DOD's Industrial Modernization Incentive Program (IMIP)

By

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Foreign Military Sales (FMS) customers are often critical of the high cost and long lead time of weapon systems they have purchased. They are usually familiar with auditing and quality services and from time to time even request DOD services on their commercial contracts. DOD's Industrial Modernization Incentive Program (IMIP) is another important tool used to keep costs down, improve quality, and shorten lead time.

INTRODUCTION

The DOD's IMIP is designed to encourage increased contractor investment in efficient production equipment and processes as well as management and other software systems that will result in higher contractor productivity and reduced weapon system acquisition costs. Program objectives also include improving product quality, shortening lead time, reducing life cycle costs, and increasing surge and mobilization capabilities. The two primary incentives used are (1) payments based on cost reductions and avoidances, and (2) governmental investment protection guarantees if affected weapon programs are terminated prematurely.

IMIP addresses two DOD acquisition conditions which are cited as inhibitors to contractor investments in modern plant equipment. These conditions are:

- directly basing profit on costs incurred, and
- the instability of weapon system programs and the uncertainty of incremental annual buys of weapon systems.

DOD officials believe contractors are reluctant to make investments in expensive equipment when profits may be reduced. Uncertainty that a reasonable return on investment can be generated if a weapon system's procurement is reduced or terminated also slows investments.

In November 1982, the Deputy Secretary of Defense approved a test of the IMIP based on recommendations from DOD's Tri-Service Committee for Improving Industrial Productivity. The purpose of the test was to determine the appropriateness of various approaches to accomplish program objectives. The charter authorizing the test established a steering group composed of officials from the services, the Defense Logistics Agency, and the Office of the Secretary of Defense (OSD). The steering group was responsible for monitoring the conduct and results of the test program and evaluating the success of the various incentives and the overall program. The charter gave the services authority to pursue a variety of approaches to carry out the intent of IMIP. Based on its evaluation of the services' experience, the steering group was to develop IMIP policy and guidance and recommend specific changes to the Federal Acquisition Regulations.

The Air Force Technology Modernization Program, a forerunner of IMIP, began in 1978 with the General Dynamics Corporation F-16 production program. In early 1985, the Air Force had 33 IMIP efforts involving 77 contractors and affecting many of its major weapon systems. The Navy did not begin its IMIP until 1983, after the start of the IMIP test. By early 1985, the Navy program included 14 contractors.

The Army's version, the Industrial Productivity Improvement Program, started in 1981. The Army ceased sponsoring the program in 1984, before its contractors had purchased equipment. The Army believed other incentives could address problems of lagging contractor productivity and under-investment. In early 1985, the Army instituted a revised and redirected IMIP under guidelines set by its Under Secretary, resumed discussions with three contractors, and solicited proposals from all of its contractors.

Appendix I lists IMIP efforts as of February 1985.

THE IMIP PROCESS

An IMIP effort can be initiated in a number of ways, ranging from a requirement in a weapon systems' request for proposal, to an unsolicited proposal from a contractor. Once initiated, an IMIP effort is normally accomplished in three phases. An IMIP effort can be in more than one phase at the same time. The following chart shows the IMIP phases.

IMIP Phases

Phase	Contractor Actions	Results
I	Factory analysis or product line analysis	Proposal for Phase II and/or III
II	Development and validation of engineering applications of new technology	Capital investment proposal
III	Investment in and installation of capital equipment	Cost reductions, other benefits, and incentive payments

Phase I is a structured analysis of the contractor's factory operation. It results in a plan to modernize the entire facility or a single product line by identifying contractor projects to be developed and integrated into the factory. DOD may directly fund the Phase I analysis. The plan identifies those investments which will result in cost reduction but are not projected to give the contractor an adequate return on investment.

Phase II entails the design, development, and validation of the new manufacturing system. New technology or equipment can be tailored to specific production applications. During this phase, DOD funds may be used to develop technology for a production application but cannot be used to purchase capital equipment. Projects that do not require development or validation may move directly to Phase III. At the conclusion of Phase II, the contractor may submit a capital investment proposal. This specifies the type, cost, and timing of contractor investments and incentives desired.

During Phase III, the contractor buys and installs capital equipment and associated software. Weapon system program offices pay incentives in accordance with prior agreements.

During this phased approach, DOD and the contractor negotiate one or more agreements, either as part of a weapon system contract or separately. These agreements may include:

- Memoranda of understanding, which are usually agreed to before or during Phase I. These memoranda, which are not binding, generally define the scope of the effort and the basic roles of the contractor, weapon system program office(s), and other services.

• Framework business arrangements, which are usually negotiated at the end of Phase I or early in Phase II. These arrangements vary considerably but generally lay out the types of incentives to be used, the general level of contractor investment expected, and the bases on which the investments will be analyzed.

• Implementation business arrangements, which are usually negotiated just prior to Phase III. These arrangements, which are binding, detail the exact investments to be made, estimated cost reductions, the amount and timing of incentive payments, and the method for verifying and tracking benefits. The arrangements also include any investment protection guarantees.

An IMIP effort can include one or more weapon system programs, contractors, or benefiting services. For example, the General Electric Company engine IMIP effort involves multiple weapon systems, several subcontractors, and all three services--with the Air Force as the lead service.

DOD estimates that ongoing IMIP efforts for which projected benefits have been quantified will reduce DOD's procurement costs by a total of about $6 billion over the next 8 to 10 years, as well as provide other benefits. Other benefits, such as increased surge capability and reduced lead time, are considered significant but are less easily quantified.

MOST COST REDUCTIONS YET TO BE ACHIEVED

Most of the $6 billion in projected cost reductions are based on IMIP efforts which are in Phases I and II and are subject to change because of the estimating inaccuracy in these phases. For example, the following chart shows that, of all 50 ongoing IMIP efforts--some of which include more than one contractor--45 are in Phase I or II and five are in Phase III.

Phases and Projected Cost Reductions for IMIP Efforts
[Dollars in Millions]

	Phase I	Phase II	Phase III	Total
Air Force				
Efforts*	12	16	5	33
Cost reductions	$ 199	$2,657	$1,383	$4,239
Navy				
Efforts	9	5	0	14
Cost reductions	$ 862	$ 745	0	$1,607
Army				
Efforts	3	0	0	3
Cost reductions	$ 831	0	0	$ 831
Total				
Efforts*	24	21	5	50
Cost reductions	$1,892	$3,402	$1,383	$6,677

* Eight Air Force efforts in this chart include more than one contractor and/or subcontractors and vendors. All 77 contractors participating in Air Force efforts are included.

The accuracy of IMIP benefit projections varies depending upon the phase of the IMIP effort. Benefit projections are less accurate in early stages, and very few IMIP efforts have reached a stage

where benefits are being realized. Furthermore, the cost reductions are reported inconsistently and are not always included in weapon system program budgets or cost estimates. As IMIP efforts enter Phase III, projections become firmer. The Rockwell International portion of the B-1B program IMIP effort is an example of an estimate that was reduced over 90 percent as it approached Phase III. This estimate declined $375 million, from $400 million in June 1983 to $25 million in March 1985.

For the IMIP efforts that have begun to achieve results, the total projected cost reductions will not be realized for several years. The F-16 General Dynamics and Westinghouse IMIP efforts are examples.

- The F-16 program office is projecting about $519 million in cost reductions through 1991 for the General Dynamics IMIP effort, one of several efforts benefiting the F-16 program. This amount is based on a projected production of 2,219 aircraft estimated to cost about $40 billion. The F-16 program has realized, through contract reductions, $163.5 million in cost reductions from IMIP through fiscal year 1984. The government has paid $53.1 million in direct funding or incentives. Therefore, the F-16 General Dynamics IMIP has reduced government net costs by about $110.4 million, or about 3% of the airframe cost through fiscal year 1984.

- The initial Westinghouse Electric Corporation IMIP investment is projected to reduce costs by a total of $190 million on three out of the 21 benefiting weapon systems through 1992. The government provided no direct funding for this effort. As of March 1985, price reductions, which were split equally between DOD and Westinghouse, have totaled $12.05 million on the F-16 radar system. As negotiated, Westinghouse can earn no more than $22.3 million in incentives.

Foreign customers would find it hard to match all the efforts DOD expends in managing and acquiring weapon systems. The FMS purchaser needs to note this program is not for coproduction. That is, no dollars are budgeted and no planning is done for foreign industry. But the technology developed in modernizing plants can in the future be transferred to foreign governments.

IMIPs are just another tool the program manager and contracting officer can use to minimize cost, improve quality, and shorten lead times. The FMS purchaser directly shares these advantages.

ABOUT THE AUTHOR

Major Cunningham has been a DISAM faculty member since July 1984. He received a Bachelor of Arts Degree from Marquette University in 1972; and a Master of Arts Degree in Business from Central Michigan University in 1979. His major area of expertise is government contracting.

APPENDIX I

IMIP EFFORTS AS OF FEBRUARY 1985

IMIP Effort	Phase	Projected Benefits (000,000)	Affected Weapon Systems or Components
Air Force			
AVCO	I	*	Multiple
General Electric (Space)	I	*	Milstar, DSCS III
GTE	I	*	Multiple
Hughes (Space)	I	*	Milstar, DSCS III
Lockheed	I	$ 4	Milstar
Magnavox	I	28	GPS
Magnavox	I	*	Multiple
Milstar-Contractors**	I	*	Milstar
Raytheon	I	63	AMRAAM
Sonicraft	I	10	JTIDs
Texas Instrument Subcontractors**	I	*	LLLGB, Others
TWT Industry**	I	94	Traveling wave tubes
BMAC	II	600	B-1B, KC-135
Cleveland Pneumatic	II	*	B-1B, F-15, Others
Fairchild	II	50	T-46
GE (Engines)**	II	600	Jet Engines
Hazeltine	II	25	JTIDs
Honeywell	II	16	Peacekeeper
Hughes	II	273	AMRAAM
Hughes**	II	*	Tow, Phoenix, AMRAAM
Martin-Marietta	II	75	LANTIRN
Pratt and Whitney**	II	650	Jet Engines
Raytheon	II	*	Multiple
Rockwell Autonetics	II	16	Peacekeeper
Rockwell Collins	II	139	JTIDs, GPS
Rockwell/AIL**	II	250	B-1B
Singer-Kearfott	II	28	JTIDs, Others
Williams	II	160	ALCM, ACM, Others
F-16 Subcontractors**	III	557	F-16, B-1B, AMRAAM, Others
GE (Electronics)	III	*	Ground radar systems
General Dynamics	III	519	F-16
Lockheed	III	7	C-5A
Westinghouse	III	300	F-16, B-1B, E-3A, ALQ-131
Navy			
Allison	I	$250	T-56/501 Engines
General Electric	I	275	Standard Missile
IMCO	I	20	MK-12, MK-70, SM-2
Novamet	I	100	MK-50 Torpedo
Lockheed CALCA	I	*	P-3C, S-3B
Hughes GSG	I	200	ADCAP, UYQ-21, MEWS, JTIDs
National Forge	I	17	Ship propulsion shafts
B.F. Goodrich	I	*	Sonars
General Dynamics (Pomona)	I	*	SM-2

(Continued)

IMIP Effort	Phase	Projected Benefits (000,000)	Affected Weapon Systems or Components
McDonnell-Douglas	II	*	Harpoon
Grumman	II	300	F-14, A-6, Others
Hughes RSG	II	100	Radars
Northrop	II	250	F-18A
Morton-Thiokol	II	95	MK-104
Army			
Bell	I	243	AHIP
General Dynamics	I	468	M-1 Tank
Hughes	I	120	APACHE

* To be determined.
** Involves more than one contractor, subcontractor, or vendor.