DefenceSynergia

Exposing the incoherence and weakness in the United Kingdom's Defence and Security Strategies.

June 2012

DefenceSynergia

FOREWORD

Brief to MPs by DefenceSynergia for a Meeting in Westminster Hall at 17.15 18th June

We are representatives of DefenceSynergia (DS), a small group determined to try and identify the incumbent government's strategy and deduce from that national defence and security operational requirements. We emphasise that we do not limit these requirements to the armed forces.

Before Strategic Defence and Security Review 2010 (SDSR), we recognised that the Ministry of Defence was woefully underfunded for the programmes of all three services which were, in any case, operating in a strategic vacuum; Afghanistan was mesmerising everyone.

With a fresh government, the establishment of the National Security Council (NSC), the generation of a National Security Strategy (NSS), the reports commissioned by Dr Fox to improve, radically, Ministry of Defence (MOD) procedures and the imminent SDSR promised much in spite of the severe economic situation. There was a chance that a clear set of intentions might emerge.

Admittedly, the timescale for SDSR production was extremely truncated but the inputs to it smacked of short term partisanship so, the review seemed to focus on immediate operations (things already well known that should have been planned for some years since) and, otherwise, took a panglossian view of the medium and short term. These errors became exposed very swiftly with our involvement in the Libyan conflict when the risks and rewards of providing the required air superiority, most cost effectively, were called into question.

Since SDSR, DS has written to every Member of Parliament, developed a website, and written or sponsored a number of papers which either support particular aspects of the SDSR or highlight the incoherences in it. We agree, for example, that to go ahead with the Trident replacement system is a statement that we stand "inter pares" with western democracies prepared to deter rogue states. We decry the confused thinking that has led to an ill advised decision that means the Royal Navy and the Royal Air Force will not meet their proper operational requirements for "state of the art" fast jet fighters.

We believe that Defence is the action arm of Foreign Policy (FP). The government is doing FP on the hoof according to prevailing circumstances. That's a plan not a strategy. We need a strategy that allows all departments of State to discern, easily, their own plans. We call this a Grand Strategy (GS). Because there isn't a GS we

don't have joined up and properly scoped FP, which in turn means we don't have a well thought out Defence Policy (DefPol).

Without a meaningful DefPol, MOD doesn't know what military power is required or how to equip for national risks. Hence, the Services guess the best they can with Defence Equipment & Support not knowing what to buy and industry not being told, accurately, what to deliver.

We deduce from all that has been written and said by the government that the emphasis has got to lie within a "Maritime Strategy" rather than a "Continental Strategy" which, incidentally, the United Kingdom has never been very good at nor truly aspired to and does not chime with present declared intentions for defending the nation. In military terms this means moving away from what might generally be called "standing armies" to flexible, rapidly deployable troops well able to operate autonomously in many and, quite often, distant parts of the world. For this, autonomous air cover and logistical support are vital. More generally, air defence of the UK, cyber warfare protection, policing and other emergency services need a strategy from which to derive their plans.

In a very real sense we have a metaphor for the incoherence that stems from a lack of Grand Strategy to steer almost all aspects of government policy and to establish clear directives for security and defence of the realm. This brings us on to the central feature of the meeting which is a lack of Grand Strategy that is demonstrated in the case of the RN and RAF by - "the reversal of the aircraft carrier fit from Catapults and Arrester Gear to Short Take Off and Vertical Landing?" This one change, seeming so trivial yet applauded in cost saving terms by almost everyone, undermines FP, severely reduces our ability to operate effectively with allies at the strategic level and leaves the nation vulnerable because we will be very limited in acting alone whilst retaining little leverage when reliant on others – most importantly the United States of America and key allies in NATO and the European Union. The army too have been affected – note the current uncertainty over the future balance between the regulars, TA and combat support services (CSS).

You may have further questions for us arising from sight of this one page brief or may wish to ask us to explain our general position a little further or wish to discuss the issue of 'maritime strategy' in more detail. Please feel Free to contact DS at any time.

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APPLICATION OF MARITIME POWER – AIRCRAFT CARRIERS

Military: From the Sea: Power Projection - Strategic and Sub-Strategic Deterrence - Coercion - Combat Operations Against the Land - Combat Operations in Defence of Land Forces – Evacuation Operations - Conflict Prevention - Support to Peacemaking and Enforcement - Poise or Presence in a troubled area offers diplomatic options .

At Sea: Operations against Enemy Forces - Protection of Maritime Trade.

Constabulary & Benign: Embargo, Sanctions & Quarantine Enforcement - Peacekeeping - Enforcement of Maritime Agreements - Disaster Relief - Assistance to Refugees - Peace Building Operations - Search and Rescue - Military Assistance to Foreign and Commonwealth Governments.

THE STRATEGIC CASE FOR CONVENTIONAL AIRCRAFT CARRIERS

Since the end of the cold war the Royal Navy (RN) has been unable to fully exercise its role as a strategic asset. However, the future Queen Elizabeth (QE) Class of aircraft carrier could complete all of the applications of maritime power identified above provided appropriate strategic capability - air-group, defensive screen and reconnaissance airborne early warning (AEW) capability – are made available.

The fact that successive governments have taken a risk by letting some roles slip due to budget pressure is not an argument for the *status quo.* Indeed, it is arguable that some contingencies - such as the Falklands and Libya - may only have succeeded through HM Forces professionalism - despite government policy. But it is

a dangerous gamble to rely upon 'can do' to fill capability gaps, not least because of the draw-down in numbers of personnel and assets in recent years leading to lack of flexibility and robustness against losses. The current carrier air-power debate goes to the heart of this strategic capability gap dilemma.

This begs the question: Defence is said to be the first priority of government. Is it? Is there evidence to support the oft quoted phrase?

Further In this brief you will find a condensed appraisal of current and future aircraft types for performance data comparison. Having read the data you may agree with DS that they demonstrate that only one airframe in the F35 family fully meets both the RN and RAF Operational Requirement (OR) for carrier strike and Tornado replacement: F35C.'

[Albeit that leasing or buying the F18/f as an interim solution could provide MOD with a stop gap measure to afford entry of two carriers fitted with cat and traps until a more likely carrier variant and Tornado replacement - such as the F35C – has cleared development and entered service.]

However, the decision by HMG to revert to the Short Take-off Vertical Landing (STOVL) variant prevents the RAF from fully achieving its OR and severely restricts the development of the carriers to be 'future proofed' whilst undermining survivability by restricting RN Air Defence (AD), Airborne Early Warning (AEW) and Air to Air Refuelling (AAR) capability. The F35B and rotary wing being second best because they will offer far less endurance, range, ceiling height and coverage than other fixed wing types such as the Grumman E2-D Hawkeye and F35C/F18 whilst indigenous RN AAR or rapid air-freight resupply have not so far figured in any objective discussion.

When UK's defence focus was on the North Atlantic with NATO, the RAF was able to provide the RN with extensive air power support. However, this failed spectacularly during the Falkland's war, where there were no land bases available in-range or made available with the political support of nations adjacent to Argentina. The RAF could no longer deploy AEW or additional combat support, which left the RN exposed – losing 6 ships as a direct result.

Therefore, this STOVL decision has reintroduced an old air-power argument – that the RAF will be able to support maritime carrier operations with land-based aircraft from friendly bases along the Littoral. And this is where the 'systems' argument becomes strategically critical and the arguments in support of STOVL begin to unravel, not least because the difficulties associated with Access, Basing and Over-flight (ABO) for land-based air-power have never been fully addressed. Even if the ABO difficulties are somehow overcome and overseas basing of RAF aircraft was not an issue their range and numbers certainly are.

You may wish to ask MOD UK (Air) how the RAF would provide Long Range Maritime Patrol (LRMPA) for the fleet without any LRMPA in the inventory; how they will provide fast jet Combat Air Patrol (CAP) and strategic AEW wide area surveillance over the fleet area, over 1000 miles from any shore base, when the total AAR fleet will be based around a maximum of 14 A330-200 tankers?

To complicate matters, the MOD's two fast jet fleet policy, coupled to the F35B decision affects the RAF, too. Few really believe that the original RAF operational requirement for a medium range 5th generation stealth fighter to replace the Tornado (750 nm combat range) is met by the F35B (470 nm combat range)? Even CDS and Lord Stirrup think that the F35C is the better aircraft - as do most impartial air-power analysts (note the recent report by the Defence Science and Technology Laboratory) - albeit that the former CDS hedged by suggesting that the F35B still largely meets the OR.

You might ask. Which OR – the RAF's, the RN's, both or neither?

The best that can be said for the decision to opt for STOVL is that it simplifies the MOD's procurement headache (line of least resistance) and may appear to save money in the short term, it might even convince HMG to commission two carriers in SDSR 2015 (we must wait and see) and it may facilitate and simplify RAF operational cooperation with the FAA; but none of these alleged advantages change the fact that the decision to buy STOVL was not, is not, and never will be, the correct one for the long term strategic interests of UK or its armed forces. Indeed recent developments strongly suggest that the F-35B will mainly be limited to 'Rolling' landings, not 'Vertical', to reduce stress on its engine and airframe – that is, it will most likely be a STORL: Short Take Off and Rolling Landing.

So from a Strategic and operational point of view you may agree that the decision to buy F35B is flawed on these counts:

1. It fails to meet the UK National Security Strategy that calls for a Strike Carrier capability to enforce UK's worldwide role in air/sea battle terms (just the amphibious support role being practicable).

2. It fails to offer the carrier commander maximum survivability through effective long range Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) and air defence cover.

3. It fails to fulfil the RAF's OR for a medium range 5th generation stealth fighter to replace the Tornado.

4. It fails to cater for future carrier developments such as unmanned air vehicles or the possibility that STOVL will not enter service or last the full 50 years that these carriers are designed for.

UK Carrier Project A Strategic Asset.

The Choice of Carrier or Amphibious Strike.

On the 19th April 2012, I personally wrote to David Cameron, offering my support at his choice of Conventional Aircraft Carriers and the F35C in the 2010 defence review. This was at a time when it became clear that wheels were in motion to revert back to the F35B and therefore a V/STOL(vertical and/or Short take Off and Landing) variant of the Queen Elizabeth class. I wrote to him again on the 2nd May 2012 upon discovery of an alternative launching system, the designer claiming the system to be both tried and tested by the US Navy, cheaper and easier to convert than the then proposed EMALS system. On the 26th April 2012 PUS Ursula Brennen told the HOC PAC that no decision on the carriers had been taken. On the 10th May The U turn was announced.

I received a reply from the Cabinet office stating that my concerns had been passed onto the MOD, to this date I have not received a reply. Along with this I sent separately a request under FOI rules to the MOD asking the following:

Dear Ministry of Defence,

Were other innovations and designs of catapult considered before EMALS was selected for use on the Queen Elizabeth class? If so, what were they and to what level were costing's completed?
Again at the time of writing there has been no reply.

The Strategic Choice

There is no doubt from Analysts and commentators worldwide that only CATOBAR (Catapult Assisted Take Off Barrier Arrested Recovery) type carriers can supply true Carrier strike. V/STOL delivers a more restricted role, that of amphibious strike. That in turn restricts sea room and survivability as the carriers need to be closer to the action to affect events. Air to air refuelling (AAR) is at present not possible for the F35B and therefore restricts operations to operate with land based or allied AAR assets. That may not be possible in missions east of Suez or the South Atlantic due to lack of both availability and politics of neighbouring states. There is also a restricted Airborne Early Warning (AEW) cover as rotary platforms lack the range and power of the fixed wing versions and again land based systems are affected in the same way as land based AAR assets.

Lockheed Martin vice president Steve O'Bryan has said that most F-35B landings will be purely conventional in order to reduce stress on the vertical lift components. Conventional operations also reduce the risk of self-induced foreign object damage. Is this a vote of confidence? If most of the landings are conventional, when will the F35B be doing vertical landings on the carrier? It is also a known fact that F35C is superior in every way to the F35B. Because of this the F35B will be forced to utilise a rolling landing, relying solely on its brakes to stop on a wet, slippery and pitching deck.
The F35B also has issues with Weight, Altitude and Temperature (WAT) while operating in hot climates. Both these issues are discussed in greater detail in Nigel "Sharkey" Wards paper, included in this brief.

The problem is no one can guess where the next threat will come from and requires the most adaptable systems to cover all eventuality's. Failure to do so I believe not only threatens security but our Maritime requirements for the supply of food and energy.

QE class Conversions.

The Idea of converting the wrong Labour Government choice of VSTOL carriers to CATOBAR in the 2010 review was without doubt the most forward thinking Strategic decision any HMG had taken since the introduction of Polaris. It was unfortunate that it happened at a time of fiscal tightening and that the fiscal situation caused the U turn.

The cost of the conversion and time delay seems to be the main reasons for the U turn. But that in itself poses several questions. Did the MOD look at all the alternatives? Did the MOD opt for the right system?

Internal Combustion Catapult Aircraft Launch System (ICCALS)

As I mentioned earlier, there has been an alternative launching system for conventional carriers since 1959, Its adoption in the US Navy was only dropped because of US navy politics and NASA being involved in a vertical launch system and EMALS (Electro Magnetic Launch System) was chosen because of NASA's involvement. NASA dropped out when it was realised that EMALS wasn't delivering as advertised and billions more needed to be spent to get it to work.

The ICCALS system has launched aircraft with greater efficiency, at less stress to the airframes and reducing maintenance costs for a long time before EMALS was off the drawing board. Dick Bushway, the Advanced Technology Catapult Procurement Officer for NAVAIR PMA 251, budgeted $35 million in 1997 to build and test an early ICCALS as a competitor to the EMALS system. In 1998, NASA's Marshall Space Flight Center, proposed to co-fund and co-develop Electromagnetic Launch. NAVSEA decided that this was the way to proceed given the large increases in cash and personnel that this would provide. Also, Newport News Shipbuilding (NNS) found itself in the position of being a technology proposer and technology integrator at the same time. To avoid this conflict and in agreement with the Navy's decision for EMALS, pursuit of ICCALS technology was defunded and terminated to avoid a conflict with EMALS although the ICCALS program was building and testing hardware.

An Advanced Technology Catapult concept for installation for backfit or new construction is available which provides greater performance than any current catapult including EMALS while significantly reducing weight, volume requirements and development time and cost, installation difficulty and costs and operating costs. The US Navy has indicated by the upgraded performance specifications for the EMALS electromagnetic catapult that the current C13 steam catapults are unable to perform the full range of tasks that will be asked of them in the future. The EMALS catapult technology was designed to fulfil a specific range of tasks for Ford Class aircraft carriers which have sufficient generating capacity to support EMALS which should be able to meet all of the future launch needs for those carriers, once properly sorted out.

However the EMALS launch system cannot be installed aboard the CVA Queen Elizabeth unless a substantial increase in generating capability is installed. This proposal, the Internal Combustion Catapult Aircraft Launch System (ICCALS), is designed to utilize the C13 steam catapults as the basis to exceed the performance specifications of the EMALS catapult – at a significantly lower hardware cost per catapult and greatly reduced cost for installation. The technology goal is to build, demonstrate and qualify the ICCALS technology to modify the current C13-2 steam catapults as currently used aboard the Nimitz Class carriers to use a combustion gas based energy source rather than steam to drive the current catapult launch engines. This allows the launch of a wider range of present and future vehicles, both manned and unmanned, under full closed loop control, and insures a more precise and

controlled rate of acceleration over the entire launch event. The designer also proposes to further simplify the C13-2 launch system, increase the launch capacity, and provide closed loop control of acceleration and end speeds of the modified C13-2 catapult. Due to simplification, the MOD can reduce the level of manning currently required to maintain and operate the C13-2 steam catapults. This specifically allows installation of catapults aboard ships that cannot be easily fitted with the current steam or EMALS catapults such as the LHA class ship or converted CVEs.

The designer Mr Clint Stallard, had been in contact with the HMG before the U turn, as is still pursuing American orders for possible use of his catapult on LHA6 and as a backfit forthe Nimitz class as it is not possible to use EMALS on these platforms due to the power requirements.

It is worth noting both classes will be in service for the next 20-30 years and that both the CVN77 and the earlier CVN Enterprise were designated to receive this catapult. In fact the USS Enterprise has had parts of the system installed for over 30 years. It has also been revealed by investigations from the catapult designer that the US Navy would be quite prepared to supply 4 catapults and one arrestor system for UK use when the USS Enterprise decommissions in 2013.

Because they are kept at A1 conditions at all times, they would in affect be as good as new systems but at less than half the cost. The designer, who was until recently the lead Engineer at Ingals Shipbuilding in the USA, has stated that the conversion would be possible within two years (2015) FOR BOTH CARRIERS at a cost of less than was quoted in the U turn for one. One has to ask a final question, HMG could have had the cake and cream, why haven’t we now?

T A Dainton For DefenceSynergia.