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The JSF: One More Card In The House

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The Joint Strike Fighter (JSF), central to the Department of Defense's modernization agenda, looks more and more like a case of "Here we go again." Why? Because:

* Without timely deliveries of 2,853 JSFs, beginning in 2007, the plan to modernize Air Force, Navy, and Marine Corps tactical aviation (TacAir) forces won't happen.

* Without the promises of acquisition reform-cost savings, shorter development times, increased production efficiencies, all without sacrificing capability-the economic assumptions gluing together the entire DoD modernization program unravel.

The TacAir house of cards is the inevitable product of short-sighted decisions made as the Cold War ended. In 1991 and 1992, the Air Force and Navy prematurely rushed the F-22 and F/A-18E/F, respectively, into engineering and manufacturing development (EMD) without determining how they would modernize the entire force over the long term. In both cases, the aim was the same: build political support networks quickly-before the threat of a peace dividend became the skunk at the garden party-and hope that the future would take care of itself.

The Air Force succeeded in ramming the YF-22 into EMD largely by misrepresenting the YF-22 demonstrator as a general prototype, even though its most important technical and economic risks-stealth, full engine power, and integrated avionics-were not part of the YF-22 and were being developed separately along concurrent pathways. Premature EMD insertion reduced political risks, however; it hooked Congress by opening the flood gates for a torrent of subcontracts and dollars to hundreds of congressional districts. In the process, the Air Force precipitated its long-term aging crisis, because it had no plan to modernize its F-16s and A-10s, which made up 70% of its forces.

The Navy's contribution to the house of cards was triggered when the A-12 self-destructed in January 1991. Planners panicked and rushed the F/A-18E/F into EMD, claiming it was a low-risk modification to the F/A-18C and did not need a prototype. The Navy did this before it had produced a long-term plan for modernizing its entire force.

Navy and Air Force planners papered over their modernization trap by concocting two virtual development out-year programs-the Air Force's multirole fighter (MRF) and the Navy's advanced strike aircraft. In 1993, the new civilian leadership merrily walked into the trap by determining the obvious (separate tactical aviation modernization programs by each service were not "affordable"), canceling the two non-existent programs and replacing them with the joint advanced strike technology (JAST) program that mutated into the JSF.

The problem was that each service had very different requirements. The Air Force wanted 1,763 cheap bombing trucks to replace F-16s and A-10s; the Navy wanted 480 "first day-of-the-war" deep-strike stealth bombers to compete with the Air Force in strategic bombing; and the Marines, still haunted by the ghosts of Admiral Frank Jack Fletcher and Guadalcanal, wanted to replace aging Harriers and conventional F/A-18s with 609 short takeoff vertical landing (STOVL) JSFs that will operate from big-deck amphibious assault ships if need be.

The promises of acquisition reform are not materializing, and the JSF is sinking into the familiar swamp of cost growth and schedule slippage that usually precede a performance shortfall. On 8 February 1999, for example, Defense Daily reported that Lockheed Martin's X-35 was facing \$200 million in cost growth; Boeing had fundamentally redesigned its X-32 contender only 18 months before it was scheduled to fly. In March 1999, the Congressional Budget Office reported to the Senate Armed Services Committee that JSF costs might be underestimated by as much as 50%; in March 2000, the General Accounting Office told Congress the development program should be lengthened to reduce technical/cost risks: "To allow the JSF to proceed as planned-without maturing critical technologies-would perpetuate conditions that have led to cost growth and schedule delays in many prior DoD weapons system acquisition programs."

The GAO claims DoD restructured the program so that the EMD decision will be made with even less information than originally planned, and the program has migrated toward the traditional practice of developing technologies and products concurrently. It is important to remember that the X-32 and X-35 JSF demonstrators are even more limited as concept demonstrators than was the YF-22, so the risks created by concurrency could be even greater. The winner of the JSF "competition" will be determined by a flyoff demonstrating only low-speed handling, STOVL capability, and producibility with at least 70% parts commonality; the YF-22 supersonic cruise demonstrator demonstrated aerodynamics of high-speed, high-G maneuvering, and high alpha, low-speed maneuvering in mock dogfights.

A JSF spokeswoman acknowledged that the program office is preparing contractual language that would permit contractors to spend their own money on JSF-even though such a contract might be illegal under 31 U.S.C. 1342, which is a felony statute carrying a sanction of a \$5,000 fine and two years in prison.

Air Force, Navy, and Marine Corps tactical fighter forces are in a pickle-a problem exacerbated by F-16 and F/A-18C structural problems. Perhaps it is time for introspection. We created TacAir house of cards with expedient decisions to rush the F-22 and F/A-18E/F into development, and we have wasted almost a decade chasing the engineering equivalent of a free lunch.

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