queen Elizabeth has now been assembled, and over the next few months or so work will continue to ready the ship for launch in 2014. Equipping and fitting out for the sea trials are expected to take place 2017

The ACA's Information Management (IM) strategy is key to not only managing the data and information for the design, manufacturing and build phases, but also that for the through-life support of the ships. Consider the IM task: for the design and manufacture phase, each ACA Industry Partner deployed existing ship design tools and processes to reduce the need for large scale process

re-engineering and retooling. For BAE Systems this centred on Foran, and for Babcock, a combination of Foran and Tribon - both systems uniquely geared for the design, manufacture and assembly of hull and outfit items, but from competing PLM vendors. To this, one must also add the individual MRP, ERP and other systems that the industry partners were bringing to the table. Adding to the IM complexity of the project, design engineering was carried out at five locations, with fabrication and construction of the individual blocks that comprise the hull structure at six different shipyards around the country – all to be assembled at the Rosyth shipyard and where success was dependant on a willingness to share information via the ACA Shared Data Environment.

Core to the IM strategy, and to ensure project management fidelity, is that of the ACA IM Backbone. This has been built around Windchill to provide ‘ a single point of truth’ and where the ACA Partners can share information across their respective organisational boundaries - for example ship configuration, parts management, product breakdown structures, ship registers, document and drawing registers *et al.* Each ACA Partner places a subset of their information into the IM Backbone which is hosted at Rosyth.

Of particular interest is how the transition from the design, manufacture and build phases to the in service supportability phase, where affordability of through life support is a key driver, will be achieved. Integrated Logistic Support (ILS) is the chosen methodology to optimise the costs of support, and the ILS deliverables, from what I understand, will be procured primarily through the manufacturing contract and delivered with the aims of providing affordable, value for money, in-service engineering and spares logistic support from contract acceptance.

As the HMS Queen Elizabeth transitions from build to in-service, and with the Ship Deliverable Register issued this year making greater demands for in-service data needs, the big challenge for the ACA is to create an IM environment, perhaps loosely defined as where ‘PLM meets ILS’, that is both pragmatic and affordable to accommodate the needs of the MoD customer, the shipbuilder, operating capability and through life support.