

Errata

To: Recipients of MG-588-AF, Is Weapon System Cost Growth Increasing? A Quantitative Assessment of Completed and Ongoing Programs

From: RAND Corporation Publications Department

Date: September 2007

Re: Corrected pages (pp. 27–28, and page 93)

The authors identified inconsistencies in the originally published document in Figure 5.2 on page 27 and the related text on page 28. The currently posted document has been corrected.

In Figure 5.2 on page 27 the term SBIRS-Hi was changed to SBIRS-High along with its key designation. We altered the same term in the first paragraph on page 28.

On page 28 we updated a study reference in the first paragraph by changing the date “In May 2004...” to “In 2005...”. We also added a reference to that study at the end of the paragraph (Butler, 2005).

Also, there is now a bibliographic entry on page 93 for the Butler study which reads “Butler, Amy, ‘A Billion Here, a Billion There; Another SBIRS High Overrun Becomes an Air Force Embarrassment as Peter Teets Leaves Office,’ *Aviation Week and Space Technology*, Vol. 162, No. 12, March 21, 2005, p. 22.”

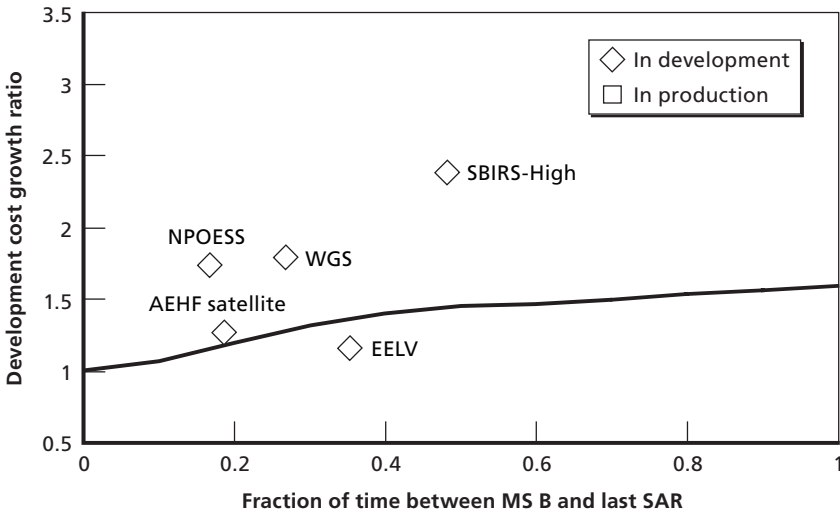
We apologize for any inconvenience.

The program also benefited from a low-risk technology development, and its budget was based on realistic independent cost estimates (Younossi, Stem, et al., 2005). JPATS is a commercially derived training aircraft with development and production contracts awarded just days apart. Its development program represents just 6 to 7 percent of its total acquisition value, and its production CGF is greater than 1.5. The C-5 RERP is also plotted in the figure. (Programs in Figure 5.1 that are currently in development are identified by diamonds; those in production are identified by squares.)

Ongoing Space Program Cost Growth

Figure 5.2 displays the same results as Figure 5.1, but here we plot five ongoing space programs for comparison with the historical record of completed programs. The four satellite programs are above the line

Figure 5.2
Major Ongoing Space Programs Compared to Trend of Completed Programs



NOTE: NPOESS = National Polar-Orbiting Operational Environmental Satellite System. WGS = wideband gapfiller satellite.

representing the trend of completed programs cost growth. The evolved expendable launch vehicle (EELV) falls below the line.

The advanced extremely high-frequency (AEHF) satellite is an international joint-venture communication satellite program. The program has experienced schedule delay related to its cryptological equipment and command-post terminal development (U.S. Government Accountability Office, 2005). The AEHF satellite program recently reported a Nunn-McCurdy unit cost breach. The WGS is a joint Air Force–Army program that provides the military with communication services. Manufacturing issues have contributed, in large part, to schedule delays (U.S. Government Accountability Office, 2005). SBIRS-High is a space-based missile warning system. In 2005, the program filed a second Nunn-McCurdy breach. Lately, the SBIRS-High program again has captured headlines as a result of its substantial cost growth and schedule issues (Butler, 2005).

Lastly, the EELV is an industry partnership between the Air Force and commercial launch services. Although the development cost growth for this program falls below the average, no one really knows how much the contractor has spent. The information reported in the program SAR accounts only for the government's investment. Development was treated as if the system were commercially derived; thus, its development and production contracts were signed on the same day. Its development program represents just 6 to 7 percent of the total acquisition value, and its production CGF is greater than 2.1. NPOESS is also shown for comparative purposes.

Ongoing Missile Program Cost Growth

Next, we examine missile programs in the same way in which we evaluated aircraft and space programs. As shown in Figure 5.3, all the missile programs are at or below the historical trend of completed programs' development cost growth.

Bibliography

Arena, Mark V., Irv Blickstein, Obaid Younossi, and Clifford A. Grammich, *Why Has the Cost of Navy Ships Risen? A Macroscopic Examination of the Trends in U.S. Naval Ship Costs Over the Past Several Decades*, Santa Monica, Calif.: RAND Corporation, MG-484-NAVY, 2006. As of January 16, 2007:
<http://www.rand.org/pubs/monographs/MG484/>

Arena, Mark V., Robert S. Leonard, Sheila E. Murray, and Obaid Younossi, *Historical Cost Growth of Completed Weapon System Programs*, Santa Monica, Calif.: RAND Corporation, TR-343-AF, 2006. As of January 15, 2007:
http://www.rand.org/pubs/technical_reports/TR343/

Arena, Mark V., Obaid Younossi, Lionel A. Galway, Bernard Fox, John C. Graser, Jerry M. Sollinger, Felicia Wu, and Carolyn Wong, *Impossible Certainty: Cost Risk Analysis for Air Force Systems*, Santa Monica, Calif.: RAND Corporation, MG-415-AF, 2006. As of January 15, 2007:
<http://www.rand.org/pubs/monographs/MG415/>

Asher, Norman J., and Theodore F. Maggelet, "On Estimating the Cost Growth of Weapon Systems," Institute for Defense Analyses, Paper P-1494, September 1984.

Bruno, Michael, "'Bow Wave' of Acquisition Costs Coming, Rumsfeld Tells Senators," *Aerospace Daily and Defense Report*, April 28, 2005.

Butler, Amy, "A Billion Here, a Billion There; Another SBIRS High Overrun Becomes an Air Force Embarrassment as Peter Teets Leaves Office," *Aviation Week and Space Technology*, Vol. 162, No. 12, March 21, 2005, p. 22.

Calcutt, Harry M., Jr., *Cost Growth in DoD Major Programs: A Historical Perspective*, Washington, D.C.: Industrial College of the Armed Forces, Ft. McNair, 1993. As of January 16, 2007:
<http://stinet.dtic.mil/cgi-bin/GetTRDoc?AD=ADA276950&Location=U2&doc=GetTRDoc.pdf>

Cook, Cynthia R., and John C. Graser, *Military Airframe Acquisition Costs: The Effects of Lean Manufacturing*, Santa Monica, Calif.: RAND Corporation, MR-1325-AF, 2001. As of January 15, 2007:
http://www.rand.org/pubs/monograph_reports/MR1325/