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Swiss Government Purchase of F-35A Fighter Jet Reveals Critical Flaws in U.S. Air Force Decision to Buy F-15EX

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KEY TAKEAWAYS

The Swiss government evaluated four fighters and rated the F-35A well above all others in performance, interoperability, and, surprisingly, cost.

The Swiss evaluation found the F-35A to cost $2.16 billion less to acquire, operate, and sustain than even the F/A-18, which costs far less than the F-15EX.

The U.S. Congress should direct an independent study to determine objective costs for acquisition, operations, and sustainment for the F-35A and F-15EX.

On June 30, 2021, the Swiss Federal Council announced that it will recommend the procurement of 36 Lockheed Martin F-35A aircraft for Switzerland's next fighter. The decision follows a multi-year competition on the performance, acquisition, and sustainment costs for four different fighters.

While the combat capability of this fifth-generation fighter towered above all others, the notoriously precise Swiss also determined that Lockheed Martin's entry beat out all others in price. The Swiss evaluation found that over the jet's 30-year operational life, the F-35A was $2.16 billion less expensive to acquire, operate, and sustain than the Eurofighter, the Rafale, and even the F/A-18E/F—a jet that costs $13.6 million less to acquire than a baseline, non-combat-capable F-15EX.

While the Swiss government's selection will certainly influence similar fighter competitions in Canada and Finland, Switzerland's objective cost assessment also reveals serious questions for the U.S. Air Force's decision to acquire the F-15EX. Congress should initiate and fund an independent review of the acquisition, operations, and sustainment costs for the F-15EX and the F-35A, including every additional onboard system that is required to make them operationally viable against a peer threat and reveal those costs to the American people.

The Swiss government began a formal competition for its new fighter, known as Air2030 New Fighter Jet Competition or simply Air2030, in spring 2018. That summer, the Swiss government sent a request for price quotations to five manufacturers: Airbus for the Eurofighter, Dassault for the French Rafale, SAAB for Sweden's Gripen E, Boeing for the F/A-18E/F, and Lockheed Martin for the F-35A.[1] SAAB notified the Swiss government that it would not submit a quote for the Gripen E because the jet would not be operational in time to meet the flight test schedule,[2] which reduced the competition to the Eurofighter, the Rafale, the F/A-18E/F, and the F-35A.

The evaluation was a multi-step process that included an assessment of the original quotations, an evaluation of weapons system *effectiveness*, as well as the acquisition and operating costs for each fighter.[3] Effectiveness was evaluated through a weighted combination of operational capability (55 percent), ease of maintenance (25 percent), cooperation (10 percent), and direct compensations or offsets (10 percent). All four jets went through ground and in-flight tests from May to July 2019, followed by a final request for "best offer" proposals.

The Swiss Federal Council determined through the competition that all four candidates met the Air2030 requirements, however, the lone stealth fighter (F-35A) was the absolute standout. Through the competition's grading process, the F-35A received 336 points, with the next nearest candidate scoring 241 points—72 percent of the F-35A score.

The only area in which the Lockheed Martin entry did not top all others was in "offsets"—meeting the requirement for the submitting corporation to make a direct investment in the Swiss economy of 60 percent of the order's total value. That issue aside, the Swiss evaluation team found the F-35A to hold a pronounced technological lead over the other candidates, and that its "novel, very powerful and comprehensively networked systems" enabled pilots to have more situational awareness than the other candidate platforms in all mission areas.[4]

The Swiss determined the F-35A to be the most survivable platform, with every surface area, every component, and every emitting subsystem designed from the ground up to make it very difficult for other weapon systems to detect.

The stealth fighter also achieved the highest rating for product support for efficient maintenance and the security of parts supply throughout the jet's projected 30-year service life. The Swiss evaluators attributed this, at least in part, to the fact that the F-35A will be employed by the largest number of countries in Europe than the other competitors—a fact that also made it the top pick for cooperation and opportunities to collaborate with other countries.

While the F-35A's effectiveness or technological edge may not surprise many in the fighter community, the Swiss assessment of the jet's cost was enlightening.

The Swiss found the F-35A to be around 2 billion Swiss francs ($2.16 billion[5]) less expensive to acquire, sustain, and operate than the best of the other three fighters over the life of the system. That includes Boeing's F/A-18E/F, a fighter that costs $74.1 million[6] to purchase in fiscal year (FY) 2021—roughly $4.5 million less than a fully combat-capable F-35A costs.[7] But that is before the Super Hornet is fitted with the additional pods and equipment required for it to fly in combat.

While the Swiss cost assessment should shape the ongoing fighter competitions in other countries, its impact on the establishment here in the United States should be profound—particularly in light of radically different F-35A cost assessments made by the Secretary of Defense's Office of Cost Assessment and Program Evaluation (CAPE) and the U.S. Air Force. These assessments made the F-15EX appear to be markedly cheaper to fly and to operate than the F-35A.

In FY 2021, the Air Force lists the cost of an F-15EX at $87.7 million[8]—$13.6 million more than a non-combat-capable Super Hornet, and $9.1 million more than a fully combat-equipped F-35A. However, CAPE and the Air Force failed to include the additional equipment that the F-15EX requires to make it combat-capable. When adding in the electronic countermeasures suite the Air Force is purchasing for the F-15EX "on the side," and the pods that enable it to fly and employ in combat, the price of the jet jumps to $101.1 million—$22.5 million (29 percent) more than a combat-ready F-35A.[9] That figure excludes the additional costs to operate, maintain, and sustain those sub-systems—costs that should have been factored into the cost per flying hour of the F-15EX.

How could the Swiss determine that even the F/A-18E/F was more expensive to acquire, operate, and sustain when the collective wisdom within the U.S. Defense Department has determined that the F-15EX is a better buy than the F-35A? While unlikely, particularly given the rigorous Swiss selection process, perhaps the Swiss made a grave mistake in their calculations—errantly selecting a more expensive system over the other three entrants. Or, maybe it was the fact that their review was completely independent—unbiased by U.S. politics and internal U.S. Defense Department prejudices that allowed the F-35A to out-compete the others.

Either way, the findings from Air2030 should serve as a wake-up call for CAPE and the U.S. Air Force, and as a call to action for Congress to make a closer, and more transparent, appraisal of the real costs associated with both the F-35A and the F-15EX. Congress should review the real costs of both programs and, should the findings be in line with those of the Swiss assessment, amend future year fighter acquisitions to give the warfighter the best possible equipment at the most economical price for the taxpayer.

Recommendations for Congress

To provide effective oversight of fighter acquisitions**,** Congress should:

- **Use the 2022 National Defense Authorization Act (NDAA) to direct an independent study** to determine the total acquisition costs for the F-35A and the F-15EX, to include all internal subsystems and external pods required to execute the jet's primary mission against a peer threat.

- **Direct an independent study within the 2022 NDAA to determine the *total* cost per flying hour** (TCPFH) for the F-35A and the F-15EX, to include all internal subsystems and external pods, and their maintenance and sustainment costs required to execute the jet's primary mission against a peer threat.

- **Employ the results of the 2022 NDAA directed-total-acquisition study and the TCPFH study to codify into law all items to be included in the acquisition cost and TCPFH calculations** for manned and unmanned fighters, attack and reconnaissance platforms, and the internal subsystems and external pods required to execute their primary mission against a peer threat.

Conclusion

An independent study by the Swiss Federal Council determined that the F-35A fighter is significantly more effective and less costly to acquire, operate, and sustain than the F/A-18E/F (which itself is significantly cheaper to acquire and operate than the F-15EX). The stark contrast between the Swiss findings on the F-35A, and the costs attributed to the F-35A—and not to the F-15EX—by the U.S. Defense Department are troubling. Congress should commission an independent body to determine the real acquisition, operational, and sustainment costs for both the F-35A and the F-15EX. Should the study prove to be in line with the Swiss assessment, Congress should amend future fighter acquisitions to give the warfighter the best possible equipment at the most economical price for the taxpayer.

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Endnotes

1. Swiss Ministry of Defense, "Air2030–Issuance of RFQs to Government Agencies of Combat Aircraft Manufacturers," Defense-Aersopace.com, July 6, 2018, http://www.defense-aerospace.com/articles-view/release/3/194571/swiss-issue-rfq-for-30_40-fighters.html (accessed July 5, 2021).
2. News release, "SAAB Withdraws GRIPEN E From Swiss Flight Tests," Mönch Publishing Group, June 17, 2019, https://www.monch.com/mpg/news/air/5611-pas-gripen-e-withdrawn-from-flight-test.html (accessed July 5, 2021)
3. Ibid., and Swiss Ministry of Defense, "Air2030- Issuance of RFQs to Government Agencies of Combat Aircraft Manufacturers."
4. News release, "Air2030: Federal Council Decides to Procure 36 F-35A Combat Aircraft," The Swiss Federal Council, June 30, 2021, https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-84275.html (accessed July 5, 2021).
5. Xe Historical Currency Exchange Rates Chart, "Swiss Franc to US Dollar–CHF to USD," July 1, 2021 (20:14 UTC), https://www.xe.com/currencycharts/?from=CHF&to=USD (accessed July 1, 2021).
6. U.S. Department of the Navy, "Department of Defense Fiscal Year (FY) 2022 Budget Estimates: Navy—Justification Book Volume 1 of 3, Aircraft Procurement, Budget Activities 01-04," May 2021, p. Volume 1-4, https://www.secnav.navy.mil/fmc/fmb/Documents/22pres/APN_BA1-4_Book.pdf (accessed July 7, 2021).
7. The unit cost of the F-15EX in FY 2021 is the total of the airframe, the engine(s), armament mission equipment (AME), and engineering change orders (ECOs)—$87.7 million. For the cost of the F-35, see footnote 8. U.S. Department of the Air Force, "Department of Defense Fiscal Year (FY) 2022 Budget Estimates: Air Force—Justification Book Volume 1 of 2, Aircraft Procurement," May 2021, p. Volume 1-25, https://www.saffm.hq.af.mil/Portals/84/documents/FY22/PROCUREMENT_/FY22%20DAF%20J-Book%20-%203010%20-%20Aircraft%20Proc%20Vol%20I.pdf?ver=D30H6xM2u1TyofiA4HpW3g%3d%3d (accessed July 9, 2021).
8. The unit cost of the F-35A in FY 2021 is the total of the airframe, the engine, contractor-furnished electronics (CFEs), and engineering change orders (ECOs)—$78.6 million. See "Department of Defense Fiscal Year (FY) 2021 Budget Estimates: Air Force Justification Book Volume 1 of 2, Aircraft Procurement," February 2020, https://www.saffm.hq.af.mil/Portals/84/documents/FY21/PROCUREMENT_/FY21%20Air%20Force%20Aircraft%20Procurement%20Vol%20I_1.pdf?ver=2020-02-10-145310-973 (accessed July 7, 2021).
9. The F-15EX requires an electronic countermeasure (ECM) system known as the Eagle Passive Active Warning Survivability System (EPAWSS), which costs $12.5 million, and a targeting pod, which costs at least $900,000 to be combat-capable. Courtney Albon, "EPAWSS Cost Estimate Grows by $2 Billion as USAF Moves to Buy 144 Systems for F-15EX," Inside Defense, July 2, 2020, https://insidedefense.com/daily-news/epawss-cost-estimate-grows-2-billion-usaf-moves-buy-144-systems-f-15ex (accessed July 9, 2021); U.S. Department of the Air Force, "Department of Defense Fiscal Year (FY) 2022 Budget Estimates: Air Force—Justification Book Volume 2 of 2, Aircraft Procurement, Vol-2 Mods," May 2021, p. ixxiii, https://www.saffm.hq.af.mil/Portals/84/documents/FY22/PROCUREMENT_/FY22%20DAF%20J-Book%20-%203010%20-%20Aircraft%20Proc%20Vol%20II.pdf?ver=dhTXaC9cdMYpNdWrR8cm7g%3d%3d (accessed July 9, 2021); and Yuriko Nakao, "Lockheed to Build New Precision Weapons for the U.S. Air Force," Reuters, March 28, 2015, https://www.rt.com/usa/244885-lockheed-us-air-force/ (accessed July 9, 2021). Also see GlobalSecurity.org, "AN/AAQ-33 Sniper XR/ATP–Advanced Targeting Pod, Advanced Targeting Pod-Sensor Enhancement ATP-SE," https://www.globalsecurity.org/military/systems/munitions/atp.htm (accessed July 7, 2021).