

Applying appropriate estimation, management, and performance tacking (earned value management (EVM)) techniques can significantly improve the current situation.

Figure 1 below, "Why IT Projects Fail," is taken from the *2012 Gartner Report*¹

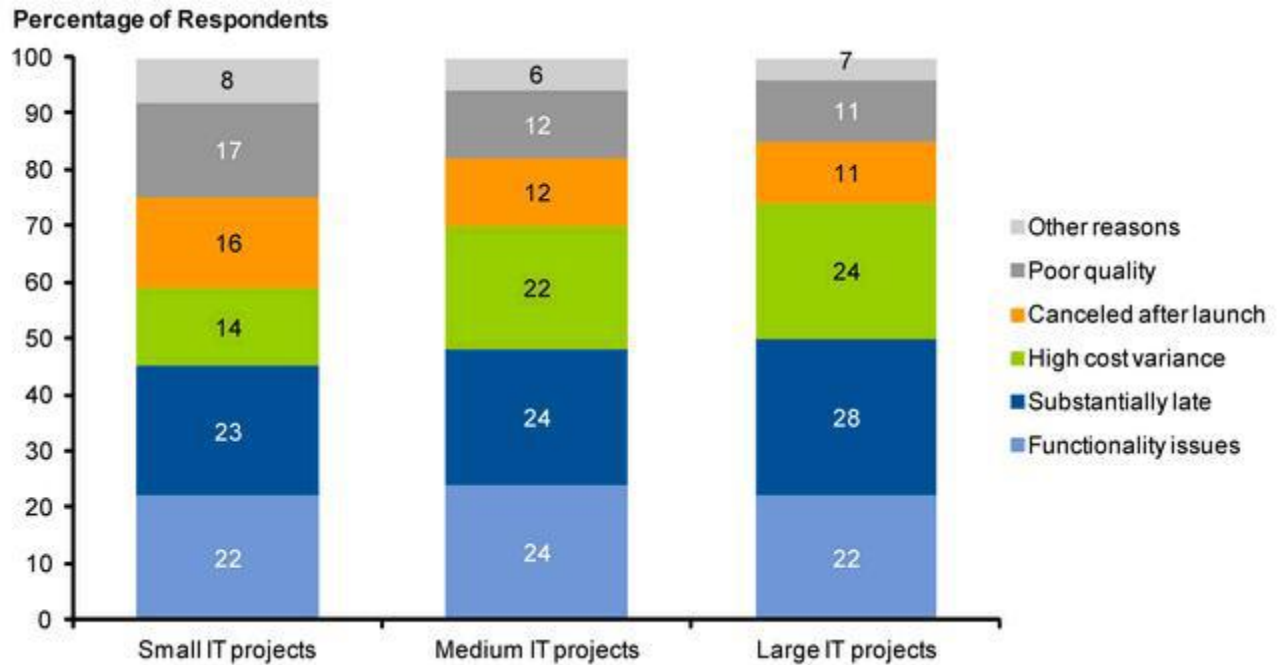


Figure 1. Why IT Projects Fail

Inaccurate estimates without bounding of risks can threaten project success by causing poor project implementations, shortcutting critical processes, and requiring emergency staffing to recover schedule. The lack of well-defined project requirements and specifications may result in significant growth in cost and schedule. Symptoms of this growth may include constantly changing project goals, volatile requirements and project scope, frustration, customer dissatisfaction, cost overruns, missed schedules, and the failure of a project to meet its objectives.

Additionally, recent studies like the Institute for Defense Analysis (IDA) paper, *Software Productivity Trends and Issues* (David M. Tate, March 2017), indicate this may get worse. The National Research Council (2010) wrote that “The extent of the DoD code in service has been increasing by more than an order of magnitude every decade, and a similar growth pattern has been exhibited within individual, long-lived military systems.” One order of magnitude per decade is approximately 25 percent annual growth.

Figure 2, "Software Growth in Aircraft Systems," taken from the Defense Science Board (DSB) report, illustrates this trend for avionics software. Software continues to be a critical and growing component in defense programs. A study of code growth within aircraft systems was performed by the Defense Science Board. Figure 2 highlights their findings that software size continues to grow.

¹ Gartner 2012

