

Book Review

Global Defense Procurement and the F-35 Joint Strike Fighter



By Bert Chapman

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Biography: Air Commodore Al Byford flew over 4,000 hours as a Tornado pilot in a 36-year RAF career, including deploying on 12 named operations. He is now the Defence and Political Adviser for MBDA Missile Systems.

Introduction

The F-35B Lightning will provide the core of the UK's combat air capability over the next two decades, complementing Typhoon with the high-end, fifth generation capabilities required to defeat the emerging threats based on Russian and Chinese technology which are now proliferating in areas of key national interest to the UK. The F-35 is also critical to UK prosperity, as it sustains up to 25,000 jobs in the aerospace sector whilst the UK's initial status as a 'Tier 1' partner means it benefits from a 15% share of F-35 production, anticipated to run to some 3,000 aircraft.

However, the F-35 enterprise has never been far away from controversy: it has been subject to repeated delays, technical problems and cost overruns, whilst from a UK perspective, changing military requirements and political vacillation have threatened to derail the project over a series of defence reviews; the debate about numbers and force-mix (in terms of which variant to procure) continues. Nevertheless, the UK declared initial operating capability in December 2018 and became only the third F-35 user (after the US and Israel) to employ the aircraft under combat conditions on Operation Shader in June this year. So as the force build-up continues, this is a useful point to review how the programme has evolved over time and where it may go in the future. In his new book, Bert Chapman, a professor at Purdue University, helps us to do just that. *Global Defense Procurement and the F-35 Joint Strike Fighter* charts the origin and

development of the F-35 as a genuinely multinational enterprise where military, industrial and political requirements intersect within a context of emerging international geopolitical and security trends.

The layout is logical and brings coherence to an otherwise complex topic. The author begins by situating the F-35 within a historical overview of jet fighter aircraft development, discussing different generations and their technical characteristics. Next, he assesses the threat context the F-35 is designed to operate in – providing much useful information on emerging Russian and Chinese capability in its own right – before examining, in subsequent chapters, the different experiences of the key national partners in turn.

Whilst RAF readers will clearly be most interested in the UK chapter, the relative international comparison is informative because a common pattern emerges. Rising cost, developmental challenges and delivery delays spark controversy and criticism, but the lack of competition and the technical difficulty of the requirement mean F-35 is the only really credible fifth-generation option, so national procurement programmes continue for a broadly similar mix of reasons: military necessity; political expediency; and industrial self-interest. In this sense the complexity of the project and its interconnections and international spread really do make it 'too big to fail'.

In a balanced conclusion, the author accepts the shortcomings involved, but points out these replicate the experience of similar programmes in the past; there is a certain inevitability in delays and rising costs given the complexity and multinational dependencies involved. Because of the urgency to replace the West's ageing fleet of fourth generation combat aircraft and the imperative of the developing threat, he makes a compelling argument for the F-35 as an absolutely necessary capability, without a viable alternative, which is now proving its real worth as it matures in service.

Whilst I strongly recommend *Global Defense Procurement and the F-35 Joint Strike Fighter* as a case study of complex acquisition in general, and to provide an overview of the RAF's most important combat capability in particular, it does have limitations. Because the programme is ongoing its dynamics are constantly changing, so any assessment will inevitably date almost as soon as it is published. From a UK perspective, the 2018 announcement of a Combat Air Strategy including the development of a 'next-generation' capability ('Tempest') in the 2040 timeframe, has obviously changed the landscape dramatically. Although the UK still aspires to buy 138 F-35B Lightnings, affordability must be questionable given the need to concurrently fund a new fighter. Tempest is also interesting as its stated objectives concerning UK sovereignty and industrial capability indicate that whilst the workshare involved in F-35 may be lucrative, it is not necessarily generating the expertise necessary to sustain UK aerospace for the future. There are clearly doubts about the ability to genuinely control and 'own' F-35 capability in terms of areas such as accessing software source codes; in fairness, a point the author covers well in relation to a discussion on the implementation of International Traffic in Arms Regulations.

As well as a debate on numbers, there will inevitably be a discussion about the mix of variants in any future UK F-35 buy; there is obviously a strong case to buy the cheaper, and (in performance terms) more capable land-based F-35A once sufficient STOVL 'B'-models have been acquired for the carrier air wings. Chapman tells the story of the UK's switch from the F-35B to the conventional, carrier-launched 'C'-model and back again very well from a budgetary and political perspective; what is missing for a truly comprehensive account is the inter-service politics involved in the decision-making process, from which neither the RAF nor the RN emerge with much credit.

In summary, this book provides an excellent primer on the genesis and development of an essential capability which will underpin the hard edge of the UK's combat air power now and in the immediate future. Inevitably, there are minor errors in a work referencing so many sources (Meteor has an active not infra-red seeker, some RAF ranks are incorrect and those old enough to remember will be surprised that the Avro Shackleton was a fighter with a 640mph top speed!), but this book should be compulsory reading for all those with a professional interest in either the F-35 or the procurement and acquisition stream.

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