Gain a Competitive Edge Through Test

Implement better test strategies that not only mitigate risk but also enable you to proactively leverage your test department to win programs.

The pressure to win bids in the aerospace and defense industry is intense. For years, government clients and Primes have been tightening their budgets and delegating more project risk to subcontractors. As a program manager, you may frequently find yourself in tough competitive situations that require you to propose the lowest possible cost to win the bid. However, winning programs with high design complexity often adds pressures of increased risk and short delivery times.

When looking to reduce program cost, the test function is a tempting target. Test is often perceived as a roadblock in product development: a necessary evil plagued with time and cost overruns. Therefore, test funds often get cut when budgets shrink and schedules tighten. And then tensions rise as test managers feel stuck. The test requirements for these programs are increasingly complex, yet test managers have less time and budget to meet them.

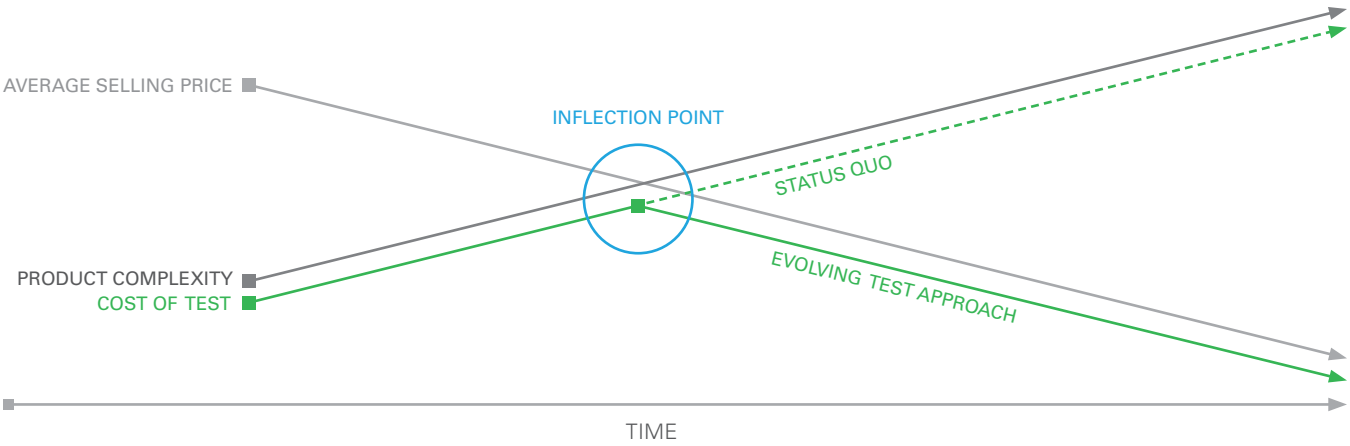
The Inflection Point of Test

This tension is a symptom of a test strategy that hasn't evolved to meet new business pressures. Most aerospace and defense organizations start designing test systems when product development is mostly complete. This practice was sufficient when technology was simpler and time and cost pressures were less intense, but it cannot scale with a changing industry. If test continues to be an afterthought in your product development process, the cost of test, whether that is capital cost or development time, will continue to increase as product complexity increases. The industry has reached an inflection point, and real change is required to reduce the cost of test to scale to meet the business needs.

The good news is that you can implement better test strategies that not only mitigate risk but also enable you to proactively leverage your test department to win programs and grow revenue. A more integrated test strategy can give you a competitive edge by allowing you to optimize for capital expense, product quality, and/or time to market. This has already been proven in other industries.

The consumer electronics and automotive industries have faced these same challenges for years. Consider the leaps of technology in automobiles; today's luxury car now has about 100 million lines of code. Yet even though test coverage must increase as automobile complexity increases, global competition and consumer expectations dictate that release schedules stay constant and prices stay competitive. Automotive companies simply do not have the luxury to wait until after they have designed the product to start building their tests. Test must be part of the design cycle from the very beginning. Now that aerospace and defense organizations are experiencing these tremendous time and cost pressures, you must start shifting your test strategy or risk losing revenue.

THE INFLECTION POINT OF TEST COST VERSUS COMPLEXITY



Winning Through Test Integration

If you want to use your test department to win business, you must integrate test into the design cycle from the beginning. Companies who test and design concurrently have more efficient development cycles and maximize test coverage without letting schedules slip. By integrating test earlier, you are enabling your test department to better understand client needs. Instead of taking a one-size-fits-all approach to test, test engineers can optimize across different vectors—time, cost, and quality—to more directly meet customer needs.

For example, if a client is particularly cost sensitive, the test department can choose less expensive hardware to lower capital cost, perhaps trading off test times or test coverage. Alternatively, if a quick design turnaround is most critical, test engineers may choose more off-the-shelf components at a higher capital expense or sacrifice some customization in their software design. Keep in mind, however, that the ability to effectively optimize for varying technical and cost requirements hinges on a flexible test platform. This way, test engineers can adapt through both hardware and software to meet complex requirements while maximizing software reuse.

In addition to having a flexible test platform, you must include the test department early, even during the initial design planning. A critical functional change like this requires a high level of communication and consensus across the organization. As a test and measurement expert for over 40 years, NI has helped thousands of companies across various industries undertake similar integration efforts. In addition to offering the world's most flexible test and measurement platform, NI has the expertise to help assess your current practices, facilitate manager forums and business discussions, and recommend areas for optimization. With commitment and collaboration, you can transform test from a roadblock into a competitive edge for your business.

> "To improve service and increase productivity, we created an environment of collaboration within our company. An important part of this vision was selecting a global standardized test platform, and NI offers the most complete platform to accomplish this."
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> Vice President of Engineering Test, A Major Aerospace Company