

The Ambitious Expectations Contributing to the Monstrous F-35 Budget

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

Iskander Umarkhodjaev

Spring 2023

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

Advisor

S. Travis Elliott, Department of Engineering and Society

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1 Introduction

The F-35 program is a project by the United States and Lockheed Martin to create the next generation of military jets with the express purpose of developing a plane adapted to the needs of the Navy, Airforce, and Marines. Such an ambitious project required the plane to be able to fly at supersonic speeds for the Airforce, have short take offs and vertical landing for the Marines, and be able to land on aircraft carriers for the Navy. Naturally, the project was split up into three models for the branches with the hopes that there would be high similarity between the three models to reduce costs of maintenance (Tegler, 2021). This proved to be a false hope as through development, engineers discovered that some requirements of the plane made it difficult to fulfill the requirements of other branches. The lifetime maintenance and operations projection of the program soon began ballooning to over \$1 trillion by 2015, raising alarms on Capitol Hill.

The factors leading to the monstrous budget of the F-35 can be best analyzed through the Social Construction of Technology (SCOT) framework where it is argued that social and political forces shape technology as opposed to technology determining social and political actions. It also argues that for a technology to be understood fully, the social context of its use must also be understood. The F-35 project's entire development cycle was and is marred with significant political and economic decisions beyond that of the technological benefits it provided and its exceedingly large budget can be accounted for with the analysis of these decisions.

2 Background

The budgetary issues raised in 2015 were not the first instance as in 2010, an increase in projected procurement costs that far exceeded the original baseline resulted in the invocation of the Nunn-McCurdy Law (Congressional Research Service, 2022), a law requiring that Congress

be informed when military costs become too great. The government ultimately decided against the cancellation of the project in both cases due to its international commitments, high expectations, and, most importantly, the commitments of almost all 50 states with providing supplies to the program (Insinna, 2019).

The F-35 program involves over 1650 suppliers in 48 states (Lockheed Martin, 2022), creating a total of 298,000 jobs. With regard to international commitments, 15 countries are expected to purchase the jet, including the United Kingdom, Japan, Australia, and Canada. Some of these countries are a part of the supply chain and directly supported the development of the F-35 (Lockheed Martin, 2023).

2.1 Entities Involved

There are six key groups to focus on in the F-35 project: the United States Department of Defense, which encompasses the U.S. Navy, Airforce, and Marines, The United States Senate Committee on Armed Services, The United States House Committee on Armed Services, and the Lockheed Martin Corporation. The United States Department of Defense is the government organization paying for and contracting the company that makes the F-35. It is America's largest government agency, with a budget of over \$740 billion dollars and its agenda is clear, the defense of the United States. To be more specific, the Department of Defense's agenda was creating a plane suited for the needs of the Marines, Navy, and Air Force to update its previous fleet while at the same time having high commonality between the models made for each branch. The United States Senate Committee on Armed Services and The United States House Committee on Armed Services are Congressional committees that oversee the U.S. military and its research (Wheeler, 2011). The two committees are the key Congressional players in the F-35 development cycle as their roles are legislative oversight of the Department of Defense; In other words, they

inform Congress and the public so that decisions can be made on issues regarding defense. Finally, the Lockheed Martin Corporation is the private entity in charge of developing and researching the F-35 fighter aircraft. Being a for-profit organization, the agenda of Lockheed Martin is to provide a profit for its shareholders.

2.2 Social Construction of Technology In Depth

The Social Construction of Technology (SCOT) was originally presented by Trevor Pinch and Wiebe Bijker in 1987. SCOT's framework consists of five components: interpretive flexibility, relevant social groups, closure and stabilization, wider context, and technological frame. First, interpretive flexibility means that the interpretation of the design of a technology varies widely between different groups. Second, relevant social groups are the groups who each share their own interpretation of a technology who communicate and compete with each other in the decisions regarding the development of a technology. Third, closure and stabilization refers to instances where the interpretation of a technology conflict between two or more groups. The design of the technology continues until there is no longer conflict. Fourth, the wider context refers to the circumstances surrounding the development of the technology, such as expectations of interaction between the social groups. Fifth, technological frame or the lens in which a social group views and interprets a technology. These can include goals, key problems, and strategy formation surrounding a technology's design. These five components form the core of the SCOT framework (Klein & Kleinman, 2002).

3 Analysis

3.1 Induced Need

This section will primarily focus on Lockheed Martin's efforts to purposefully create a project with deep economic and political ties. As mentioned before, the F-35 project involves

suppliers of 48 U.S. states and the creation of 298,000 jobs; This has an annual economic impact of about \$72 billion dollars. Looking through the lens of the SCOT framework, Lockheed Martin effectively guaranteed public support and changed the public's perception of the program. The project became a necessity in everyday life as it provided the livelihood of thousands of families and spurred the local economy of thousands of communities. Despite the program arguably not being "the best" option due to its cost overruns, delays, and technological issues, it continues to be perceived favorably. This can be seen with the strong support of the program from The International Association of Machinists and Aerospace Workers (IAM) in a statement from 2022 (Machinist Union, 2022), specifically the quote:

“[The F-35 Program] symbolizes what it means to be union, providing thousands of highly-skilled, union jobs that allow our proud members to take care of their families, their communities, and this great country.”

The support for the F-35 clearly lies primarily in its effect on the economy which is the social context that the jet's development lies in.

Initially, the F-35 program was created to upgrade the capabilities of the U.S. military from a perceived threat of technologically advancing adversaries like Russia and China. As time passed and the cost overruns and delays compounded, the F-35 continued to have bipartisan support in the U.S. government. The economic benefits discussed previously directly relate to the political reasons for the support of the F-35. Economic benefit translates to popular support for the program, popular support for the program translates to popular support for politicians who approve of the program. It becomes politically infeasible to oppose continued development as it would mean thousands of a politician's constituents lose their jobs and livelihoods and, in turn, the politician may lose their seat in Congress.

The economic and political climate surrounding the F-35 previously discussed can be best illustrated by a quote from Rep. John B. Larson of Connecticut, co-chair of the Joint Strike Fighter (JSF) Caucus :

“The F-35 is our nation's only 5th generation stealth fighter that is vital for the United States' national security and strengthens our global deterrence against adversaries like Russia and China. It is not only the most sophisticated stealth fighter in the world, but the F-35 is also much cheaper than the less advanced 4th generation fighters. The program serves as an incredible example of American manufacturing ingenuity supporting 1,800 suppliers across 48 states and Puerto Rico, including 16,500 jobs in Connecticut alone. During the pandemic, the F-35 program has continued to support our local manufacturers, keeping them afloat as commercial air travel has decreased. I am proud of the strong bipartisan support the F-35 has received.”

This was stated in response to a funding request supported by 132 bipartisan members of Congress in 2021 (John Larson Press Representative, 2022). Larson perfectly summarizes the points above by illustrating that his support lies in the F-35's economic impact, specifically in a region that he represents.

3.2 Lofty and Misguided Goals

The other major goal of the F-35 was to be a cost cutting tool for the U.S. military by providing one type of jet for the Navy, Airforce, and Marines that would replace a list of Cold War-era models (Barrett, 2017). This is where the name of the program, “Joint Strike Fighter,” comes from. The three F-35 models, known as F-35A, F-35B, and F-35C, were expected to share 70 percent of the same features but now only share about 25 percent. In another instance, the F-35 has proven itself to not be the optimal solution to U.S. defense as its initial promises have

all but failed to come to fruition. A deeper analysis of the context surrounding the F-35 gives some reasoning for the F-35's continued support. The jet's expectations were so high that canceling the project was not feasible. The military would have nothing to show for billions of dollars invested if the project were to be halted and the Department of Defense will no longer have a solution to the technological advances of adversarial militaries.

3.3 Fault of the Committees

Members of both the Senate and House Committees on Armed Services have no incentive to keep Lockheed Martin accountable as Lockheed Martin, and the defense industry as a whole, directly contribute to their campaigns. The chair of the House Committee Representative Mike D. Rogers, for example, has received over \$132,000 from Lockheed Martin over the last 20 years, making them his third largest donor (OpenSecrets, 2022). In the 2020 election cycle alone, Lockheed Martin contributed over \$468,000 dollars to the members of the House Committee on Armed Services. The statistics are similar with the Senate Committee as they were Lockheed Martin's number one recipient of donations among all other Senate committees in 2020, totalling over \$359,000 dollars (OpenSecrets, 2020).

Similar to how opposing the program would affect their constituents, Congressmen could directly hurt their campaigns funds by opposing continued development of the F-35. The Lockheed Martin corporation can, in retaliation, withdraw donations towards politicians who oppose their projects. This becomes exceptionally effective if those politicians are responsible for overseeing the Armed Services Committees as they are responsible for keeping Congress informed on matters related to defense.

3.4 Counter Evidence

The procurement cost of one F-35A fighter jet was over \$221 million dollars in 2007 but has declined to about \$79 million dollars as of 2020 due to Lockheed Martin gaining experience in production (Stone, 2022). That is to say that the estimated operating costs of the entire program being over \$1 trillion dollars is inaccurate and wildly overestimated. This, however, ignores the fact that the F-35 program was initially marketed with a per unit cost between \$40 to \$50 million dollars in 2001, about \$59 to \$74 million adjusted for inflation (CNN Money Staff, 2001). The \$79 million dollar figure is near the estimate but is only for one of the three F-35 models, with the F-35B and F-35C models costing around \$101.3 million and \$94.4 million dollars respectively. The program cost, development to production, since 2001 has also doubled from \$200 billion dollars to \$400 billion dollars (Grazier, 2020). It is clear that the F-35 is still wildly over budget considering everything stated previously.

4 Conclusion

Through the use of the SCOT framework, this paper has analyzed the political and economic reasons for the continued development of the F-35 and its exceedingly large budget. Firstly, the F-35 provides a great amount of economic benefit to people in over 48 states by providing numerous jobs. Secondly, the F-35's ambitious goals require it to replace several outdated jets in three branches of the military, making cancellation impossible due to the lack of a replacement program. Lastly, the politicians in support of the F-35 have no incentive to cancel or scale back the project as they may lose votes from the areas they represent and may lose their campaign contributions from Lockheed Martin. These points of context surrounding the F-35 explains its robust support despite the cost overruns and delays.

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