Even though DOD has implemented several initiatives to reduce total ownership costs, some systems, such as the Apache helicopter or the Abrams tank, have experienced costly maintenance problems and low readiness rates, which persisted even after the systems were fielded. We found several reasons for these problems. First, DOD based requirements for weapon systems in product development almost exclusively on technical performance, with little attention to operating and support costs and readiness at the beginning of development when there is the greatest chance of affecting those costs positively. Second, using immature technologies to meet performance goals weakened DOD’s ability to design weapon systems with high reliability. Finally, DOD’s organizational structure is linear and limits collaboration and feedback among organizations charged with requirements setting, product development, and maintenance.

In contrast, commercial companies that we visited considered operating and support costs to be integral to their new product development decisions. Studies have shown that by the time a product is ready for development, over 90 percent of the operating and support costs have been determined. As a result, these companies required their equipment to be easy to maintain, ready when needed, and reliable at a low cost. These requirements were of equal importance to other performance characteristics. After setting requirements, product developers then designed products to meet established reliability rates, using technologies that were proven through past use or testing. At all of the companies we visited, customers and product developers alike, had very collaborative processes and practices that draw extensively on data from past operations to influence the design of new products.