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The Difference Between DOD Programs That Develop Dual-Use Technologies and DOD's Dual-Use Technology Development Programs — A Fact Sheet

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This fact sheet makes a distinction between DOD programs that develop dual-use technologies and DOD's "dual-use" technology development programs. The distinction is more than semantic and is worth noting as Congress considers *non-defense* expenditures in DOD's budget. Many of the technologies and much of the knowledge generated by DOD's traditional Science and Technology (S&T) programs could be considered dual-use (e.g., programs in the sciences, materials, electronics, computers, design methods, manufacturing methods, software engineering). DOD has been supporting many of these programs for decades. "Dual-use" programs, on the other hand, are those S&T programs that explicitly attempt to leverage the commercial sector's investment in those same technologies. These programs are relatively new, initiated at the behest of Congress. A program that develops dual-use technologies is not necessarily a dual-use program, even if they develop the same technology. Dual-use technology programs typically involve consortia that include commercially oriented firms. The research agenda is negotiated with industry and aims to address the common needs of both the commercial and military sector. Industry cost-shares the project. The "agreements" are negotiated outside the federal regulations for grants or contracts. This is particularly important because it frees firms from having to provide specified cost-and-accounting data and allows more flexibility in negotiating technical data rights (both of which have discouraged some commercially-oriented firms from doing business with DOD in the past). The projects also tend to address technologies and technical issues with relatively near term application (there is less commercial interest in long term exploratory research). In traditional DOD-supported S&T programs, DOD defines the research to be done based solely on DOD's needs. Data rights, etc. are specifically spelled out in regulations. If DOD pays for all of the research, it gains unlimited rights to the data. Participants tend to be organizations dedicated to military production or small start-up firms, whose first customer is likely to be DOD, or defense laboratories.

The push for dual-use technology development programs came from Congress. Citing the relative decline in DOD's share of the Nation's research effort from over 50% following World War II to 25% today, the apparent lead that commercial markets have

attained in certain technologies (e.g., electronics, communications), and the prospect of a long-term decline in defense spending, Congress sought to encourage DOD to leverage the commercial sector's investment in those areas of mutual interest. In the FY1989 Defense Authorization Act (P.L. 100-456), Congress required DOD to begin submitting critical technologies plans. The plans were to include a discussion of how DOD intended to leverage commercial investment in those technologies. In the FY1990 Defense Authorization Act (P.L. 101-189), Congress granted the Advanced Research Projects Agency (and later the Services) the authority to enter into "other transactions" or partnerships with commercially oriented firms and consortia to encourage DOD to leverage commercial investment. It is this "partnering" authority that was used to establish numerous dual-use programs (e.g., Advanced Materials Partnerships, Advanced Manufacturing Partnerships, Manufacturing Extension).¹

The confusion between dual-use technology development programs and programs that develop dual-use technologies began in 1992 when Congress passed the Defense Conversion, Reinvestment, and Transition Assistance Act. The Act identified a number of dual-use programs mentioned above and a couple new ones (i.e., Dual-use Extension Assistance, Commercial-Military Integration programs) as a core of programs available to help assist firms convert from military to commercial production (DOD managed these disparate programs via the Technology Reinvestment Project, TRP).² The appropriations bill that year suggested that conversion funds be used to support other programs that develop dual-use technologies. These included programs developing high performance computing, infrared focal plane arrays, high temperature superconductors for electronics, multi-chip modules, optics, batteries (totaling, at the time, about \$305 million), many of which were traditional DOD technology programs. The next year, the Clinton Administration's budget for conversion included some of the same traditional programs mentioned by the appropriators (totaling \$353 million). The FY1994 authorization Act included such programs as DOD's Software Initiative, Computing Systems and Communications, Experimental Evaluation of Major Innovative Technology, Materials and Electronics, Defense Research (raising its stated conversion investment \$2.2 billion). The FY1994 appropriations Act included yet a different list including Advanced Simulation, Intelligence Systems/ Software, and High Definition Systems (raising its stated conversion investment \$1.2 billion). However, these programs were still managed as traditional programs.

As a result of their association with the more controversial dual-use programs and with conversion, a number of DOD's traditional programs that develop dual-use technologies became vulnerable to budget cuts.

¹ The partnership model was fashioned after the Semiconductor Manufacturing Technology (SEMATECH) Consortium, begun in 1987. Although SEMATECH could be viewed more as an effort by DOD to "save" a segment of the commercial electronics industry rather than a way to leverage commercial investment, the program became a model for the generation of "dual-use" programs that followed.

² For more information on the TRP and the issues surrounding it, see DOD's Technology Reinvestment Project (TRP): Friend or Foe? CRS Report No. 95-86SPR, by [name redacted], Jan. 6, 1995, 6p.

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