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UNITED STATES GENERAL ACCOUNTING OFFICE
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STATEMENT OF
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BEFORE THE
COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE
ON
NEED FOR IMPROVED COST ESTIMATING ON
MAJOR WEAPON SYSTEMS AND
CREDIBLE REPORTING OF PLANNED AND ACTUAL COSTS

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Mr. Chairman and Members:

I am pleased to be here today to discuss the need for improved cost estimating on major weapon systems and credible reporting of planned and actual costs. I will be talking about cost growth, the Department of Defense's (DOD,s) cost estimating and reporting, and the underestimation of funding requirements in Five-Year Defense Programs (FYDPs).

Before getting any further into my testimony, let me give you some basic background information that illustrates cost growth trends over nearly a 10-year period. Chart 1 compares cost growth figures for the DOD systems in 1975, 1979, and 1983. Charts 2 and 3 compare the current estimates with initial and developmental estimates for weapon systems included in the selected acquisition reporting system with systems which are not included on Selected Acquisition Reports (SARs). Charts 4 and 5 present information on generic types of weapon systems, that is, land vehicles, missiles, and aircraft. You can see from these charts that cost growth is a continuing recognized problem which, while the subject of a lot of attention within the Pentagon and here in the Congress, still remains stubbornly resistant to control. The charts lead to the following conclusions: (1) cost growth remains a serious problem--it is not under control after decades of recognition, (2) it appears to be more of a problem in systems which do not get high visibility, and (3) overall, the cost growth problem is as serious now as it ever was.

On balance, today's military weapon systems acquisition process is almost always characterized by programs which are extended, exceed original cost estimates, and encompass fewer units than originally planned. DOD attributes most cost growth to quantity increases to fill original objectives or fill new requirements and inflation. We do not disagree that these two factors are significant contributors, but we would add that overoptimism in cost estimating transcends all the reasons cited by DOD for cost growth and, therefore, is the principal contributor to underestimates.

I will now proceed with the focus of the testimony and hopefully some suggestions we make today for improving the cost estimating and reporting process will assist this Committee in its oversight function.

DOD COST ESTIMATING

Mr. Chairman, at your request we made an in-depth review of the DOD cost estimating process on seven selected weapon systems. Our objectives were to look for instances where occurrences or factors causing cost growth should have been anticipated by the program office, the services, or the Office of the Secretary of Defense (OSD), but were not; or where such factors were purposely not considered; or where actions were directed to create the appearance of reduced program costs.

We found that using optimistic assumptions and inadequate consideration of independent cost estimates results in substantially understated cost estimates being reported to the Congress. We also found that the factors contributing to poor cost estimates included vague or conflicting cost estimating guidance, inconsistent program definitions, inadequate documentation of cost estimates, and estimates based on inaccurate or optimistic data. We determined that DOD could have improved its cost estimating and reporting on the sample systems by (1) using better guidance, assumptions, and methodologies for estimating and (2) making fuller use of the recommendations of DOD's independent estimating groups. We would like to briefly outline the major findings of our report for the Committee.

DOD NEEDS TO IMPROVE ITS
COST ESTIMATING GUIDANCE

The services have developed their own cost estimating guidance. In some cases, we found the guidance was vague and conflicting.

Guidance is vague and conflicting

Conflicting cost estimating guidance has a severe effect on program office estimates, particularly when these problems affect the definition of the system to be estimated. An example of this occurs between the OSD and Air Force guidance. DOD

Instruction 5000.33 indicates that some costs can be excluded from the program office estimate when funded by a separate budget line. In contrast, Air Force Systems Command Regulation 550-18 indicates that the program office estimate is to include all directed effort for which the program office has management responsibility, regardless of the source of funds.

The Air Force's B-1B bomber program suffered from the problem of conflicting guidance on what was to be included in the program. The Secretary of Defense told the B-1B program office to exclude certain items (e.g., the simulator) from the B-1B program so that the President could certify that the program costs would not exceed \$20.5 billion. The B-1B program office estimate excluded these items, but the independent Air Force and OSD Cost Analysis Improvement Group estimates included them.

Implementation of guidance is weak

DOD needs to improve the implementation of its cost estimating guidance. The weapon systems we reviewed provided illustrations of problems resulting from poor implementation, including

- a lack of definite and consistent cost estimate structure and
- inadequate documentation of cost estimates.

Cost estimates lack definite structure

Cost estimates must have a definite and consistent structure to be of use to decisionmakers. Such a structure would ensure that all costs associated with a weapon system are included in the estimate, and that the estimates consistently include all associated costs from one period to the next. However, we found that in some cases what is included in the weapon systems estimates is not consistent between estimates.

Lack of consistent program definition

DOD and service guidance establish and define the work breakdown structures to be used for cost estimates of major weapon system acquisitions. Despite this guidance, problems occur regarding what is included in the program definition, and the program cost estimates are not consistent.

An example occurred on the Army's Bradley Fighting Vehicle System, in which different structures were used to develop the 1979 and 1982 program cost estimates for the Bradley:

	(millions)
1982 program office estimate	\$13,358.7
1979 program office estimate	<u>7,742.0</u>
Difference	\$ 5,616.7

Both estimates are based on contractor data, but in 1979 the contractor used the approved work breakdown structure (that is, hull, suspension, power package, etc.). However, in the 1982 estimate the contractor's manufacturing costs were broken out by the contractor's internal reporting structure, not by the work breakdown structure used in the 1979 estimate. Thus, the two estimates are not comparable, and the program office cannot explain why costs increased \$5.6 billion between these two estimates.

Cost estimate documentation is insufficient

DOD and service regulations require documented cost estimates to allow traceability from one estimate to the next, allow verification, and maintain cost discipline. For example, Air Force Systems Command Regulation 550-18 states that the program office estimate has two main objectives:

- "(1) to establish and maintain program cost discipline and
- (2) to provide an unequivocal cost track."

Our 1972 cost estimating report¹ discussed problems in DOD's documentation of data sources, assumptions, methods, and

¹Theory and Practices of Cost Estimating for Major Acquisitions
(GAO-B-163058, July 24, 1972).

decisions basic to the weapon systems cost estimates. We developed nine criteria for effective cost estimating in that report and DOD concurred with these criteria. Eleven years later, we find the services' cost estimating guidance frequently meets our criteria and we found similar problems today as we found in 1972.

Recognition of program risk

Estimators should identify the risks, determine their probability, and increase the amount of the estimate by the magnitude of the risk. We found that cost estimators base their estimates on the information available to them at the time, and assume that the system they are estimating will not suffer from typical changes in schedule, funding, engineering, or the threat. Early estimates are often optimistic, or success oriented, and the risk factor included in them to provide for uncertainties is probably too low. Thus, when the early cost estimates are compared to later estimates, one typically sees large cost increases. This is illustrated by the SAR data.

Consistency of inflation recognition

DOD does not recognize inflation consistently in the weapon systems we reviewed. In some cases we found contractor inflation indexes were used to calculate inflation, and inflation was used as a device to hide other cost increases.

Use of contractor indexes

The December 1980 SAR (fiscal year 1982 approved program) for the Bradley Fighting Vehicle System reported a \$2,748 million increase in the baseline vehicle estimate over the September 1980 SAR (fiscal year 1981 approved program). According to program officials, most of this increase, \$2,541 million, reflected contractor projections of inflation. Those projections were significantly higher than the Office of Management and Budget's (OMB's) mandated indexes that were supposed to be used.

Inflation used to hide other costs

The treatment of inflation and the practice of some program managers to attribute cost increases to inflation was discussed in an April 1982 Comptroller of the Army report. The report states:

"Program Managers tend to define inflation in different terms. Often any change other than a programmatic change that occurs in a system is attributed to inflation.

The Army's Bradley System showed a \$2.5 billion increase because of inflation in its December 1980 SAR. A subsequent cost analysis by the program office indicates that the increase was not purely inflation, but included real cost growth of \$660.7 million.

Improvements needed in the
direction provided by DOD management

The basic assumptions used to develop a cost estimate have a tremendous effect on the final value of that estimate. Some of the systems we reviewed provided examples showing DOD directed cost estimators to use more optimistic assumptions. These assumptions related to contractor profit, the construction schedule, and allowances for uncertainties. For example, the Navy directed its estimators to reestimate the fiscal year 1984 Five-Year Shipbuilding Plan using optimistic assumptions. The result was a \$2.7 billion reduction in the cost estimate for the plan. Other examples of the required use of optimistic assumptions are: the use of optimistic contractor data, forcing cost estimates to fit within the fiscal constraints of the service budgets, and excluding relevant program costs.

DOD estimates are based
on inaccurate or optimistic data

DOD cost estimators told us the competitive nature of business drives optimistic contractor estimates. In addition, contractors may underbid to "sell" a program to the service and the Congress. Program offices sometimes base their estimates on this overly optimistic contractor data.

One example of this problem occurred on the Apache helicopter program where the accuracy of the contractor's cost data appears questionable. Problems and inaccuracies with the cost data were cited by representatives of the Army Comptroller, the program office, the Defense Contract Audit Agency, and Hughes. The program office used contractor cost data to prepare Apache cost estimates. This resulted in a significant difference between the February 1980 and September 1981 program office estimates. The \$1.55 billion cost increase in the later estimate was attributed largely to higher contractor costs.

Program cost estimates are forced to conform to the budget

The services' total program cost estimates are prepared, reviewed, and validated under a ceiling--the President's budget. One example identified during our review occurred in March 1982 when the Defense Systems Acquisition Review Council production review on the Apache helicopter reduced the estimate by \$72.6 million to conform to the fiscal year 1983 budget guidance. To achieve the lowest estimate possible, DOD tends to use optimistic assumptions regarding technical, risk, development, and production problems, and schedule and design perturbations.

Relevant program costs are excluded

Relevant program costs are often excluded from systems' cost estimates through direction to cost estimators to omit

costs associated with changes to the original requirements. One example of these excluded costs was identified in the Bradley Fighting Vehicle System, where the September 1979 Bradley program office estimate excluded product improvements specified in the June 1979 approved system requirements. These improvements added \$740.9 million to the program 1 year later.

FULLER USE OF INDEPENDENT COST ESTIMATORS'

RECOMMENDATIONS WOULD MAKE COST ESTIMATES

MORE RELIABLE AND VALID

Although OSD and the services have established independent cost estimating groups to help ensure that cost estimates are more reliable and valid, efforts by such groups have not always been effective. We found independent cost estimators' estimates were not fully considered by DOD decisionmakers, and their recommendations were sometimes not accepted.

For example, an OSD analysis of the Bradley's September 1979 estimate pointed out that the fire control portion of the estimate could be understated by as much as 30 percent. No change was made to the estimate. The next year the Hughes Aircraft Company's estimate for the fire control system rose significantly--from \$597.8 million, to \$934 million.

RECENT DOD ACTIONS SHOULD

HELP IF IMPLEMENTED

OSD and the services recognize the need to improve their cost estimating process, and as a result, they are continually taking steps to improve this capability. OSD, the Air Force, Navy, and Army each have efforts underway to improve their cost estimating practices. OSD efforts are part of the DOD Acquisition Improvement Program. The current efforts underway by the Air Force and the Navy, for the most part, appear to be a reemphasis and reinstatement of past measures. On the other hand, the Army has recently started what appears to be an extensive effort to improve its cost estimating with several new initiatives. The Total Risk Assessing Cost Estimate for Production, Program Management Control System, and Joint Independent Cost Estimating team are three of the major initiatives.

RECOMMENDATIONS

To resolve the weaknesses in the guidance, assumptions, and methodologies used to develop cost estimates, we recommend that the Secretary ensure that:

--OSD and service guidance is clarified and revised to resolve conflicts; and to require all costs associated with a weapon system be included in its estimates, all

estimates be fully documented, and to use appropriate methodologies in developing cost estimates.

--Program risks and uncertainties be fully identified in DOD cost estimates. Cost estimators should be directed to structure their estimating assumptions to consider proven historical cost growth drivers, such as technical changes due to engineering problems and added requirements, schedule changes, and funding instability.

--Inflation should be calculated consistently and in accordance with DOD procedures.

--Cost estimates be based on realistic assumptions rather than optimistic assumptions.

--Cost discipline be enforced by establishing the total program acquisition cost estimate developed for the production milestone as a not to exceed threshold. Program design, operational requirements, schedule, numbers of units, economically efficient production rates, and other critical assumptions should be firmly established. Changes to these requirements should be minimized and approved only on the basis of an urgent need, and only after considering the cost effect of such changes. A program in danger of breaching the threshold should be assessed to determine whether it should be

restructured, discontinued, or permitted to proceed as planned.

--DOD management fully consider independent estimates. The independent estimates should not be arbitrarily accepted, but the recommendations of the independent estimators should be considered and decisions not to accept them should be fully documented.

One way for the Secretary to address DOD's cost estimating guidance problems is by issuing overall guidance to the services--perhaps in the form of a "cost estimating handbook"--that would outline the criteria necessary to ensure that all costs associated with a weapon system would be included in the estimate, all estimates would be fully documented, appropriate methodologies would be used to develop the estimate, and estimates would be updated when significant changes occur in the program.

The Secretary should also develop measures that will ensure these guidelines are properly implemented. The implementation of the new and existing guidelines should be monitored by the Cost Analysis Improvement Group, a body within the Office of the Director, Program Analysis and Evaluation. In addition, the DOD Inspector General could periodically review the services' efforts to implement the cost estimating guidelines.

IMPROVEMENTS ARE NEEDED IN COST
ESTIMATE REPORTS TO THE CONGRESS

DOD cost estimates are reported to the Congress through SARs, unit cost exception reports, and the budget process. Major concerns have been expressed by the Congress and its oversight committees for some time over the accuracy, timeliness, and completeness of DOD's reporting. We found:

- SARs do not reflect the latest anticipated program acquisition costs,
- SARs do not show total planned acquisition objectives,
- important cost categories not reported in SARs,
- costs are not reported consistently in SARs, and
- unit cost exception reports have not solved the problem of a lack of current data reported to the Congress.

SARs do not reflect the latest anticipated
program acquisition costs

We found major differences between the officially approved program acquisition cost reported in SARs and the currently anticipated program acquisition cost projected by the program

office. These differences are the result of the time lag between preparing a SAR and submitting it to the Congress, and the requirement that SARs reflect the President's approved budget. For example, current Hellfire estimates do not include costs for a new missile seeker needed to meet Army requirements to increase the survivability of the Apache/Hellfire system. The Army canceled an earlier seeker development program, estimated at over \$1 billion, and is evaluating three lower cost options for the seeker requirement. If approved, a new seeker would further increase Hellfire acquisition costs. Seeker development costs were not included because they are not part of the officially approved program.

SAR's do not show total planned
acquisition objectives under consideration

The Army does not have a firm figure for the total number of Hellfire missiles it plans to procure. The SAR totals, therefore, do not report the ultimate cost of the Hellfire program. The total planned procurement quantity reported for the Hellfire has gone from 24,600 in March 1976, to 35,756 in March 1982, to 42,332 in December 1982, and 48,696 in December 1983. Hellfire project officials have been instructed to consider adding an additional year's production (about 6,000 missiles) to the total program during each budget cycle review.

In addition to the fact that the information in the SARs is not always reliable, useful, and readily understandable, it is also difficult to compare the information in SARs with that in other budgeting and accounting reports provided to the Congress. According to the Congressional Budget Office, for example, cost estimates for 13 systems in the December 1982 SAR excluded at least \$40.8 billion in program costs reported elsewhere to the Congress.

In times of constrained resources, it is more important than ever that the Congress and executive branch officials have the information they need to ensure that resources are being spent effectively and efficiently. Management and project reports, such as SARs, should be designed to help ensure that program objectives are achieved and costs controlled. To this end, planning and reporting go hand in hand: without a system of management reporting, planning is ineffective since the success of programs meeting their financial and program objectives cannot be evaluated, and the actions of those responsible for execution cannot be easily monitored.

These reports must be timely, useful, and readily understandable. Government financial systems should be designed to provide that information. Yet, today's financial systems--not only in DOD, but throughout the government--provide little of the reliable cost data essential to effectively monitor program execution, anticipate overruns, and provide a basis for future program and budget planning.

All too frequently, the results are the types of problems we have discussed here today--cost estimates which are unreliable, inconsistencies between budget requests and accounting reports, and an inability to compare planned budgets with actual costs and results. These problems exist largely because DOD and other departments and agencies generally do not budget and account on the same basis.

Budgets are requested and justified in terms of programs and projects, such as infant health care or a strategic missile submarine. Accounting and other financial reports, however, often focus on appropriations and categories of expense, such as travel or personnel, without relating them to the particular programs or projects for which the money was requested and approved. The absence of a consistent basis for reporting costs, both within DOD, and throughout the government, makes it difficult, if not impossible, to compare the costs of similar activities in the government. Effective management requires reports that compare planned versus actual costs for programs, organizations, and projects.

An integrated financial system that budgeted and planned on the same basis could produce accurate, comparable, and readily understandable management reports, such as the sample project report below.

**A Sample Project Report
Construction Of A Strategic Missile Submarine**

Project Status As of 10/3/83

<u>Phases</u>	<u>Planned Cost</u>	<u>Actual Cost To Date</u>	<u>Estimate to Complete</u>	<u>Total Cost to Complete</u>	<u>Increase (+) Decrease (-) From Plan</u>	<u>Months Under (-) Over (+)</u>
Research and Development	16	20	0	20	-4	+2
Testing and Evaluation	4	3	0	3	-1	
Design	10	11	0	11	-1	-1
Procurement	70	10	65	75	-5	+2
	<u>100</u>	<u>44</u>	<u>65</u>	<u>109</u>	<u>-9</u>	

Funding Status As of 10/3/83

<u>Appropriation</u>				<u>Obligations</u>	
<u>Number</u>	<u>Description</u>	<u>Date</u>	<u>Amount</u>	<u>Amount</u>	<u>Unobligated</u>
1111	Research and Development Testing and Evaluation (FY 82)	10/81	20	20	0
1111	Research and Development Testing and Evaluation (FY 82 Supplemental)	2/82	3	3	0
1111	Shipbuilding and Conversion (FY 83)	10/82	10	10	0
1111	Shipbuilding and Conversion (FY 83 Supplemental)	4/83	1	1	0
1111	Shipbuilding and Conversion (FY 84)	10/83	70	35	35
	Totals		<u>104</u>	<u>69</u>	<u>35</u>
	Current Estimate		<u>109</u>		
	Increase (+)				
	Decrease (-)		<u>-5</u>		

This allows both managers and the Congress to quickly determine the:

- defined project phases, such as research and development;
- estimated resources needed to complete the project;
- estimated cost of those resources for each phase of the project;
- expected start and completion date, or milestone, for each phase;
- funding sources for the project (which may come from several appropriations).

As the project progresses, it is possible, using such reports, to determine if the project is on schedule, within budget, and requires additional resources to complete.

However, current government financial systems, including those in DOD, are incapable of producing such reports. It is time for a major overhaul of financial management systems governmentwide. Without such an effort, it will be difficult to correct many of the problems that characterize not only SARs, but other program areas that are of concern to the Congress. Current budgeting and accounting practices make it extremely difficult, for example, to compare health care delivery costs in the Veterans Administration, Public Health Service, and DOD. If the Congress is to effectively exercise its oversight and budgetary responsibilities, it is important that it have information that allows it to compare the costs of similar programs and operations governmentwide.

A financial management system that provided comparable, reliable, consistent, and useful information to support both management and congressional decisionmaking could provide the following benefits:

- the ability to compare planned with actual program and project costs,
- the ability to compare the costs of similar operations across the government,
- more accurate budget estimates based on actual past program and project costs,
- the ability to measure the input of cost and the output of performance, and
- increased accountability for the management of public funds.

Our assessment of the problems and our ideas on how we might proceed are discussed much more extensively in a two volume report currently in draft form. I appreciated the opportunity to meet with you to begin a dialogue on our proposals, and plan to schedule similar meetings with other members of the Congress and the executive branch. We hope this report will stimulate widespread discussion of these issues, leading to the consensus which will be needed if reform is to be successful.

SARs would be further improved and more realistic information would be provided to the Congress if the Secretary of Defense would ensure that:

--SARs report all relevant program costs (such as operation and support), use the most current data, and report costs in a consistent manner. In an exceptional situation where costs are excluded from the estimate, those costs should be clearly identified and the rationale for their exclusion explained.

--DOD disclose the total number of units it is considering for a program by providing a SAR footnote when that number is different from the approved program reported in the body of SAR.

--Unit cost exception reports simply do not report the same cost data as SARs, but report any anticipated cost growth that has not been included in the latest approved official estimate.

We recommend the Secretary encourage implementing the initiatives to improve the cost estimating functions within DOD and the services without further delay. Monitoring the implementation of the new and existing guidelines could be accomplished by the Cost Analysis Improvement Group, a body within the Office of the Director, Program Analysis and Evaluation.

UNDERCOSTING FYDP

Historical data shows that DOD's FYDPs are consistently undercosted. The dramatic increases in the defense program since 1980 and the perception that the cost of these huge increases may continue to be significantly understated has become a serious concern in the Congress. As you know, my staff recently completed an assessment to gauge the size of the undercosting problem, giving particular attention to the procurement of major weapon systems. This work was done in response to a number of congressional requests. In March we provided our results to you in the form of a briefing paper. I will highlight for the Committee the findings and conclusions of this study.

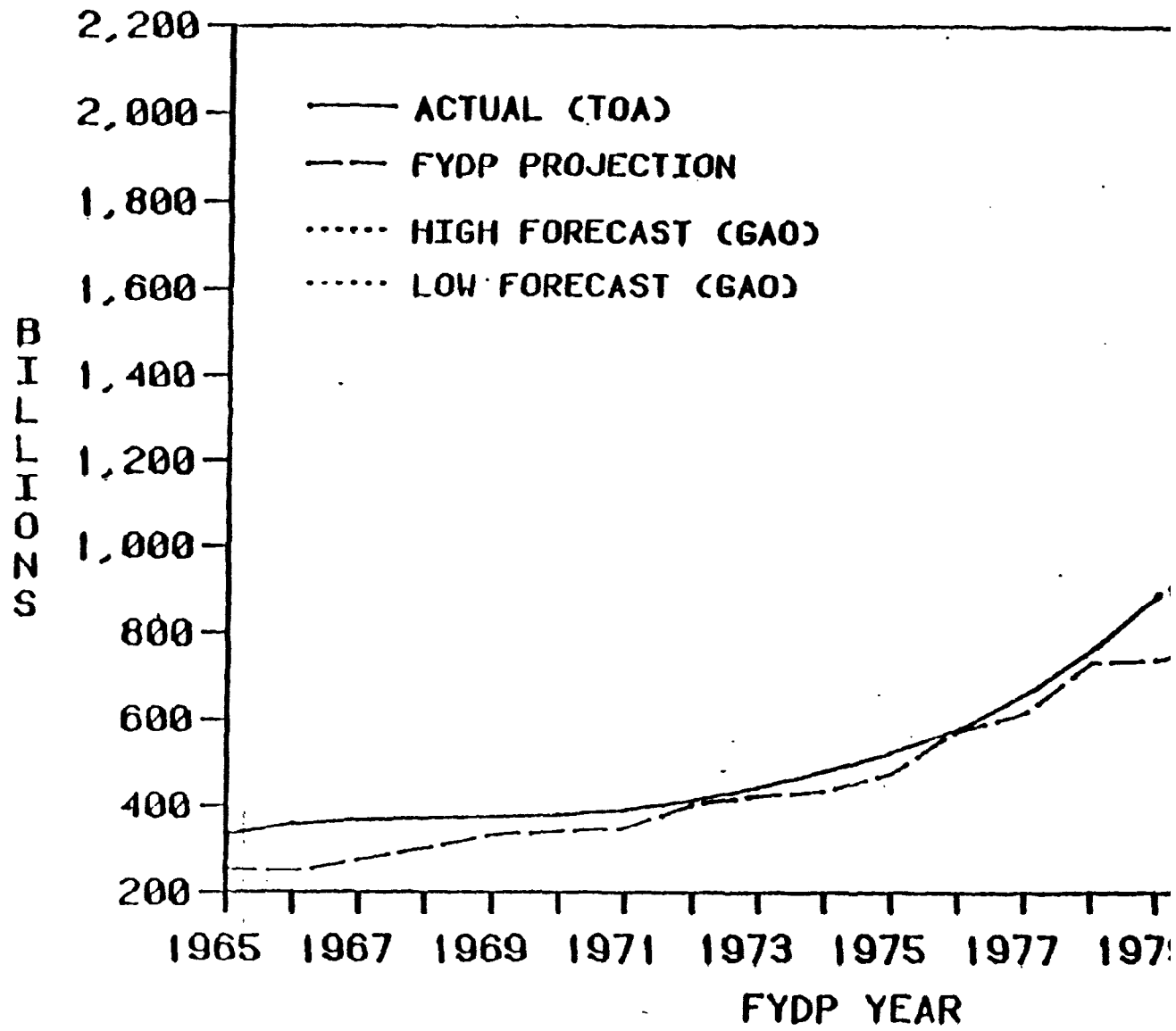
On balance, today's military weapon systems acquisition process is almost always characterized by programs which are extended, exceed original cost estimates, and encompass fewer units than originally planned. One of the major contributing factors is a systematic bias in DOD cost estimating practices which encourage optimistic cost assumptions while excluding actual cost experience and the reality of the budgeting environment.

In analyzing the planned weapon systems cost versus actual total obligational authority (TOA) provided for 97 major weapon systems during the course of FYDPs from 1963 to 1983, we found

that the Congress must grant an average of 32 percent more obligational authority in an effort to execute the plans. Even with the additional moneys, the number of weaponsystems which DOD is actually able to procure is less than anticipated. As an example of the magnitude of the problem, I note the latest 5 year plan for which actual data is now available:

--The fiscal years 1980-84 FYDP. For the last 5 years, actual appropriated TOA exceeds DOD's original projections by approximately \$246 billion. Although it is not certain that the historical pattern of underestimation of funding requirements will continue, there is little evidence of a major change. As you can see in chart 6, TOA continues to exceed DOD's planning estimates.

**FYDP PROJECTED COSTS, ACTUAL (TOA)
AND GAO FORECASTED RANGE OF
(CURRENT DOLLARS)**



Much will depend on whether the estimates in DOD's 1981 through 1984 FYDPs are in fact more accurate than in the past. If these FYDPs, as DOD claims, are a reflection of better procurement planning and cost estimating, we should expect the level of TOA required to more closely approximate the FYDP figures and proposed weapon systems quantities and associated support to be attained within the planning period anticipated.

Our analysis identifies a pattern of underestimation of weapon systems costs that results in requests for stretch-outs and/or additional funds to fulfill plans. Additional funding is provided, but it is usually not enough or too late to purchase all quantities within original time frames. If this pattern of systematic underestimation continues, the Congress will likely provide 30 to 35 percent more funding and DOD will realize fewer quantities than planned.

Our analysis of the underestimate in FYDP's total funding shows a systematic pattern over 20 years. If significant management improvements are not realized, and historical trends continue, the fiscal year 1984-88 defense programs will absorb at least \$173 billion, to as much as \$324 billion more (in current dollars) than DOD has estimated.

DOD has stated that cost planning was often too optimistic in the past and despite efforts to address the problem, it continued to plague DOD through the late 1970s. In the February testimony before the Senate Armed Services Committee

and the Senate Budget Committee, DOD's Director of Program Analysis and Evaluation attributed overly optimistic cost estimates to five factors that consisted of a failure to

- budget properly for certain one-time costs
(e.g., initial spares),
- procure enough support equipment,
- buy equipment at efficient rates,
- fund planned modification programs properly, and
- provide realistic forecasts of future inflation.

To compensate for these financial management failures, DOD testified that its fiscal year 1982 budget amendment and fiscal year 1983 budget submission included corrections for many systems. Therefore, its requests were higher than the cost forecasts of the late 1970s indicated would be required. DOD went on to state that in addition to correcting inherited problems, it had put into place several changes to significantly improve its cost estimates. One change has been a greater emphasis on independent cost estimating.

To get independent cost estimates, the Cost Analysis Improvement Group was created under OSD. The 1984 DOD Authorization Act requires independent estimates to be submitted to the Secretary of Defense and considered in decisions regarding major weapon systems. In the past, however, justification has often been made for not accepting the independent estimators' recommendations. Such justifications, for example, were made in the course of a number of missile development programs, including the Copperhead, Tomahawk, Harm, Sparrow, and Maverick.

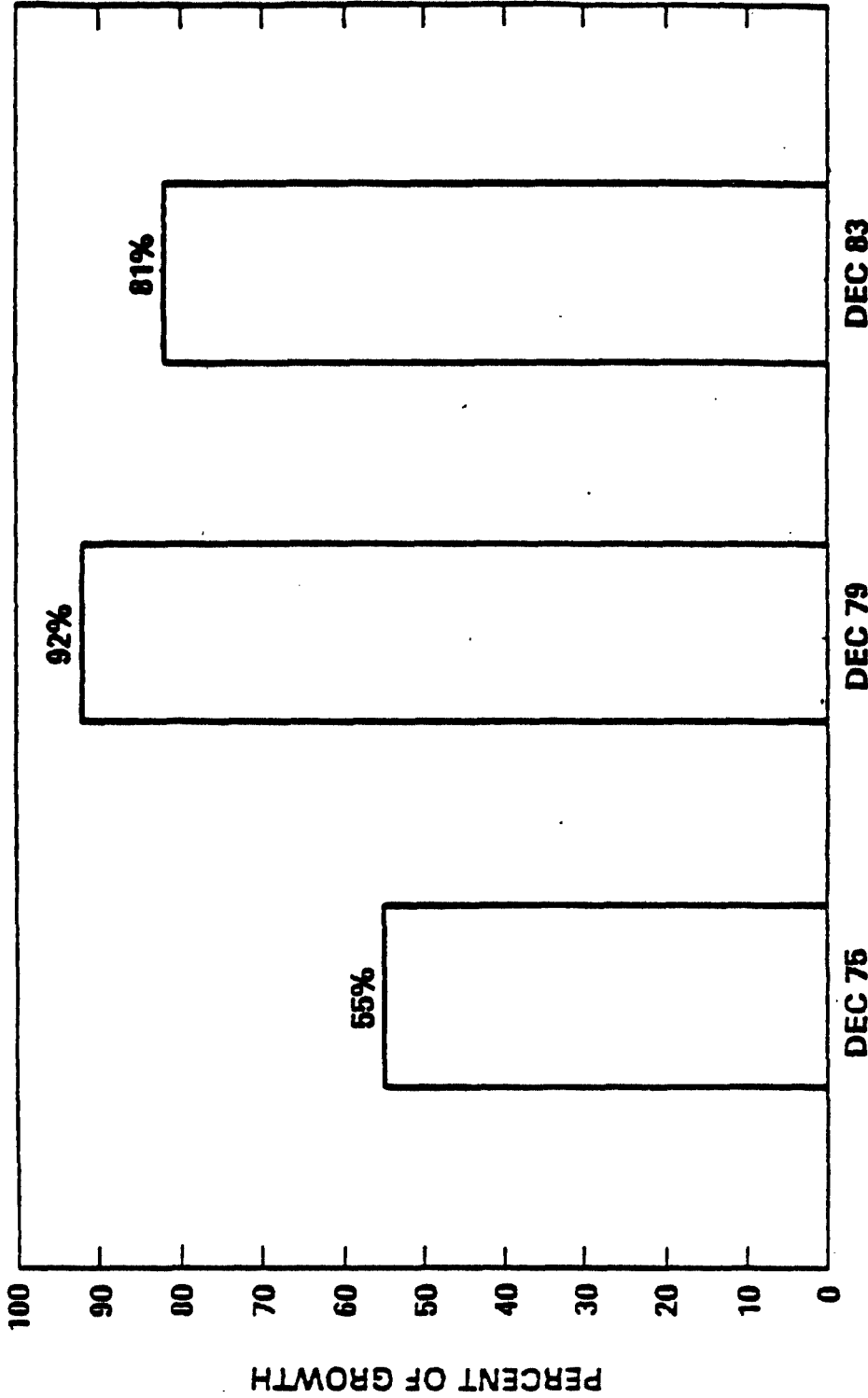
We also found that the assumptions and formula used by the independent cost estimating groups are similar to those used by the program offices. Our analysis indicates that as a result the cost estimates of the independent cost estimators appear to suffer from a tendency toward overoptimism, although to a lesser degree than program offices' estimates.

Future improvements in overall program planning and efficient execution depend heavily on better cost planning and management. The proof will be in the effect on overall defense program costs and execution. This again emphasizes the need for an integrated management system.

As I stated earlier, and I reiterate here, much will depend on whether the estimates in DOD's 1981 through 1984 FYDPs are in

fact more accurate than in the past. If these FYDPs are a reflection of better procurement planning and cost estimating, we should expect the level of TOA required to more closely approximate the FYDP figures as our first indicator. A second, and perhaps most important indicator, will be the degree to which defense programs are fulfilled within planning estimates. This is most likely to be achieved if the Secretary of Defense and the Congress have more accurate cost information on DOD's 5 year programs. Better cost assessment is the key to making the right tradeoff decisions today on what will shape our long-term defense policy.

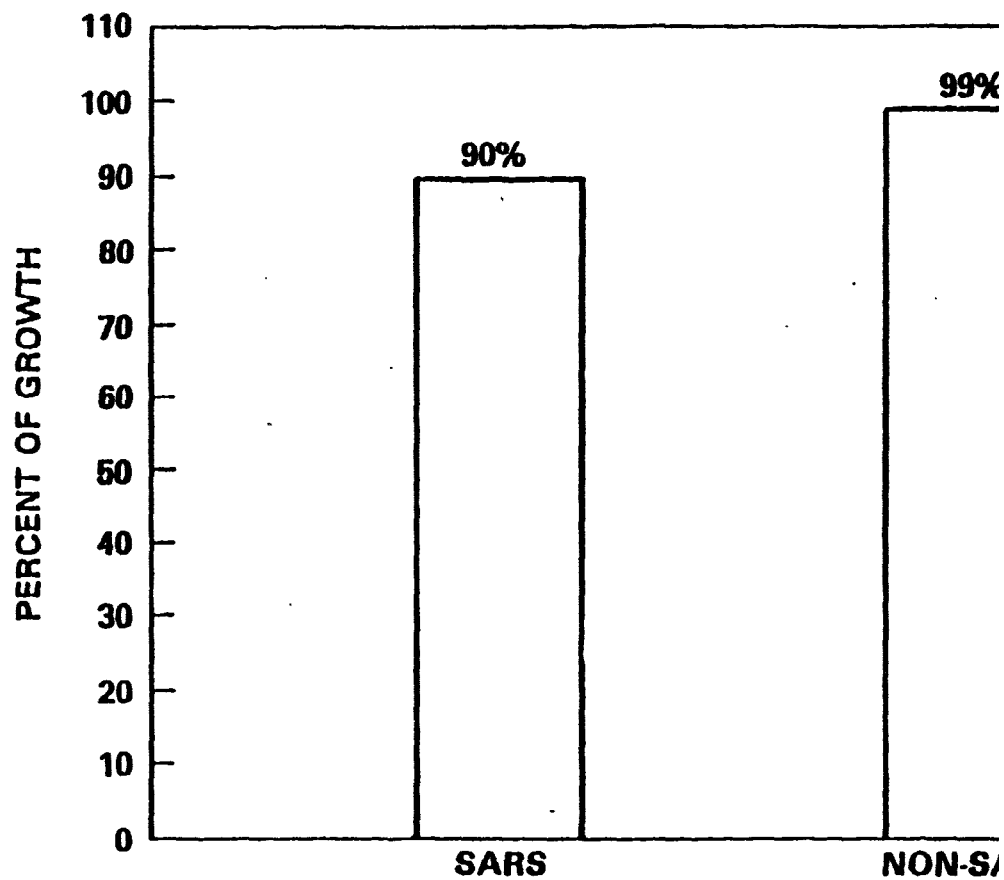
DOD REPORTED COST GROWTH FROM DEVELOPMENT ESTIMATES FOR SELECTED ACQUISITION REPORTS



ACQUISITIONS:	41	48	73
CURRENT ESTIMATE COST:	\$155	\$256	\$618
DEVELOPMENT ESTIMATE:	\$100	\$133	\$340
GROWTH:	\$55	\$123	\$276

(ALL DOLLARS IN BILLIONS)

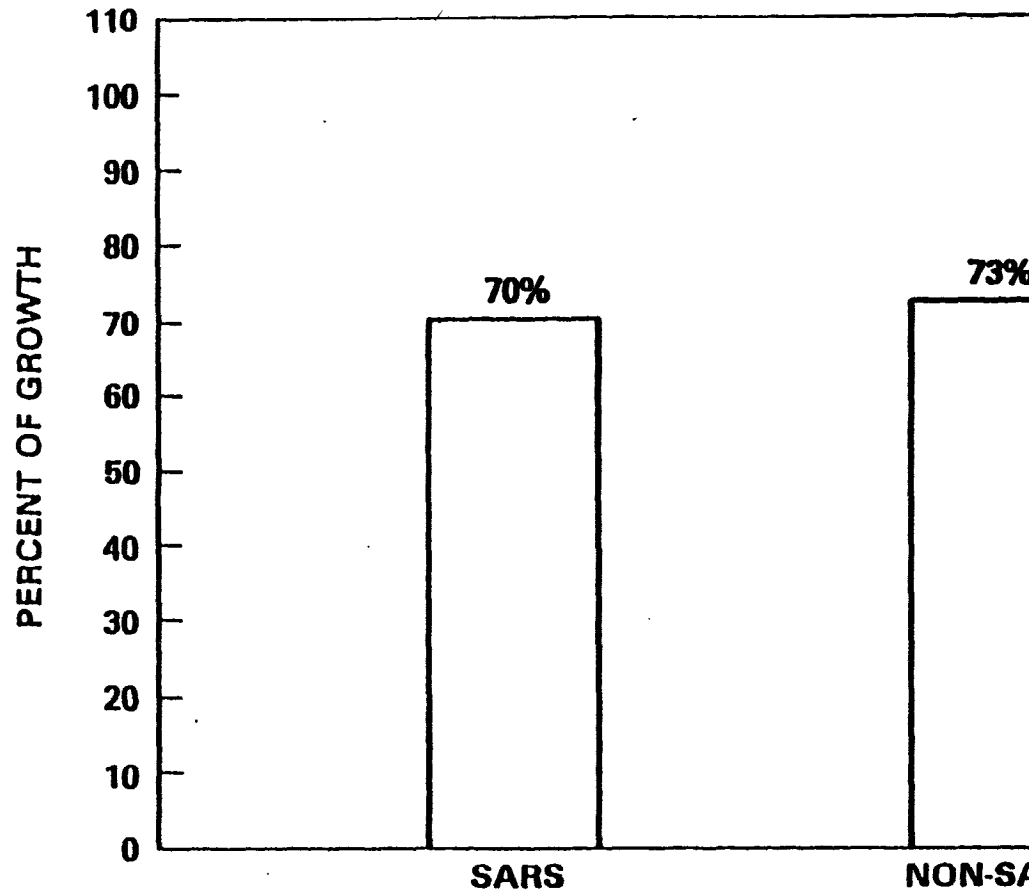
INITIAL ESTIMATES COMPARISON OF SAI GROWTH RATE AS OF SEPTEMBER



ACQUISITIONS:	73	86
CURRENT ESTIMATE:	\$607	\$196
INITIAL ESTIMATE:	\$319	\$ 96
INITIAL GROWTH:	\$288	\$ 97

(ALL DOLLARS IN BILLIONS)

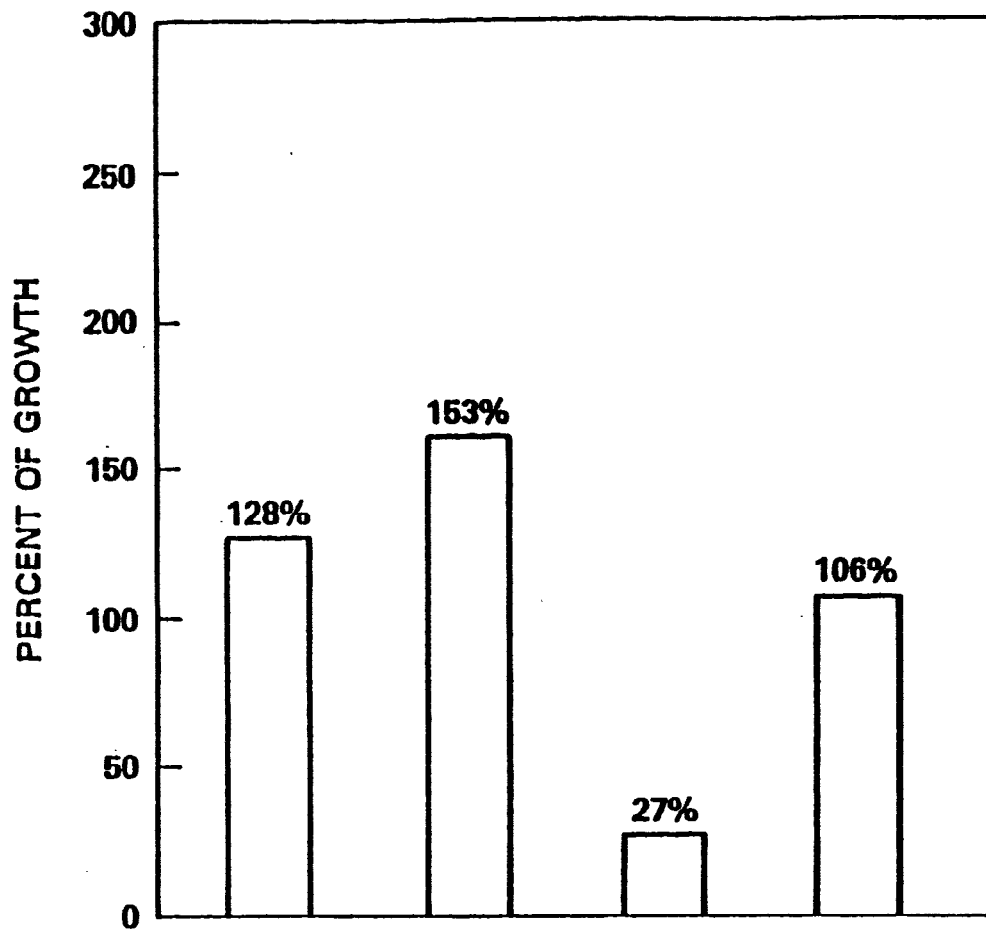
DEVELOPMENT ESTIMATES COMPARISON COST GROWTH RATE AS OF SEPTEMBER



ACQUISITIONS:	73	86
CURRENT ESTIMATE:	\$607	\$195
DEVELOPMENT ESTIMATE:	\$358	\$113
DEVELOPMENT GROWTH:	\$249	\$ 82

(ALL DOLLARS IN BILLIONS)

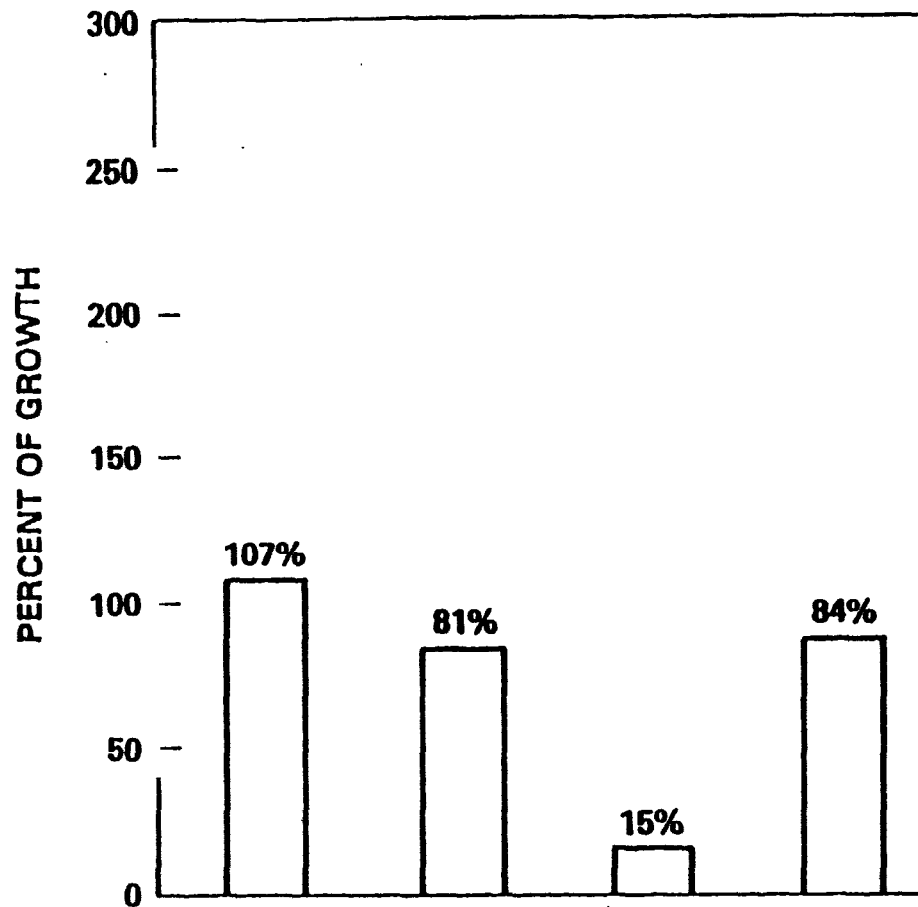
**PERCENT OF INITIAL ESTIMATE COST
CATEGORY OF WEAPON SYSTEM AS OF 1980**



CATEGORY:	AIRCRAFT	HELICOPTERS	MISSILES	SHIPS
ACQUISITIONS:	28	9	41	24
CURRENT ESTIMATE:	\$296	\$38	\$181	\$171
INITIAL ESTIMATE:	\$130	\$15	\$142	\$ 83
COST GROWTH:	\$166	\$23	\$ 39	\$ 88

(ALL DOLLARS IN BILLIONS)

**PERCENT OF DEVELOPMENT ESTIMATE
CATEGORY OF WEAPON SYSTEM AS OF**



CATEGORY:	AIRCRAFT	HELICOPTERS	MISSILES	SHIPS
ACQUISITIONS:	28	9	41	24
CURRENT ESTIMATE:	\$296	\$38	\$181	\$171
DEVELOPMENT ESTIMATE:	\$143	\$21	\$157	\$ 93
COST GROWTH:	\$153	\$17	\$ 24	\$ 78

(ALL DOLLARS IN BILLIONS)