

Assets and Liabilities of Organizational Trust: COTS Software Adoption in Government Projects

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Abstract. Organizational theorists have long touted *trust* as a market asset for reducing transaction costs. In some cases managers have learned to depend on social relationships of firms with whom they are familiar rather than judging products on merit. The trouble arises when trust is established with a firm, and superior products from other firms are not considered. The problem is exacerbated with software, as the product itself is intangible and often difficult to judge or understand. Smaller COTS software firms with superior products have had a difficult time entering the U.S. Government market. Government managers have traditionally turned to well-known contractors with whom they have had decade-old ties, rather than seeking newer and better COTS solutions that are lesser known. This paper examines some of the barriers to trusting lesser-known software products and suggests solutions to overcome such barriers.

1 Introduction

Learning to trust people we do not know and products we cannot see. Some of the difficulties in software procurement are a product of these issues. Intuitively and practically, *trust* is thought to be an emotion that is built over time, earned and long standing. Some of these traditional concepts have been demonstrated academically. [11] [13] Newer theories present the concept of *swift trust* in which *trust* is established rapidly. [16] In economic markets, *trust* has been an essential component of efficiency as it reduces transaction costs. [25] The U.S. Government is the single largest purchaser in the world,¹ is substantial in the global market. Product procurements range from pencils to satellites, and services from janitorial to rocket science. This paper focuses on procuring high-technology COTS (commercial-off-the-shelf) software, such as that used for satellite operations.

As a framework for this paper, the government procurement process shall be simplified. In the past, the U.S. Government has primarily used largely design-and-build processes for high-tech software, and has only more recently purchased COTS software products. The COTS procurement process can be distilled to the following, as illustrated in Figure 1. This is a simplification of a process that can be considerably

¹ Proposed FY 2003 budget: \$2.13T. Defense spending for FY 2002: \$330.6B. Source: World Almanac, 2003.

more complicated; convoluted by budget cycles, hiring freezes, complex programs and system failures. Requirements are fed to program managers who conduct a market search. Several options are analyzed, and one is selected. Testing and integration follow.² Technology refresh cycles are typically built into software procurements, which brings the process full-cycle.³ The process can take years, and can be extremely complicated with prime and sub contracting a normal part of the process. Justification, budgets and politics all perturb this cycle and can make it less efficient. Networking is important as large dollar contracts are put out for companies to examine which makes the market search process less than ideal.

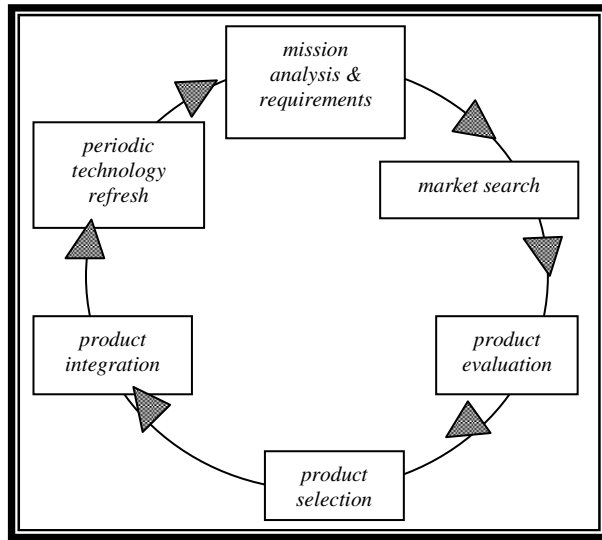


Fig. 1. COTS Software Product Government Acquisition Cycle. This process has been simplified substantially for the purpose of this paper. It is a highly complex process that can take years. DoD reform, initiated in 1994 by Dr. William J. Perry has made strides in shortening and simplifying this. [Modeled roughly after OMB circular A-109.]

Defense contractors normally have budgets to scout such opportunities. This makes them primed to jump into the bid and selection process. Bidding costs can be significant and may require funding extensive design and research stages as well as identifying subcontractors and feasible components. Meanwhile smaller commercial product companies may not even be cognizant of the RFP opportunity, let alone able to bear the cost. The lengthiness and complexity of the process make it a challenge and taking the path of least resistance can be essential to meeting deadlines and other

² In the new era of COTS product use; about the past ten years, if the procurement is done efficiently, the product will be tested prior to purchase.

³ This was not the case with traditional design-and-build systems where the government assumed all risk for products.