

The main contribution of the use of discounting procedures was to insure that a dollar approved for expenditure in FY75 was not weighted equally with a dollar of expenditure of FY69 in comparing the costs of the two forces. As a result, though the new force required extra expenditures initially, the cash savings achieved in later years were large enough to constitute a 10 percent return on the initial investment.

The main issue for both judgment and analysis was whether the new force was more effective over the period than the replaced force. The Army judged this to be the case.¹⁰

2. A new pipe shop cleaning plant for the Charleston, S.C., naval shipyard

The Navy proposed to construct a new building for the chemical cleaning of pipe components to meet the exacting standards of nuclear submarines and surface ships. At the time of the proposal, the task was being done in a temporary open shed 25 years old. In accordance with DOD Instruction 7041.3, the following calculations were made to justify the project.

(a) Investment required (building, cranes, chemical tanks, expected to last 20 years)-----	\$275,000
(b) Annual savings (lower utilities cost, maintenance and chemical waste)-----	43,036
(c) Present value of new building's terminal value-----	36,000
(d) Present value of annual savings and terminal value discounted at 10 percent-----	402,253
(e) Benefit/cost ratio (line (d)/line (a))-----	1.46

Investment in the new building makes possible a stream of annual savings compared to continued use of the old facility which represents a return significantly greater than 10 percent.

3. Tactical airlift capability for the Air Force

The Air Force indicated that the high attrition of C-130E aircraft in South Vietnam would mean that the Defense Department would lose the capability of about one C-130E squadron within two or three years. The problem was how to replace this lost capability. Analysis indicated that we had basically three alternatives:

- Buy another squadron of C-130Es.
- Operate an existing squadron of C-130Bs (an older model C-130) at a higher utilization rate than we had planned, and modify them as necessary to prolong their useful lives.
- Keep two C-130B squadrons that we had planned to give to the reserves in the active force structure, but plan to use them at low utilization rates, and modify them as necessary for prolonged life.

The choice was between investment in new aircraft, which would mean lowering operating costs later on, and continued operation of older aircraft with their higher operating costs. The ten year cost summary was as follows:

10-YEAR COST SUMMARY

[In millions]

	Undiscounted	Discounted at 10 percent
Option A—Buy C-130E's-----	\$161.4	\$114.0
Option B—Increase use of 1 C-130B Squadron-----	215.6	132.6
Option C—Keep 2 C-130B squadrons at low use-----	293.0	180.2

Buying the new aircraft yields returns of better than 10 percent in reduced operating costs. Hence, the decision was made to go ahead with C-130E procurement.

4. A new tactical airlift aircraft for the Air Force

A common problem is to decide whether a new weapon system will have payoffs in increased capability or in reduced costs for achieving given effectiveness which

¹⁰ This conclusion means that the return on the investment was greater than 10%, with the returns in excess of 10% being taken in increased effectiveness.