



Next Generation EW for the F-16



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Staying on the Path (Part 4): Avoiding Scope Creep

By Richard Powers

Last month, we looked at the program kick-off phase after a contract award and how to “stay on the path” of success for the program and, ultimately, for the warfighter. This month, we’re going to look at some of the other challenges that can develop after program kick-off, namely requirements growth or “scope creep.”

If you want to understand the impact of scope creep, we have a prime example in the news: the US Navy’s Constellation class frigate program, which was cancelled in November 2025. While it is beyond the purview of this article to examine the program in detail, the summary is that the Navy, dissatisfied with their two Littoral Combat Ship classes, embarked on a new frigate program based on the Italian and French FREMM-class design, because using an existing ship design was supposed to be “low risk.” According to news reports, the Navy was unable to resist the temptation to drastically modify the baseline design. Making significant changes to an existing design as complex as a ship (or an EW system) will inevitably drive delays and cost. As a result of this program failure, only two ships will be completed, with the other four on order canceled, and the planned 20-ship class will be replaced with another “off the shelf” design based on the US Coast Guard’s National Security Cutter, built by HII in Pascagoula, Miss. The Italian-owned Wisconsin shipyard was in the process of a \$500 million capital expansion to build the 20 frigates. The Navy has said they plan to keep the yard involved with future programs, but the return on investment for Fincantieri must be disastrous. Reports indicate that the scope creep was actually runaway requirements growth and resulted in a

Constellation design that was only 15% common with its parent FREMM design – down from an 85% original reuse plan.

Design Reuse

The Constellation Frigate program is an example of well-intentioned design reuse gone bad. Design reuse and commonality of hardware, firmware and software across multiple programs is often a successful formula for keeping costs down and getting to an operational product quickly. But this is true only if program officials can resist the temptation to tinker with the existing designs. If the reuse assumptions in the proposal were incorrect, you might have no choice. But look at this issue closely. Does the existing design meet most of the requirements; is it good enough? Will the “tinkering” actually turn into a major rework or even replacement? Is the requirement to change a design element (scope creep) internally driven, or is it driven by the customer?

Internal Scope Creep

Let’s assume the best case: your proposal team did a good job of not “gold plating” the design; made it practical to complete within the proposed cost and schedule; and addressed R&M, testability, and producibility, providing an excellent starting point. But as we discussed above, we engineers like to “improve” things. People can interpret requirements differently and see requirements that are not actually there. Program and systems engineering leadership, in particular, must guard against internal scope creep and over-interpretation of requirements. People must be trained in scope-creep avoidance and fully understand the saying, “better is the enemy of

good enough.” In the DOD’s current acquisition climate, your scope creep that drives cost up and schedule to the right may result in program cancellation, and your team needs to understand this.

Modern Model-Based Systems Engineering (MBSE) practices and tools are designed to help manage this problem. Embrace them and empower your systems engineering team and risk officer to weed out internal scope creep, even to the extent of removing those staff members who simply don’t “get it.”

Corporate cultures that are steeped in technical excellence are more likely to have this problem. If your driving force is technology, your staff is hired and inclined toward pushing the envelope. This is great when doing a DARPA program (i.e., revolutionary rather than evolutionary technology programs) or when the customer specifically wants the envelope pushed to the extreme to meet a very difficult threat. But, in general, your culture might be your enemy, and you may have to take the difficult journey to adjust it.

External Requirements Creep

The Constellation Frigate is the latest poster child for customer-driven scope growth, but we’ve all seen it within our EW and SIGINT world, too. In some corporate cultures, we focus on wanting to please our customer and accommodate “minor” requests without “nickel and dime-ing” them, but these add up. If untracked, they become part of *your* unfunded cost growth rather than *his* requirements creep, with the blame coming back on *you*. Document and track every request in detail. Do not commit until you have examined the impact, informed the customer of

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the impact, and asked if he wants to make a change to the contract. This requires diligence on everyone's part, especially the program manager, systems engineering and contracts functions, and also a bit of polite pushback than might be comfortable.

Set the ground rules and operating procedures to manage requirements creep up front at the customer kickoff meeting and remind them of it at the start of each major review. Explain the purpose of your contract change control policy and procedure: it is to avoid problems down the road rather than a sneaky way of "getting well" on Engineering Change Proposals (ECPs). Some customers may think you are just another "slimy contractor." But in reality you are trying to be just the opposite, and perhaps most will come to recognize this.

For those corporate cultures that thrive on lowballing bids and getting well on ECPs, you might want to rethink that strategy in the current climate.

These few slimy contractors give the rest of us a bad name. Many years ago, I had a personal experience being a subcontractor to one of these companies, and I was lectured by their program manager, who told me, "We disclose problems to the customer incrementally over time and then get ECPs funded to fix them." They told us they knew the program we were working on together would cost about \$48 million and they bid \$35 million. They arbitrarily changed our company's proposal sections without telling us, blatantly lied to the customer as to what was possible within our segment, and then attempted to browbeat us into accepting it. The sad end to this frustrating story was a canceled program and a vow on my part never to personally work with that contractor again.

We solicit your input for future "Industry Insights" columns. We commit to "deep background" anonymity. Comments can be submitted to the author at richard.l.powers08@gmail.com

Next Time

In our next article, we will discuss the unpleasant topic of losing a competitive proposal. Note that if there are four competent bidders and you believe you therefore have a 25% chance of winning, you are far more likely to lose and have to deal with the loss. 🐦

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