GAO assessed 26 defense programs ranging from the Marine Corps’ Advanced Amphibious Assault Vehicle to the Missile Defense Agency’s Theater High Altitude Area Defense system. GAO’s assessments are anchored in a knowledge-based approach to product development that reflects best practices of successful programs. This approach centers on attaining high levels of knowledge in three elements of a new product or weapon—technology, design, and production. If a program is not attaining this level of knowledge, it incurs increased risk of technical problems, accompanied by cost and schedule growth (see figure). If a program is falling short in one element, like technology maturity, it is harder to attain knowledge in succeeding elements.

All of the programs GAO assessed proceeded with less knowledge at critical junctures than suggested by best practices, although several came close to meeting best practice standards. GAO also found that programs generally did not track statistical process control data, a key indicator for production maturity. Program stakeholders can use these assessments to recognize the gaps in knowledge early and to take advantage of opportunities for constructive intervention—such as adjustments to schedule, trade-offs in requirements, and additional funding.

GAO has summarized the results of its assessments in an easy to read two-page format. Each two-page assessment contains a profile of the product that includes a description; a timeline of development; a baseline comparison of cost, schedule, and quantity changes to the program; and a graphical and narrative depiction of how the product development knowledge of an individual program compared to best practices. Each program office submitted comments and they are included with each individual assessment as appropriate.