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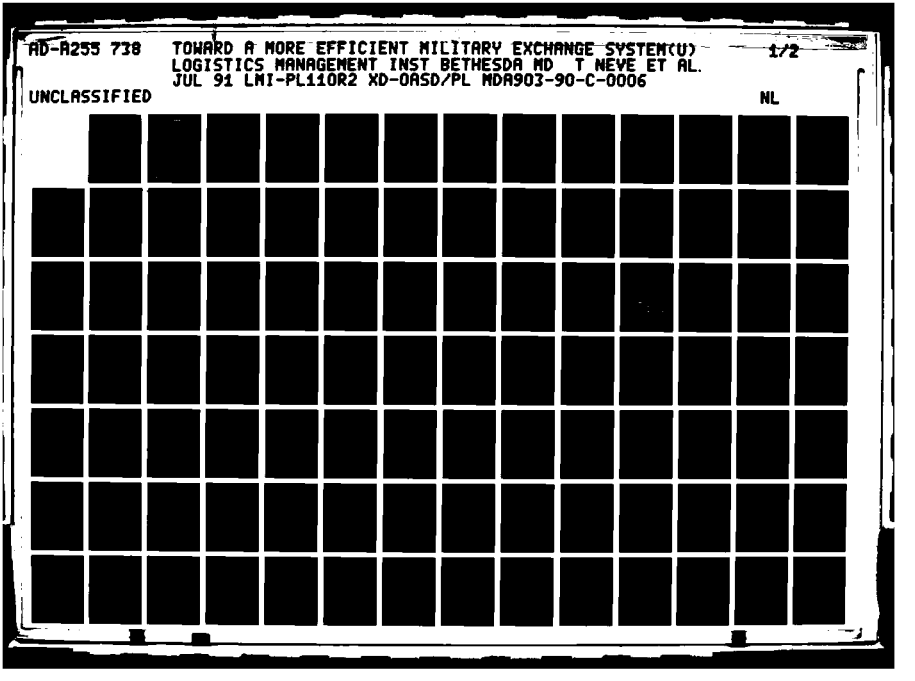

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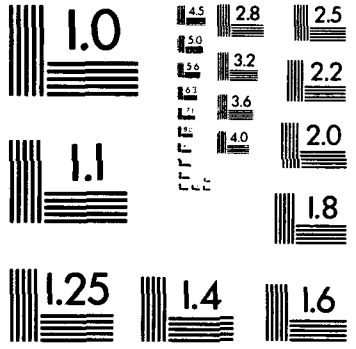

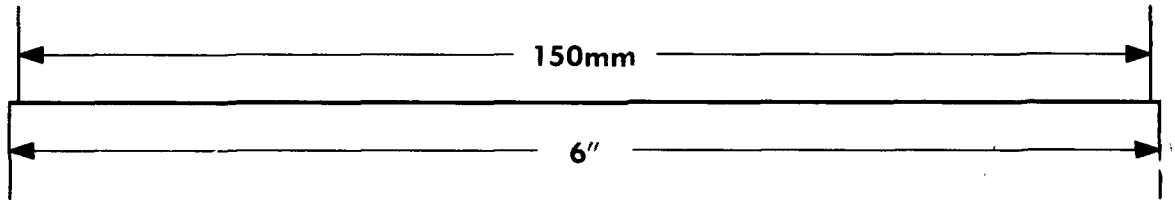

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Toward a More Efficient Military Exchange System

PL110R2

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July 1991

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Executive Summary

TOWARD A MORE EFFICIENT MILITARY EXCHANGE SYSTEM

An April 1990 DoD study recommended a full consolidation of the three military exchange systems. Such a consolidated system would be the seventh largest merchandiser in the United States, with annual sales of over $9 billion. Although the Army and Air Force generally concurred with the recommendation, the Navy and Marine Corps challenged the study's analysis and results. Our independent review of the study and of the subsequent rebuttals leads us to recommend increasing cooperation and coordination among the current exchange systems and integrating some of their functions without a full and immediate consolidation.

The DoD study projected annual savings of over $44 million from the consolidation. Most of the savings would come from abolishing the Navy and Marine Corps field support and headquarters functions, adopting the Army and Air Force Exchange Service automated information system, and closing some of the Navy's distribution centers. The rebuttal challenged the analysis and the data on which it was based and also objected to the concept of replacing the Navy's and Marine Corps' regionalized and decentralized buying strategies with the Army and Air Force Exchange Service's centralized strategy.

Our analysis showed potential annual savings of $36.6 million from consolidation, with a net present value over 10 years of $104.9 million. Those savings represent an 8 percent potential increase in annual profits and, alone, would appear high enough to warrant consolidation.

However, qualitative considerations are also important. Collectively, the nonquantifiable issues raise the risks to a level too high to justify full and immediate consolidation, despite the apparent potential savings. The retail industry has found, for example, that mergers of this size need teams experienced in managing large organizational changes. The exchanges do not have personnel experienced in large mergers. Successful mergers also need a committed, enthusiastic management team, but many in the Services actively oppose this merger. Moreover, the retail industry

expects major changes in the retail environment in the 1990s. Those management and industry uncertainties, together with the military's anticipated troop reductions and base closures, create a high-risk environment for exchange consolidation at this time.

However, some of the first steps on the road to consolidation make good economic sense, whether or not the exchanges actually consolidate. Those steps will significantly reduce the risks of a full consolidation if one is ultimately undertaken. With increased management cooperation and coordination, aided by a common chart of accounts and a standard system of merchandise numbering, the independent exchange systems could make detailed comparisons of their operations. From those comparisons, the exchanges could identify and adopt the best contracts, vendors, buying strategies, and management options. Moreover, the Navy and Marine Corps exchanges could realize savings by using design and construction services provided by the Army and Air Force Exchange Service, and by adopting the Army and Air Force Exchange Service's food service strategy. The exchanges should also cooperate on designing an architecture for a common information system. We project the quantifiable savings from these steps to be $3.3 million per year.

Although the actions described are necessary before the exchanges can consolidate, DoD should not make a decision on consolidation until at least 3 years have passed. By that time, the integration outlined above should be completed, and the decision makers will have a much better comparison of exchange operations, because of the common chart of accounts and standard merchandise numbering system. They will also have had time to encourage further cooperation among the Services and possibly to reach consensus on buying and management strategies. Finally, the extra time will produce a clearer picture of the evolving retail environment and the effects of base closures and troop drawdowns.

We recommend that DoD establish an Exchange Oversight Board with regulatory powers to implement some integration of exchange operations. Although the exchanges would remain independent, the actions that have been described will increase their net earnings. Additionally, the integration will better position the exchanges for a full consolidation, should such occur.

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CHAPTER 1

THE EXISTING EXCHANGE SYSTEMS

The Military Services operate three separate military exchange systems: the Army and Air Force Exchange Service (AAFES) for the Army and the Air Force; the Navy Resale and Services Support Office (NAVRESSO) for the Navy; and the Morale, Welfare, and Recreation Support Activity (MWRSPTACT) for the Marine Corps. Military exchanges originated during the Revolutionary War, when Congress authorized civilian sales concessions to be established to sell personal use items to troops. Since then, each system has evolved and grown to the current worldwide operations, with a combined annual revenue of $9.3 billion and employing over 100,000 people. Although each exchange system satisfies its military patrons with similar services, the Services differ significantly in the management and operations strategies they follow to carry out their missions.

The AAFES operates under a highly centralized management. Its headquarters sets policy; establishes procedures; and provides centralized information systems, procurement, distribution, engineering, and accounting and personnel functional support to its stores. NAVRESSO is organized regionally, and its seven field support offices (FSOs) provide regionalized information systems, procurement, distribution, and accounting and personnel support to operate Navy stores. MWRSPTACT is decentralized, with procurement and other support functions performed by each store at the installation level.

THE DoD STUDY

The Assistant Secretary of Defense (Force Management and Personnel) [ASD(FM&P)] initiated a study of the exchange systems in April 1990 in response to a congressional request that DoD study the feasibility of consolidating its military exchange systems. The study was to provide an unconstrained baseline assessment of the three exchange systems and to determine whether savings could be realized by consolidating them and thus reducing duplicate overhead costs and increasing operating efficiencies.

A multi-Service study task force was formed to conduct an unbiased, objective analysis of the military exchanges. That task force included a review group chaired by the ASD(FM&P), a steering group chaired by the Deputy Assistant Secretary of Defense (Military Manpower and Personnel Policy), an advisory group consisting of all the heads of military exchanges, and a technical study group. The technical study group consisted of a staff director and nine major functional area chairpersons representing all Services. This organizational structure brought together qualified retail experts from the three military exchange systems. The study group sought and received input from industry trade groups, military installation commanders, senior noncommissioned officers, and exchange patrons.

The study group recommended that the systems be consolidated into a single organization to eliminate current redundancies and to improve operational efficiencies. It indicated that the consolidation would result in annual savings of $44.2 million. The one-time cost of consolidation was estimated at $10.8 million, to be spread over the next 5 years. Tables 1-1 and 1-2 summarize the results of the financial analyses of the DoD study.

THE REBUTTALS TO THE DoD STUDY

Department of the Navy's Official Rebuttal

The Secretary of the Navy wrote a memorandum for the Deputy Secretary of Defense opposing the consolidation proposed by the study group. The Department of the Navy (DoN) does not concur with the idea of merging NAVRESSO and MWRSPTACT with AAFES under the existing AAFES management structure. The Navy expressed serious concern over the validity of the financial analyses prepared by the study group and its conclusion regarding the total savings. Navy officials performed their own financial analysis of potential savings, and they claimed that the consolidation might result in $11 million in annual savings over the next 7 years, rather than annual saving of $44.2 million claimed by the study group.

Navy officials are also concerned about taking unnecessary business risks that come with consolidation when its exchanges are successfully serving the sailor today. They think any prudent investment banker would not back the proposed consolidation, since it poses an unacceptable business risk. With all the variables involved, Navy officials are convinced that the possibility that consolidation will cause a reduction in support funds to the nonappropriated Morale, Welfare, and

TABLE 1-1

ANNUAL RECURRING COSTS AND BENEFITS (FROM DoD STUDY)

Affected function	Total consolidation ($000)	
	Savings, cost avoidance, new income	Additional costs[a]
Marine Corps buyers at store level	6,215	
Marine Corps accountants	2,295	
Marine Corps headquarters	1,010	
NAVRESSO headquarters	27,322	
Navy FSOs	42,945	
Navy Independent Exchange	2,495	
Navy/Marine Corps store staffing		13,300
Augmentation of Navy/Marine Corps buyers		9,800
Augmentation of Navy/Marine Corps accountants		10,000
Augmentation of Navy/Marine Corps distribution	34,000	24,300
Augmentation of DCO organization		770
Augmentation of area exchange structure		8,812
Augmentation of headquarters		4,367
Headquarters expense additions		6,401
AAFES IS savings to current Navy/Marine Corps systems	7,309	
Food service savings	300	
Personal service savings	313	
Impact of employee program for Navy/Marine Corps		550
Impact of in-house construction	921	
Interest cost for lower inventory turns		3,122
Total	125,125	81,422
Net benefit	43,703	
Navy initiatives under separate systems (status quo)	(9,100)	
Navy and Marine Corps store reductions resulting from AAFES Store Automation Program (ASAP)	9,600	
Net consolidation impact	44,200	

Note: IS = Information System.

[a] Cost/benefit stated in relation to FY89 operations.

TABLE 1-2

ONE-TIME COSTS AND BENEFITS (FROM DoD STUDY)

Affected function	Total consolidation ($000)	
	Costs	Benefits
Personnel relocation	8,400	
Severance pay	2,900	
Unemployment compensation	4,900	
Additional office equipment	417	
Food concept development		1,800
Training		
Personnel costs	7,851	
Travel costs	5,368	
Transfer of distribution	7,100	
Total	36,936	1,800
Information Systems (IS)		
Navy conversion costs	30,285	
Navy cost avoidance		55,600
Marine Corps conversion costs	7,586	
Marine Corps cost avoidance		4,500
IS totals	37,871	60,100
Net cost/profit impact	12,907	
Annual leave payout (no profit impact)	2,610	
Write-off of fixed assets (included in distribution amount above)		4,709
Net cost/cash impact	10,808	

Recreation (MWR) program is very real. A marginal swing in sales performance would cancel any consolidation savings and reduce profit dividends to MWR activities, according to the Navy's analysis.

Navy officials claimed it takes only a 3.7 percent loss of sales in any year to destroy the savings the consolidation had hoped to create. NAVRESSO officials believe that the sales drop resulting from the consolidation will be 12 percent permanently, creating a business disruption as the merger takes place. Since the consolidation might require heavy unfunded front-end investment, according to the Navy's calculations, a net profit loss would reduce sailors' MWR programs in at least the first 6 years. According to joint Navy and Marine Corps analysis, the merger will require $104 million in up-front costs and will not break even until the 7th year.

Navy officials claim they can achieve greater savings by implementing cooperative efforts among the military exchanges rather than a total consolidation. That cooperative effort includes using common facilities design and construction services, joint training development concepts, and a common information system. They claim that this alternative to consolidation would allow independent exchange systems to continue and would encourage maximum earnings by internal streamlining. Under this effort, NAVRESSO plans to reduce its operating costs by consolidating seven FSOs down to three FSOs. Department of Navy officials claimed they can save $264.6 million over the next 7 years by increasing operating efficiency through the internal streamlining and implementation of the cooperative efforts.

Major Point of Rebuttal from NAVRESSO and MWRSPTACT Managers

According to the NAVRESSO managers, more than 80 percent of Navy and Marine Corps exchanges are located in the top 100 metropolitan areas, compared to 57 percent for AAFES exchanges. These metropolitan areas are highly competitive when compared to rural locations. Under a decentralized management concept, the managers claim, the Navy and Marine Corps exchanges quickly and effectively respond to local market conditions by adjusting merchandise assortment, pricing, services, etc. If AAFES's centralized management approach is imposed on the Navy and Marine Corps exchanges, the Navy does not believe it could respond quickly enough to rapidly changing market conditions. This alleged loss of marketing flexibility under the AAFES centralized concept, it believes, would alienate

traditional Navy and Marine Corps patrons, who have been accustomed to decentralized merchandising tailored to local market conditions.

Consolidation is a high-risk business decision that often results in a low return for the effort. The Navy cites a recent merger between Ames and Zayre Department Stores. During the first year after the Ames takeover, Zayre stores experienced a 15 percent sales decline. The Navy claims that merchandising mergers in the private sector are unsuccessful. Even with seasoned professionals managing consolidation activities, the potential downside could be very costly. Since military exchanges have little experience in implementing large-scale mergers, the Navy believes that the results could be disastrous.

The NAVRESSO managers believe that consolidation appears to offer no competitive advantages to the military patrons. According to them, cooperation between independent exchange systems offers far greater benefits. Each exchange system has distinct merchandise assortments and has customers who shop at more than one exchange, for the variety offered. Under the consolidation, AAFES might eliminate the variety of assortments, substituting common stock items at all exchanges. Thus, patrons might have fewer options, having to select their merchandise from AAFES's limited, centrally approved assortments.

Other Rebuttal Comments

Senior military leaders expressed concerns about taking an unnecessary risk. They will support the consolidation only after an objective, credible study has conclusively proven that prices would be lower, service and selection would be better, and the profit made available to MWR programs would be greater.

The top enlisted advisors from each of the four Military Services expressed their views about the consolidation in a focus group meeting. All were suspicious of the reasons for the consolidation, and they were opposed to the consolidated exchanges being taken away from the Services' control and placed under OSD civilian control. Navy and Marine Corps representatives vehemently opposed a consolidation at this time, claiming that further study is needed to determine the potential downside of the consolidation.

A focus group of 10 installation commanders in the Washington, D.C., metropolitan area was held to seek a commanders' perspective on the consolidation.

The overall group consensus for consolidation was not favorable. In a vote, 7 opposed the consolidation. All viewed the Service missions as being too different from each other to be effectively supported by one agency. They believe that the exchanges currently satisfy their commands' mission needs.

Air Force and Army Responses

The Air Force and the Army concurred with the conclusion and the recommendations made by the study group. However, both Services believe that the new consolidated exchange system should remain under the control of the Services and not OSD. They believe that the new head of a consolidated exchange system should be responsible to a board of directors appointed by and representing the Services. Each Military Department should get equal representation, and the system's head position should be rotated. The current AAFES governing board framework could be expanded to include representatives from the Navy and Marine Corps, should consolidation occur.

LMI STUDY FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

We performed an independent review of the DoD study's methodology, findings, financial analyses, and of the conclusions based upon them. In summary, we found that the annual savings from consolidation would be $36.6 million, an 8 percent increase in profits. We believe that those savings, if considered alone, are sufficient to warrant consolidation. However, we found a number of nonquantifiable issues that create a risk too high to justify immediate consolidation to achieve those savings.

In view of our findings and conclusions, we recommend that the Assistant Secretary of Defense for Production and Logistics [ASD(P&L)] and the ASD(FM&P) take the following actions:

- *Direct the Services to take the first steps toward a full consolidation of their military exchange systems.* However, a final decision on full consolidation should not be made until the nonquantifiable risks of consolidation can be evaluated. Taking the first steps is justified, however, because they make sound business sense whether or not the exchange systems are eventually consolidated.

- *Delay the final decision on consolidation until at least 3 years have passed.* Postponing a final decision on consolidation until after the first steps are taken will cost little in time or dollars. After 3 years, the results of those

first steps, together with a clearer picture of troop reductions and the evolving retail environment, will substantially lower the risks of any decision.

- *Establish an exchange oversight board with regulatory powers to implement the first steps toward a full consolidation. We recommend the following first steps:*
  - Increase exchange management cooperation and coordination to identify and share the best management and buying strategies from among the three exchange systems and to capitalize on cooperative buying power.
  - Require the Navy and Marine Corps exchanges to use AAFES facility design and construction services.
  - Require the Navy and Marine Corps to adopt the AAFES food service franchising concepts.
  - Require the three exchange systems to develop a common chart of accounts.
  - Require the three exchange systems to develop a standard list of stores-keeping units (SKUs) with which to order and control their merchandise.
  - Determine the requirements for a common information system architecture that all exchange systems would adopt if full consolidation is later implemented. A common information system architecture encompasses the system's hardware, operating system and application software, files, and databases and the procedures for using these items.
  - Establish procedures for a periodic review and comparison of the exchange system's performance. The review should compare such items as operating ratios, productivity measures, and prices.
  - Establish procedures for a regular review of the changing military and retailing environments to support the current three exchange systems and to aid in any future decision to fully consolidate them.
- *Distribute the MWR subsidies on the basis of the relative size of the active duty population in each Service, if the exchange systems are to be fully consolidated.* A minor adjustment to the Navy and Marine Corps data is required to reduce their population figures by the average percentages of sailors and marines at sea at any one time.

REPORT ORGANIZATION

The remainder of this report presents our analytic approach and describes the quantitative and qualitative issues involved (Chapter 2) and our analytic results and

conclusions (Chapter 3). In Chapter 3, we also suggest a formula for distributing MWR funds, should consolidation be implemented. We present more detailed information on the organization of the three exchanges (Appendix A), programmed savings claimed by the Services through internal streamlining and cooperation (Appendix B), a list of attendees at the industry forum (Appendix C), and, finally, a detailed list of the data and assumptions used in our analysis (Appendix D).

CHAPTER 2

ANALYTIC APPROACH AND ISSUES

APPROACH

We retained the basic approach of the DoD study, analyzing the major functional operations separately to determine the costs and benefits (i.e., savings) of consolidating each function versus maintaining the status quo. We spent much of our effort validating the cost estimates presented in the DoD report and the subsequent DoN rebuttals. We concentrated on the four areas that provide almost all the savings from a consolidation – business and financial strategy [primarily General and Administrative (G&A) issues and costs], distribution centers, purchasing and inventory management, and information systems. Within each of those four major areas, we studied the detailed supporting calculations and assumptions used to arrive at the DoD study – and DoN rebuttal – estimates. We made our own independent judgments on the likelihood of achieving each cost or saving estimate presented to us and, in some cases, substituted our own estimates.

Many claims of savings in the DoD study and the Navy rebuttal are based on productivity improvement programs not yet implemented. We gave credit to all of them (see Appendix B), although not always the full amount claimed. Some of the claimed savings, for example, were planned Navy and Marine Corps improvements in information systems (ISs), elimination of some Navy regional offices and functions (FSOs), and increased AAFES store automation.

We met with members of the DoD study team and rebuttal groups for each of the four areas to obtain backup data to justify the facts and figures used in both cases. At those meetings, we reviewed the detailed calculations and assumptions and many of the original source documents. We also used the meetings to discuss the philosophy and reasoning behind the approach to consolidation or status quo that the supporting calculations implied. Examples included such things as failure to assume economies of scale, timing of distribution center and IS changes, and timing and impact of personnel changes.

Information systems are critical to the success of large retailing operations, both in the private sector and in the military exchange system. In retailing, many of the important business processes are geared to the company's IS architecture. Point-of-sale systems, electronically controlled pricing policies, automated inventory management systems, electronic data interchange (EDI) with suppliers, management decision support systems, and other IS operations are so intertwined with the business processes that they are almost inseparable. Although IS is usually thought of as an integral part of the broader G&A operational and accounting classification, we focused specifically on this important aspect of the military exchanges and the costs associated with it.

QUANTITATIVE ISSUES

The DoD study estimated annual savings of $44.2 million (see Table 1-1). Its methodology was basically sound, but we amended some calculations and changed some of the assumptions. The largest differences between our analysis and that of the DoD study are in the area of ISs. The DoD study first estimated the amount of cost avoidance (i.e., savings) realized by completely eliminating Navy and Marine Corps functions and then estimated the cost of expanding AAFES resources to functionally satisfy the Navy and Marine Corps requirements. We preserved that approach to estimating the net annual recurring savings from consolidation because we agree with the DoD study logic that a cost-effective consolidation would have to be built around the larger AAFES organization and infrastructure.

However, the DoD study took a very different approach to estimating the IS savings and costs. First, only a single "net savings" figure of $7.3 million was included in the DoD summary. Second, when we analyzed the backup data and calculations, it became clear that the DoD study had mixed annual and one-time costs in arriving at the net savings figure. The DoD study calculated a 7-year average of projected annual operating cost and one-time capital and conversion costs for Navy and Marine Corps operation within the AAFES ISs, and subtracted this average expenditure from a similarly calculated 7-year average expenditure if the Navy and Marine Corps operated separate IS. Such mixing of operating cost and capital and conversion costs does not give a true picture of the annually recurring savings or the one-time costs under consolidation. Therefore, for consistency, we calculated as the annual recurring IS savings the difference in annual operating costs between the Navy and Marine Corps operating with the AAFES ISs and the Navy

and Marine Corps operating with separate systems now in the planning stages. We included the one-time and conversion costs separately in our cash-flow analysis (described below).

From the above calculations, we arrived at a validly determined estimate of annual recurring net savings from consolidation. However, we went further to analyze the cash flow from a consolidation because the annually recurring savings are a "steady state" savings and the steady state does not begin until Year 5. Until that time, savings are lower, and the possibility even exists of having a few years with negative savings (net costs) because of the one-time conversion and capital expenditures required to implement the consolidation. After the consolidation is complete, the annual recurring savings accrue to the organization for some years into the future. The planning horizons for most companies do not extend beyond 10 years, and the retail environment is difficult to envision any further ahead than that. Therefore, our cash flow analysis spans 10 years – 4 years of transition and 6 years of a fully consolidated operation. We inflated all figures at a conservative 3 percent annual rate and then discounted future year costs and savings by 10 percent, to arrive at a net present value of a consolidation. The results of our financial analysis are presented in Chapter 3.

Any business consolidation entails both risks and opportunities. A military exchange consolidation is no exception, and for that reason, we factored both the risks and opportunities into our financial analysis. Thus, we present three sets of savings estimates. The primary set of estimates are our best predictions of the annual savings and 10-year cash flows from a consolidation. We label these as the "most likely" estimates because they are what we expect to happen under a consolidation if everything internal and external (i.e., the retailing market) goes reasonably according to plan. To calculate our most likely estimates, we used reasonably conservative assumptions such as no economies of scale in purchasing, inventory management, and G&A resources. The consolidation could very well turn out better than planned. Economies of scale could be realized in several areas, IS hardware costs could be lower, and conversion disruptions could be minimal. In that case, the savings would be even greater than projected by our most likely estimates. We labeled this second set of estimates as "optimistic," to signify that they are within reach if the consolidation works out slightly better than planned and the new organization can capitalize on the opportunities that a strong unified system might

offer. Similarly, the consolidation runs the risk of larger temporary disruptions, higher conversion and operating costs, and less real G&A savings than planned. We accounted for those risks in our financial analyses by making pessimistic estimates for all major line item savings and costs of a consolidation. Because the political and economic (e.g., MWR) consequences of net losses (compared to the status quo) from a consolidation are worrisome to DoD and the Services, our pessimistic estimates are decidedly more pessimistic than our optimistic estimates are optimistic. Appendix D details the calculations and rationale for all of our estimates.

QUALITATIVE ISSUES

Retailing is a highly competitive industry, and the external environment for the exchange system can change significantly over a 5-to-10-year period. Many changes in the retail industry took place during the 1980s: mergers, acquisitions, leveraged buyouts, bankruptcies, and extraordinary individual firm growth. At the same time, information technology and costs changed rapidly, and most retailers significantly altered their IS operations. We surveyed both the popular and trade literature with respect to retailing for the past 6 years to provide a qualitative background for our analysis of the estimated savings from consolidation. In addition, we brought together retailing industry experts for a 1-day forum to discuss the qualitative issues and our initial findings (Appendix C lists the forum attendees).

The industry experts made the following points, many of which were substantiated in our readings, discussions, and experience:

- No private-sector retailing segment exactly mirrors the military exchange systems. The exchanges are called upon to serve a multifaceted mission to Service members. To a large extent, they are mass merchandisers such as Wal-Mart and K-Mart. However, they also serve department store functions, including retailing relatively expensive jewelry. In addition, the exchange systems operate some specialty stores (e.g., video rentals) and convenience stores (e.g., gas and sundry marts). The exchange systems also have significant catalog sales. Finally, the exchange systems have eating establishments, both as franchises and concessions, and package beverage stores. Because of that diversity, no single private company, or retail segment, can function as the yardstick by which the exchanges can be compared.

- Both AAFES and NAVRESSO are already large enough to reap economies of scale in such areas as quantity-purchase discounts and inventory management, and further economies there may not be possible. However,

further economies of scale might be possible in some other areas, especially in G&A functions. Although the smaller Marine Corps exchange system does some cooperative purchasing with the other exchange systems, it still stands to gain the most from the economies-of-scale savings that a consolidation would bring.

- The financial statements for all three exchange systems show that all are operating reasonably well at the store level. The majority of the savings from consolidation would therefore come from "above the store level." Elimination of duplicative G&A costs at the NAVRESSO and MWRSPTACT regional and central offices would provide the majority of the estimated savings from a consolidation. Only if a total consolidation takes place can all duplicative staff, buildings, and equipment be eliminated.

- The private retailing sector is exhibiting a clear trend toward centralization but with more information and decision empowerment at the store level, facilitated by responsive senior management and appropriate use of information systems and technology. This management philosophy entails elimination of middle (e.g., regional office) management staff, functions, and offices.

- Most companies in fashion merchandising (e.g., department stores) have both West Coast and East Coast buying organizations. Each is charged with being responsive to the often-different fashion tastes and preferences of consumers in the eastern and western parts of the country.

- While many mergers in retailing have failed, many others have succeeded. Among the reasons for failure have been the heavy debt burdens from leveraged buyouts, the financial status of one or more of the companies being marginal prior to the consolidation, and poor and uncommitted management during the consolidation.

- Sales often dip slightly for a year or two after a merger and tend to rebound quickly. Careful planning and good merger management can mitigate many but not all of these problems.

- A successful merger needs a cooperative management effort. Poor cooperation among the exchange systems could increase the conversion costs of a merger significantly. The reluctance of the Navy and Marine Corps to participate in the merger is a real factor casting doubt on its probability of success.

- Mergers also need a competent, professional merger-management team to fully succeed. Large mergers present planning and conversion issues that differ significantly from normal operational issues, and experience is needed to effectively meet the challenges posed by a consolidation.

- Experience in the private sector suggests that merger savings in the G&A functions are usually overstated, often by a factor of two. The estimates of savings from consolidation should be tempered by this experience.

- Retailing industry trends for the 1990s indicate that all exchange systems will have to become more streamlined and more competitive with the private sector to succeed. Appropriate use of information technology, including strong EDI programs with suppliers, may be particularly important. Costs will have to be cut at the same time quality and service to customers are increased.

- The potential savings we presented to the forum of industry experts would by themselves be significant enough to warrant consolidation. However, the risks that cannot be quantified must be effectively addressed before consolidation can succeed.

- The Services should maximize their cooperation, whether they consolidate or not, to reap financial benefits. Planned reductions in troop strength, coupled with increasing competition in the private retailing sector, will put pressure on all the exchanges to find the most economic and market-responsive ways to operate.

- Any oversight board must be given the power and not be merely an advisory board. Consolidation, or significantly increased cooperation, should occur without delay according to a definite timetable and plan. Problems stemming from parochial interests and lack of committed management can best be overcome by an oversight board that has the authority to arbitrate and make final decisions on important consolidation and cooperation issues.

CHAPTER 3

ANALYSIS AND CONCLUSIONS

RESULTS OF FINANCIAL ANALYSIS

We discussed the methodology and findings of our financial analysis, in Chapter 2. We estimated the annual recurring savings from a consolidation – the "steady state" annual savings that would accrue to the exchange system once the consolidation is complete. However, planning and implementing the consolidation actions takes time and would not be complete until the end of Year 4, at which time the steady state annual savings would accrue. During the transition in Years 1 through 4, fewer savings occur, for two reasons. First, operational savings are less, because G&A functions have not yet been fully merged. Second, one-time conversion costs arise from personnel changes, construction of a new southwest distribution center, SKU conversions, and conversion to a single IS. During some of the early years, net costs may be experienced rather than net savings for those two reasons. Therefore, we also estimated the annual cash flow from a consolidation for a period of 10 years – 4 years of consolidation and 6 years of steady-state operation – and discounted that cash flow to arrive at a net present value (NPV) of the consolidation.

The NPV (i.e., discounted cash flow) analysis requires assumptions on the timing of the consolidation phases. Figure 3-1 shows the milestones for an immediate consolidation decision. Although functions such as food concept development and design and construction can be consolidated very quickly, others such as SKU conversion and IS consolidation require more time. Completion milestones of the consolidation activities are shown in the figure, but many of the activities would occur over a 2- or 3-year period. Such is the case with SKU conversions; development of a common chart of accounts; and IS, distribution center, and HQ consolidations. Accordingly, we spread the one-time and conversion costs over 2 to 3 years for those activities.

Table 3-1 shows by major category the potential annual savings, or increases in profit, that would accrue from an immediate consolidation once that consolidation

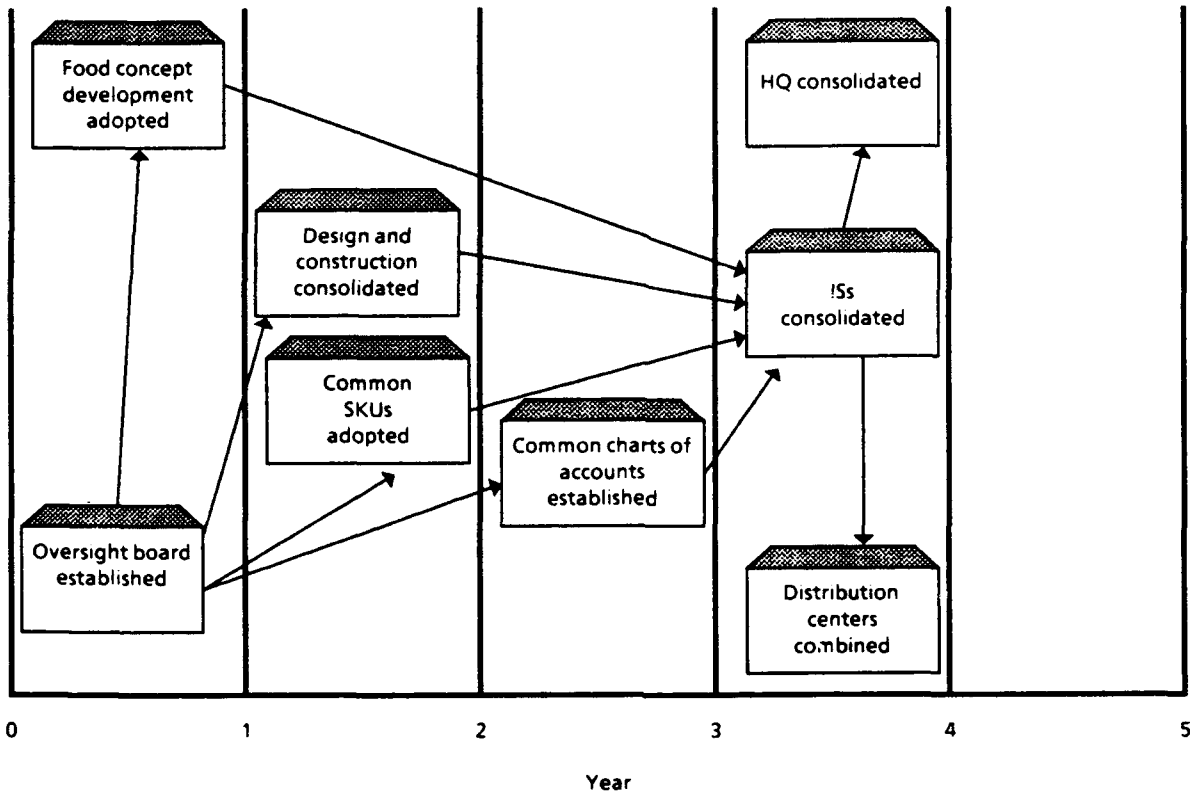

FIG. 3-1. MILESTONES FOR AN IMMEDIATE DECISION TO CONSOLIDATE

was complete. The assumptions and calculations used to arrive at each figure are discussed in detail in Appendix D. In the most likely case, the savings (i.e., increase in annual profits) is $36.6 million, or a profit increase of 8 percent. In the optimistic case, the increase in profits is $77.2 million, or 16 percent. In the pessimistic case, there is essentially no profit increase or decrease.

Table 3-2 shows the NPV of an immediate decision to consolidate, based on the implementation milestones of Figure 3-1. NPV takes into account the one-time capital and conversion costs in the first 4 years to enable the consolidated exchange to reach the level of the estimated annually recurring savings. The figures in Table 3-2 are also explained in Appendix D.

The expected most likely annual savings of $36.6 million, combined with a 10-year NPV of $104.9 million, is significant. A business enterprise in the public or private sector would seriously consider taking the steps necessary to reap the benefits

TABLE 3-1

ANNUAL RECURRING SAVINGS FROM A FULL CONSOLIDATION

($000)

Major category	Savings			Costs		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
G&A (except IS):						
Eliminate USMC accountants	2,295	2,295	2,295			
Eliminate USMC buyers	6,838	6,838	7,315			
Eliminate USMC HQ staff	1,010	1,010	1,010			
Eliminate Navy HQ staff	28,763	28,763	28,763			
Eliminate Navy FSOs	42,945	42,945	42,945			
Reduce Navy independent exchange support expenses	2,495	2,495	2,495			
Reduce Navy/USMC personnel services expenses	282	313	344			
Augment AAFES accountants				10,000	9,500	9,000
Augment AAFES buyers				10,780	9,800	8,820
Augment AAFES directors of CONUS operations				770	770	770
Augment AAFES area exchange management				9,253	8,812	4,406
Augment other AAFES HQ				3,744	3,566	3,388
HQ consolidation expenses				6,401	6,401	6,401
Increased Navy/USMC long-term employee benefit costs				550	550	550
Subtotal	84,628	84,659	85,167	41,498	39,399	33,335
Distribution:						
Eliminate Navy/USMC distribution	22,324	23,500	23,956			
Augment AAFES distribution				27,200	16,900	12,250
Additional inventory costs				3,122	2,571	2,204
Subtotal	22,324	23,500	23,956	30,322	19,471	14,454
Design and construction:						
Navy/USMC use AAFES facility design and construction	1,968	2,987	3,868			
Subtotal	1,968	2,987	3,868			
Other direct:						
Food services operations	270	300	330			
Augment Navy/USMC store staffing				13,300	7,400	2,204
Subtotal	270	300	330	13,300	7,400	2,204
ISs:						
Navy/USMC on AAFES (net)	2,805	3,302	4,285			
Navy/USMC store staff reductions from ASAP	5,900	6,800	9,600			
Subtotal	8,705	10,102	13,885			
Navy/USMC status quo initiatives:				10,300	5,150	0
Total	117,895	121,548	127,206	95,420	71,420	49,993
Net savings before G&A adjustment	22,475	50,128	77,213			
Less overstated G&A savings	21,565	13,578	0			
Net savings	901	36,550	77,213			

Note: USMC = U S Marine Corps

TABLE 3-2

CASH FLOW AND NET PRESENT VALUE OF BENEFITS/(COSTS) FROM AN IMMEDIATE DECISION TO CONSOLIDATE

(FY89 $000)

Item	Year 1			Year 2			Year 3		
	Pess.	ML.	Opt.	Pess.	ML.	Opt.	Pess.	ML.	Opt.
Steady-state annual savings									
Personnel relocation							(4,620)	(4,200)	(3,780)
Severance pay							(1,595)	(1,450)	(1,305)
Unemployment compensation							(2,695)	(2,450)	(2,205)
Additional office equipment							(229)	(208)	(187)
Training							(4,318)	(3,926)	(3,533)
Personnel							(2,953)	(2,685)	(2,416)
Travel							(250)	(125)	(50)
FSO building/equipment excessing									
Planning	(100)	(75)	(50)	(100)	(75)	(50)			
Food concept development	540	600	660	540	600	660	540	600	660
Transfer of distribution				(12,150)	(9,000)	(7,610)	(3,822)	2,260	4,985
Design and construction	(15)	(10)	(5)	1,312	2,421	3,333	1,968	2,987	3,868
ISs:									
Navy	1,446	2,006	2,452	(2,416)	(1,692)	(945)	4,764	5,870	5,977
Marine Corps	1,040	1,150	1,425	(260)	(250)	(100)	610	491	520
Customer alienation							(11,501)	0	1,917
G&A merger turbulence							(10,783)	(11,315)	(12,958)
Total benefit/(cost)	2,911	3,671	4,482	(13,074)	(7,996)	(4,712)	(34,883)	(14,150)	(8,507)
NPV (discounted @ 10 percent)	(41,910)	104,885	244,453						

Item	Year 4			Year 5			Year 6		
	Pess.	ML.	Opt.	Pess.	ML.	Opt.	Pess.	ML.	Opt.
Steady-state annual savings				410	36,050	76,713	910	36,550	77,213
Personnel relocation	(4,620)	(4,200)	(3,780)						
Severance pay	(1,595)	(1,450)	(1,305)						
Unemployment compensation	(2,695)	(2,450)	(2,205)						
Additional office equipment	(229)	(208)	(187)						
Training	(4,318)	(3,926)	(3,533)						
Personnel	(2,953)	(2,685)	(2,416)						
Travel	(250)	(125)	(50)						
FSO building/equipment excessing									
Planning									
Food concept development									
Transfer of distribution	(3,822)	2,260	4,805						
Design and construction	1,968	2,987	3,868						
ISs:									
Navy	13,436	12,688	12,045	14,104	12,139	10,499			
Marine Corps	620	531	490						
Customer alienation	(11,501)	0	1,917	(4,792)	0	1,917			
G&A merger turbulence	(10,783)	(11,315)	(12,958)						
Total benefit/(cost)	(26,741)	(7,892)	(3,309)	9,722	48,189	89,129	910	36,550	77,213

TABLE 3-2

CASH FLOW AND NET PRESENT VALUE OF BENEFITS/(COSTS)
FROM AN IMMEDIATE DECISION TO CONSOLIDATE (Continued)

(FY89 $000)

Item	Year 7			Year 8			Year 9			Year 10		
	Pess.	ML.	Opt.	Pess.	ML.	Opt.	Pess.	ML.	Opt.	Pess.	ML.	Opt.
Steady-state annual savings	910	36,550	77,213	910	36,550	77,213	910	36,550	77,213	910	36,550	77,213
Personnel relocation												
Severance pay												
Unemployment compensation												
Additional office equipment												
Training												
Personnel												
Travel												
FSO building/equipment excessing												
Planning												
Food concept development												
Transfer of distribution												
Design and construction												
ISs:												
Navy												
Marine Corps												
Customer alienation												
G&A merger turbulence												
Total benefit/(cost)	910	36,550	77,213	910	36,550	77,213	910	36,550	77,213	910	36,550	77,213

of such an opportunity. To put the figures into perspective, $36.6 million in increased profits would build 13 new 24-lane bowling centers each year. Another perspective is that these savings could be achieved without issuing high-yield bonds, otherwise going into debt, or using large cash reserves. No increased equity or debt investment is required to achieve these savings, only 3 years of slightly smaller profits.

As explained in Chapter 2, the savings estimates we refer to as *most likely* are what we would reasonably expect to realize from a consolidation with prudent assumptions regarding conversion disruptions and anticipated savings from combining G&A functions. The optimistic savings estimates are attainable if the Services cooperate fully, and management keeps conversion disruptions, costs, and customer alienation to a minimum. The pessimistic savings estimates are *highly pessimistic*, and represent the extreme case of non-cooperation, poor planning, poor

merger management, and extreme customer alienation. Even in the worst scenario, over 10 years, the negative NPV of the pessimistic case represents less than a 1 percent decrease in annual exchange system profits of $456 million.

Table 3-3 shows the projected potential reductions in systemwide profits during Years 2 through 4, during which time the one-time conversion costs slightly outweigh the consolidation savings. These numbers are not very large and could be covered by delaying a part of the exchange capital investment programs in those years in lieu of reducing payments to MWR.

TABLE 3-3

POTENTIAL PROFIT REDUCTIONS FROM CONSOLIDATION

Year	Reduced profits ($ millions)		
	Pessimistic	Most likely	Optimistic
2	13.1	8.0	4.7
3	34.9	14.2	8.5
4	26.7	7.9	3.3

We did not attempt to split the savings or costs of a consolidation among exchange prices, MWR payments, and capital improvements; that would be a management decision. However, we find no a priori reason why MWR payments would suffer from a consolidation, even during the few years of slightly smaller exchange system profits because of one-time conversion costs.

THE RISKS OF A CONSOLIDATION

Although some risks of a merger venture of this magnitude are difficult to quantify, we have included some risk penalties in the cash flow and NPV projections of Table 3-2. For example, discussion at the industry forum confirmed the Navy's concern that some customer alienation is likely, leading to a reduction in profits. However, the industry representatives indicated that such a reduction in profits would last only a year or two and that the Navy's prediction of a 12 percent reduction is probably too high. To reflect that risk, we conservatively assumed in the

pessimistic scenario that the Navy and Marine Corps exchange sales would decrease by 12 percent in each of the first 2 years of consolidation and by 5 percent in Year 3.

We have also added a penalty to account for the risk that projected G&A savings for the consolidation may be overstated. Venture capitalists have found that G&A savings never fully materialize after a large merger no matter how carefully they are projected. We therefore reduced projected G&A savings by 50 percent in the pessimistic scenario and by 30 percent in the most likely scenario.

For large mergers, the private sector finds that it needs an experienced merger team. Its experience also shows that even with such a team, a pessimistic, rather than a most likely or optimistic result is possible. AAFES has little experience with large mergers. Although it recently completed a successful merger of all the military Class VI (package) stores worldwide, AAFES does not have an internal staff with the experience needed in the scale of a merger that would occur under a total exchange consolidation. Although the risks of merger inexperience are impossible to quantify, to be conservative in our analysis we added a penalty of another 25 percent of the projected G&A costs for Years 3 and 4 of the merger.

The industry forum was unanimous in its belief that the full support of the merger participants is needed for a consolidation to succeed. However, the Navy and the Marine Corps are currently opposed to total consolidation and that opposition constitutes a real risk to the relative success of the venture. The risks from a reluctant or uncooperative management structure are that it would introduce delays and lead to decisions that would increase consolidation costs or reduce profit opportunities. We made no attempt to quantify such real but vague costs.

On the positive side, we find no evidence to suggest that this merger would be any more difficult than a retail merger of similar size in the private sector. The military exchanges share the same narrowly defined basic market: Service persons. About 80 percent of the merchandise of the exchange systems is already common, the systems have extensive knowledge about each others' finances and business processes, and the systems do have some previous experience in joint ventures and consolidations.

Neither we nor most of the attendees of the industry forum see the loss of competition among the exchanges as a significant risk. The retailing literature, consultants, and industry representatives suggest that, during the 1990s, the real

competition will come from outside the gate; the exchanges should be less concerned about competing with each other and more concerned with competing with the private sector to keep their share of the Service person's consumption dollars.

Other risks arise from troop drawdowns and base realignment and closures. We did not quantify those risks in the analysis because of the speculative nature of the assumptions at this time. However, the following paragraphs give an idea of their probable effects.

The Military Departments plan to reduce active duty personnel overall by about 25 percent. Assuming that half of total exchange system sales come from active duty personnel and their dependents, as has been suggested by the exchanges, and that fixed costs are about 20 percent of total costs, then exchange profits would fall by 15 percent annually ($71 million in FY89 dollars). Using a similar figure of 20 percent fixed costs for MWR activities, MWR subsidy needs would be reduced by about 12.5 percent ($20 million) annually. Therefore, $51 million would have to come from the capital improvement program, decreased MWR payments, price increases, or a combination of those sources. The most likely source is the capital improvement program, because of a similar reduced need for new or expanded facilities.

Troop reductions would also affect the demand for distribution center warehouse space. Assuming that about one-half of exchange system wholesale orders go through the distribution centers, then a 25 percent troop reduction would reduce distribution center space needs by a relatively small 6.25 percent (0.25 troop reduction, times 0.50 sales from active duty personnel and dependents, times 0.50 wholesale orders going through the distribution centers).

Troop reductions would have a significant although not devastating effect on the military exchange system. The short-run effects will probably be mitigated by a multiyear timetable for the reductions and possible extensions of exchange rights to veterans. Moreover, successful full consolidation would also eliminate most, if not all, of the decreases in profit arising from the planned troop reductions.

Another unquantifiable risk is that of the effects on exchange profits of the changing retail industry. New retailing strategies are emerging that are challenging the traditional department stores with specialty stores. Discount warehouses are also in the ascendant, and debate on whether the era of the shopping mall is coming to an end has begun. The department store and mass merchandising retail sectors

are likely to become more competitive as new information, new communications systems, and greater automation strategies are being tried. It is unclear how these evolving strategies will affect the retail market and especially how they will affect military exchanges.

A GRADUAL APPROACH TO CONSOLIDATION: ACHIEVING THE BENEFITS WITH LOWER RISK

The issues we have presented that cannot be quantified raise the risk for a consolidation to a high level. The expected annual return and the NPV, although significant, are not high enough to risk the consolidation in the current environment and with the current degree of uncertainty. An ideal compromise would be to follow a course that would provide most of the potential benefits of an immediate consolidation and would do so with a much lower degree of risk. We suggest an approach that will produce such an outcome.

We can show that the early steps toward a consolidation make good sense for the exchange systems whether or not they are consolidated. Moreover, those steps can be taken before an irrevocable decision for consolidation is made. The outcome of those early steps, together with a more settled retailing environment, will provide information and a perspective that will drastically lower the current level of risk. Under this scenario, DoD would not make final commitment for consolidation until at least the end of Year 3 of the process. This approach, however, is not without cost. By delaying the final decision, DoD introduces a delay in the groundwork necessary to consolidate the exchange systems' ISs. The delay may also warrant a change in the consolidated IS strategy. In the following subsections, we discuss the advantages and costs of this gradual approach to consolidation.

Mandated Cooperation

As the first step in a consolidation plan, DoD would have to establish a board to manage the plan and facilitate coordination and cooperation of the Services. That level of cooperation, however, will be beneficial even without a consolidation plan, as was shown during the original DoD study. During that study, the intense interaction and sharing of ideas among the Services created policy changes even as the study progressed. For example, the Navy now has a plan to reduce the number of its exchange accountant positions and is proposing to reduce the number of its field support offices from seven to three. Appendix B summarizes the savings from

unilateral improvements each exchange system has claimed either as existing initiatives or as inputs to the DoD study. We included most of them in our financial analysis. Moreover, the exchanges agree that other opportunities exist for savings through a continued increase in coordination and cooperation.

Some of the major changes proposed as a result of the DoD study are only in the planning stages, however. Continued interest in them is not guaranteed if the consolidation issue were to be dropped. Therefore, an oversight board should incorporate those plans into an agenda to ensure that they are implemented. The board should also ensure that the Services seek and pursue new opportunities. Moreover, if the Services eventually agree to full consolidation, the risks will be lower if the board structure is already in place and board members have had experience in working with each other for 3 years.

Consolidating Exchange Design and Construction

The DoD study identifies the potential savings from consolidating all exchange design and construction under AAFES. AAFES has an engineering directorate responsible for facility programming, planning, decor, material selection, maintenance, disposal, renovation, replacement, expansion, design, and construction. It is able to design and construct facilities faster and cheaper than the Naval Facilities Engineering Command, which currently provides those services for the Navy and Marine Corps exchanges. The savings depend on the extent of the Navy and Marine Corps design and construction. We estimate the most likely annual savings to be $3 million.

Consolidating exchange design and construction will be one of the first and easiest steps of a total consolidation and will produce dollar savings even without a total consolidation. A criticism of the approach has been that AAFES facility designs tend to look the same and lack imagination. However, those issues, if in fact true, could be easily redressed by the oversight board.

Food Franchising Development

The Navy (NAVRESSO) is about to centrally develop and implement some in-house food franchising concepts. AAFES already has such concepts in place, however, and they have proved quite successful. A perfect example of an opportunity for cooperation is for the Navy to simply adopt the well-developed AAFES concepts

and avoid $1.8 million in development costs. The Marine Corps could also benefit from the concepts. A whole range of further cooperation could ensue if AAFES were to provide the training and implementation management needed to make the concepts operational and the Navy and the Marine Corps were to operate them as franchises. The level of cooperation would depend on how widely the Navy and the Marine Corps chose to implement the AAFES concepts. From the results of initial surveys, AAFES believes that introducing all of its food franchising concepts on all Navy and Marine Corps installations could produce additional profits of $10 million per year. However, that amount is highly dependent on overall Navy and Marine Corps food service policies, such as how the exchanges would compete with the clubs. Thus, the AAFES figure was not included in the projected annual benefits of consolidation. Whatever the degree of cooperation, the exchange oversight board should mediate the level of reimbursement AAFES should receive for its support. Those funds, although transferred from one exchange system to another, will remain within DoD and go toward the MWR fund.

Standardizing Storeskeeping Units

The benefits of a common set of SKUs for the three exchanges are not as easy to quantify as those of the design and construction and the food franchising initiatives. SKUs are the units of measure and identification for ordering and controlling a retailer's stock. A common SKU base would be essential before implementing an IS for a consolidated exchange system. If the exchange systems remain independent, however, some indirect benefits may be realized. Having a common set of SKUs would allow more and easier comparisons among the exchange systems to identify vendors, contracts, and systems that are especially profitable. It would certainly facilitate coordination and cooperation among the exchange systems. Quantifying the increased revenues from those benefits, however, is beyond the scope of this analysis of the DoD study.

Creating a Standard Chart of Accounts

A standard chart of accounts is essential for a consolidated exchange system. Like SKUs, its use would also offer indirect benefits independent of consolidation although they, too, would be hard to quantify. Even if the exchange systems remain independent, a common chart of accounts would allow the Services to compare their operations regularly and in detail and would provide invaluable insights.

Management could compare buying, distribution, and sales strategies to capitalize on the more successful ones. Opportunities for more joint ventures and other cooperation would be more apparent. Certainly, the risks associated with any final decision on consolidation would be reduced if a common chart of accounts were successfully in place and operational before the decision was made. The decision makers would have some sound comparative data on the three systems to help in their decision, and those risks associated with the accounting transformation would be eliminated.

The cheapest way to develop a standard chart of accounts would be to adopt the new AAFES accounting system. The costs of converting the Navy and Marine Corps exchange accounting systems, however, should be shared equitably among all three systems. Developing an entirely new chart of accounts would give the Navy and the Marine Corps the chance to help shape the new system, but it would cost about $5 million more.

COMMON INFORMATION SYSTEM ARCHITECTURE

The steps listed in the previous section – cooperation, some consolidation, and standardization – are the first steps toward a consolidated exchange system that will provide some benefits with or without the full consolidation. Another important step – a common IS architecture – will be needed before a final decision to consolidate fully. Unlike the earlier steps, however, creating a common IS architecture plan is a major expense that may not be worthwhile unless the exchange systems are to be fully consolidated.

The Navy and Marine Corps are currently in the planning stages for new IS architectures that include hardware, software, personnel, and operations. Therefore, now is an appropriate time to consider the development of a common IS architecture. While we recognize that AAFES is already in the implementation stage for several major systems (e.g., increased store automation and an accounting system), we also recognize that most of its state-of-the-art hardware, including telecommunications, is expandable and upgradable, and the Navy and Marine Corps are likely to move in that same direction. However, AAFES's data base and software platforms are older and less flexible and should be re-evaluated (but not necessarily changed) in the context of developing a plan for a common exchange system IS architecture. The new architecture should be flexible enough to support the business practices of any

Service's exchange system separately and at the same time be able to provide a common set of consistent platforms that could facilitate a smooth transition to full consolidation.

The cost of developing a new IS architecture to handle all three exchange management strategies and merchandise line items would be about $5 million, a cost that would provide no added value unless it increased sales or reduced costs. For example, it could be developed before the consolidation of distribution centers recommended in the DoD study. Then, if the distribution centers, the ISs, the design and construction functions, and the food franchising development were all consolidated, the eventual steady-state annual savings would be an estimated $14.9 million and the NPV savings would be $72.6 million. Those savings are considerably lower than the savings expected from immediate, full consolidation because 70 percent of the expected savings from full consolidation come from eliminating headquarters, buyers, and field support office functions. Without full consolidation, the value added from a consolidated IS is not worth the cost.

However, we neither assert nor imply that developing a common IS architecture during the 3 years before a consolidation decision would be fruitless. The coordination required for the development and the information derived from it would be of great value to the decision makers. If the exchange systems remain independent, the research and development needed for a common, state-of-the-art IS might be of some help to them when they develop their own next generations of ISs, but unless full consolidation were to be approved, the cost of developing a common IS architecture would essentially be lost.

A distinction must be made between developing a common IS architecture for the exchange systems, as discussed here, and the DoD's recommended approach of using AAFES's existing IS for the Navy and Marine Corps exchange systems. If the AAFES IS were to be used, the Navy and Marine Corps would have to adopt the AAFES centralized buying and other management strategies. We concur with the DoD's conclusion that to try and adapt the AAFES IS to handle the current strategies of the Navy and Marine Corps exchange systems would be unworkable. A common IS architecture still implies separate hardware, software, and operating personnel. However, the three systems would be compatible in case of a future consolidation of headquarters, G&A, and buying functions.

Whatever the decision on the ISs, the Navy and Marine Corps exchanges should continue to upgrade their existing ISs. The need for those upgrades is too great to delay.

THE ADVANTAGES OF DELAYING A DECISION TO CONSOLIDATE

Allowing some consolidation and encouraging cooperation before any final decision on full consolidation has some major advantages. A common chart of accounts and standardized SKUs would give the decision makers a clearer picture of the performances of the exchanges and would reduce the risk of the decision. A minimum of 3 years before making the final decision would allow time for the exchange systems to reach consensus on the buying and management decisions that are in contention. That consensus would be aided by the results of the "shakeout" of the strategies currently competing in the retail industry and by a clearer picture of why (and even whether) the retail consolidations of the 1980s failed. Currently, the industry has reached no consensus on either of those issues. Delaying a decision on full consolidation will also provide time to see how the three exchange systems could work as a team. Finally, the oversight board will have a better view of the effects of base realignments and reductions and of troop drawdowns, which may impact the funds available to pay for the full consolidation.

THE COSTS OF DELAYING A DECISION TO CONSOLIDATE

The NPV of the initial steps toward a consolidation – cooperation, some consolidation, and standardization – would be different if the eventual decision was to consolidate than if it was not to consolidate. Table 3-4 shows the expected steady state annual savings and NPV of both of those outcomes. Only direct savings are included in the calculations since indirect savings from the common chart of accounts and standardized SKUs are beyond the scope of this study.

The table shows that the NPV of delayed consolidation would be only $23.7 million less than an immediate consolidation. On the other hand, if no decision is made to consolidate, there would be few direct savings but no risk of loss. Figure 3-2 shows the timing of the steps toward a decision delayed until the end of Year 3. The difference between an immediate decision to consolidate and such a decision made at the 3-year point, along the lines proposed above, would be a 1-year delay in the consolidation.

TABLE 3-4

COMPARISON OF SAVINGS

($ million)

	Integration followed by consolidation			Integration without consolidation		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Steady-state annual savings	0.9	36.6	77.2	2.2	3.3	4.2
NPV	(30.1)	81.2	202.1	4.6	12.0	18.1

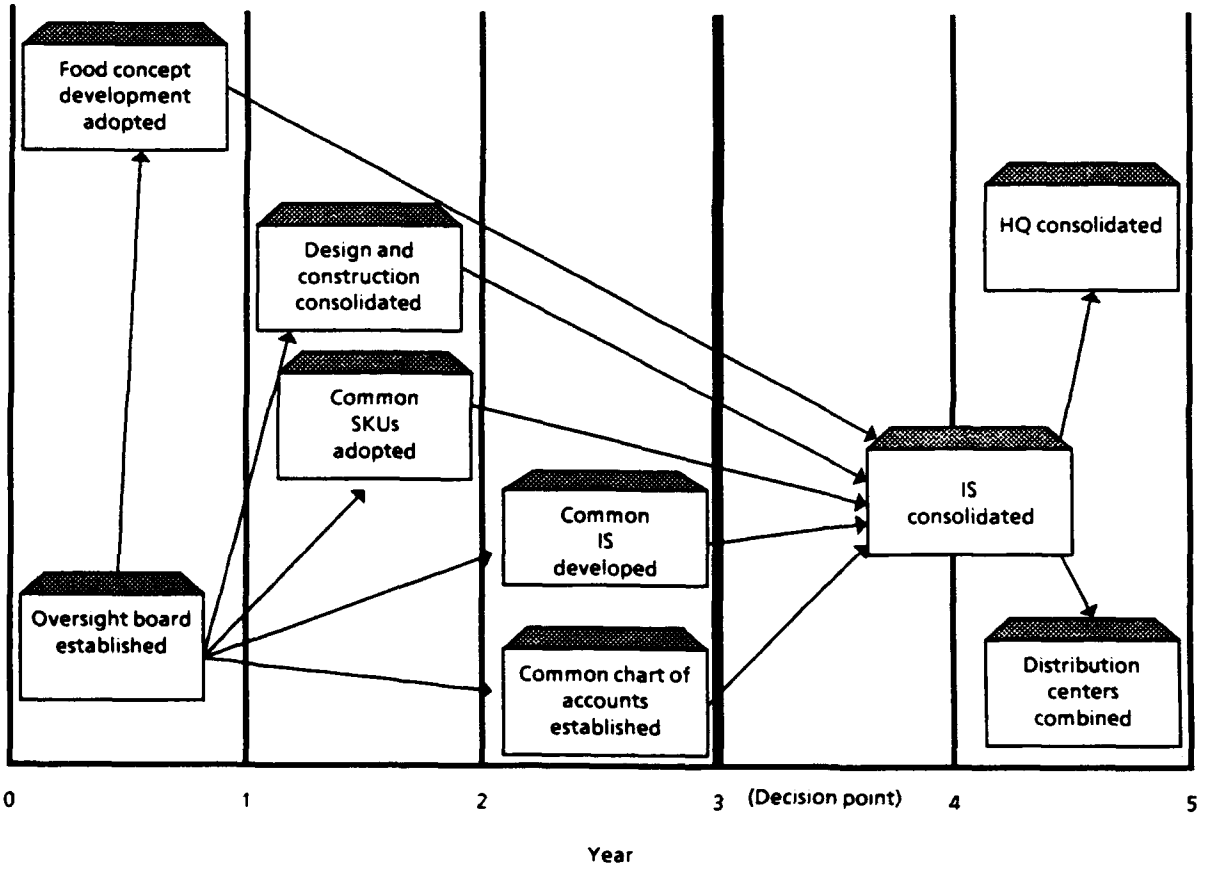

FIG. 3-2. MILESTONES FOR A DELAYED DECISION

THE NEED FOR AN OVERSIGHT BOARD

The level of cooperation and coordination needed to implement the initiatives discussed above would be almost impossible to achieve without a single oversight board. The oversight board should work with the existing board and command structures of the three exchange systems and provide a single point of contact for DoD management for the recommended initiatives. Moreover, for those initiatives to be successful, the oversight board must have authority in the areas of its responsibility. A common chart of accounts, for example, will not work unless adherence to it is mandated and audited. As another example, if consensus or compromise cannot be reached in a reasonable time on the designation of SKUs, the oversight board needs the authority to make and implement a decision. The board should be given a specific agenda to achieve and the authority with which to achieve it.

In designating the make-up of the board, two major areas need to be considered: who will be represented on the board and in what numbers, and whether the board will be an advisory board to a single decision maker or a board governed by majority vote. Representatives from the four Services must be on the board to achieve the level of cooperation and coordination needed and to have a means by which to contribute to the board's decisions. Unless full exchange consolidation is eventually implemented, the existing exchange boards and management structures should be left in place. One possible oversight board structure would be a voting representative from each of the four Services and from the offices of the ASD(P&L) and the ASD(FM&P). A limited number of advisors, especially from private industry, could attend but without voting authority. If each of the six voting members were allowed to bring two advisors, 18 persons would be in attendance. That number compares favorably with private sector boards of directors. For example, the board of Wal-Mart has 15 members.

That board structure would have several advantages. The world of retailing is unlike the military environment. The oversight board needs the flexibility and outlook to respond quickly to changing market conditions, to counter the ever-increasing competition from the private sector, and to recognize and accommodate the vagaries of customer demand. An independent board structured along the lines of governing boards in the private retailing sector would be most likely to be responsive in those areas. For example, across-the-board budget cuts, hiring freezes, and construction moratoriums are fairly common in DoD but such

across-the-board decisions in the retailing environment could quickly and drastically reduce profits. Such decisions for a profit-making organization should be business decisions and should be tailored and timed according to market conditions to minimize the impact on profits. Another advantage of a voting board is that it would maintain for the Services a measure of control over the strategic decisions that directly affect their exchanges. The chair could rotate among the Services and the OSD members. The AAFES governing board could be used as a model for an oversight board structured along these lines.

An alternative oversight board structure is to have an ASD(FM&P) representative as a permanent chairperson with two members from each Service acting as advisors to him or her. This structure would be closer to a Defense Agency form of management structure. The Services would still be able to influence the decision making although not through a formal vote. The AAFES board seldom takes a formal vote on policy issues, preferring to reach agreement by consensus, indicating that the vote itself may not be crucial. Moreover, having an OSD representative as a permanent chair recognizes the responsibility OSD has for oversight of the operation of the military exchange systems.

A third alternative for the oversight board is to structure it as a voting body of Services' representatives whose chairperson reports to the ASD(FM&P). Each Service could have three voting members and the chair of the board could rotate among the Services, but decisions would have to be approved by the ASD(FM&P). This alternative recognizes OSD's responsibility for the exchange systems but gives the Services more control over policy than if they were in strictly an advisory capacity.

Oversight Board Agenda

Whatever the configuration of the oversight board, it should be given a specific agenda for action. The issues discussed in this report should be part of that agenda: a continuation of the idea sharing and search for opportunities for mutual benefit that were sent into high gear by the scrutiny of the DoD study; a common chart of accounts within 3 years; a standard list of exchange SKUs within 2 years; a consolidated exchange design and construction organization; the transfer of the AAFES food concept to the Navy and Marine Corps; the design of a common IS architecture in case full exchange consolidation is later adopted; and a review of the

full consolidation issue no sooner than the end of Year 3. In addition to those agenda items, the board should be empowered with the oversight of improvement initiatives already claimed. During the course of the DoD study, each exchange system claimed a number of plans to improve operating efficiency or effectiveness. Those initiatives are listed in Appendix B. Some of the rebuttals to the DoD study's recommendation to consolidate held that the existing plans for improvement would achieve savings comparable to full consolidation. The oversight board should take on the task of monitoring the implementation of those plans to ensure that the benefits claimed will, in fact, be realized.

DISTRIBUTION OF MORALE, WELFARE, AND RECREATION SUBSIDIES

Should the decision be made at some later date to fully consolidate the three exchange systems, the Services will have to adopt a method to distribute the combined exchange profits among themselves. A stable profit stream could be handled in one of three ways: prices could be reduced, which would ostensibly reduce profits in the long run and act as a direct benefit to the Service member; funds could be spent on capital improvements to exchanges, which would indirectly benefit the Service member by improving the shopping experience and protecting future profits; or profits could be used to subsidize the Service member's MWR needs. In practice, the exchanges use a combination of all three. In any event, the proportions of net earnings used to subsidize prices, to fund capital improvements, and to subsidize MWR would be a decision for the consolidated exchange oversight board. Those proportions would probably vary depending on the needs and opportunities in each area. However, once the proportion of profits to subsidize MWR has been agreed upon, a formal mechanism must be developed for distributing those profits among the Services. In the following paragraphs, we explore the alternatives.

Total exchange store earnings by Service could be used as a measure with which to apportion the funds available for MWR support. The rationale for this method is that each Service should be rewarded in proportion to its industry and ingenuity, which are directly reflected in the net earnings of each. The competition for a larger share of the MWR subsidy would spur the performance of each Service. The problem with this approach is that net earnings are affected by factors other than industry and ingenuity, factors outside the Services' control. For example, the Army and Air Force could argue that most of the Navy's exchanges are located in lucrative metropolitan and coastal areas where large populations of retirees from all Services

add to exchange earnings. Many exchanges at remote Army and Air Force installations, on the other hand, are kept open at a loss to provide a vital service to the Service member. Distributing MWR subsidies on the basis of total Service exchange earnings might tempt the Services to cut back unprofitable exchange services and locations to the detriment of the Service member. Moreover, the Navy could counter-argue that the Army and Air Force have more overseas exchanges, which are usually more profitable than their U.S. counterparts. Finally, distributing MWR subsidies according to exchange earnings does not relate the subsidies to the need, which is more closely related to the size of the Services' active duty populations.

An alternative is to distribute the available MWR subsidies on the basis of the square-footage of exchange space in each Service. That criterion would address the problem of the different profit-earning potentials of each Service's stores and avoid the temptation to cut back on services to unprofitable locations. However, it would now increase the Services lobbying to build stores, some of which may not be needed, to garner a larger proportion of the MWR pie.

A third alternative is to distribute the MWR subsidies based simply on the relative sizes of the Services' active duty populations. This method is used by AAFES for MWR distribution between the Army and Air Force. It is simple and adopts the fairly safe assumption that there is a correlation between active duty population and MWR need. For the Navy and Marine Corps to fall under this distribution method, however, a minor adjustment is called for. Allowances should be made for the normal percentages of sailors and marines at sea at any one time. For example, on average, 8 to 10 percent of the Navy's active duty population is at sea. Aboard ship, MWR is provided from appropriated funds and not from exchange profits. Therefore, only 92 percent of the Navy's active duty population should be used in calculating the Navy's share of the exchange's MWR subsidies.

This last method of MWR subsidy distribution is simple to administer, relates subsidy to need, and provides few opportunities to distort the system to gain MWR share. Moreover, it has been tried and tested and has been successfully used by AAFES for many years.

APPENDIX A

MILITARY EXCHANGE ORGANIZATIONS

APPENDIX A

MILITARY EXCHANGE ORGANIZATIONS

ARMY AND AIR FORCE EXCHANGE SERVICE

The Army and Air Force Exchange Service (AAFES) organizational structure is unique in that its command and control are integrated through a governing board. The commanding officer, who holds a rank of major general, is responsible to a 15-member board of directors. This board is established by the Secretaries of the two Services through their respective chiefs of staff and is generally constituted to provide equal Army and Air Force representation. This board is composed of the following members:

- Comptroller of the Army
- Comptroller of the Air Force
- Commander, U.S. Army Community and Family Support Center
- Chairman, AAFES, Europe Council
- Chairman, AAFES, Pacific Council
- Commander, AAFES
- Sergeant Major of the Army
- Chief Master Sergeant of the Air Force
- A general officer designated by the Chief of Engineers, Department of the Army
- Deputy Auditor General of the Air Force Audit Agency
- Director, Transportation Energy and Troop Support, Office of the Deputy Chief of Staff for Logistics, Department of the Army
- Assistant Deputy Chief of Staff/Personnel for Military Personnel, Department of the Air Force

- A general officer designated by the Deputy Chief of Staff, Logistics and Engineering, Department of the Air Force
- A member at large from each Service for 1-year appointments renewable up to 3 years.

The board consists of three standing committees: executive, finance, and audit. Each committee operates under the direction of the chairman of the board and each has different duties and responsibilities in providing oversight.

The AAFES Commander establishes operating policies, goals, and objectives for the organization. The Commander and the Deputy Commander positions are filled on an alternating basis by the Army and the Air Force, with one position filled by each Service. Programs are developed and centrally managed from AAFES headquarters and they are standardized throughout the AAFES system. Regional directors manage day-to-day operations and they report to the Commander of AAFES. The exchange manager at the installation level is responsible to and rated by the exchange chain of command.

NAVY RESALE AND SERVICES SUPPORT OFFICE

Unlike AAFES, Navy Resale and Services Support Office (NAVRESSO) does not have a governing board. Rather, it is one of the subordinate reporting units under the Naval Supply Systems Command. The NAVRESSO commanding officer reports to the Commander of the Naval Supply Systems Command. The chain of command is predicated on the military command and control concept, and the Navy assigns its military officers as heads of retail activities at all levels of NAVRESSO command. Thus, the Navy military command structure has more autonomous control over its retail activities than the Army and the Air Force have over theirs.

Five major programs are managed by NAVRESSO: Navy Commissary Stores, Ships Stores Afloat, Navy Exchanges, Navy Uniform Program, and the Navy Lodge Program. At present, NAVRESSO has seven Field Service Offices (FSO)s to provide field support to retail activities at Navy installations. This support includes procurement, administration, personnel management, automated data processing, distribution, and accounting. NAVRESSO headquarters provides policy and procedures, operating manuals, directives, systemwide contracting and purchasing of merchandising, and other services.

Operation of Navy exchanges at installation level falls under the command of the local commanding officer. The base commander writes the primary fitness report for the officer in charge of the Navy exchange and the secondary rating official is the commander of the cognizant FSO. Base commanders have the authority to review and approve budget requirements, organizational changes, and the types of business or services to be provided.

MARINE CORPS EXCHANGE SYSTEM

The Marine Corps exchange system differs substantially from the other systems. The Marine Corps has integrated its resale program with a full range of morale, welfare, and recreation (MWR) activities. This consolidated MWR system is operated under the Director, Morale, Welfare, and Recreation Support Activity (MWRSPTACT), Manpower Department, Headquarters, U.S. Marine Corps.

The MWRSPTACT director issues general policy and guidance concerning MWR activities but its execution is totally decentralized. Responsibility for administration, management, and operation of field activities lies with the installation commander. At the installation level, the exchange manager reports to the MWR director, who in turn reports to the installation commander. Any problems of a technical or policy nature are surfaced to the headquarters MWRSPTACT.

Each Marine Corps exchange has its own buying staff and most procurement is made by the store level buyers. Having Marine Corps exchange buyers at the store level has allowed a greater flexibility and independence for each exchange to react and adjust to unique marketing opportunities.

APPENDIX B

PROGRAMMED SAVINGS THROUGH INTERNAL STREAMLINING AND COOPERATIVE EFFORTS

APPENDIX B

PROGRAMMED SAVINGS THROUGH INTERNAL STREAMLINING AND COOPERATIVE EFFORTS

The three Military Department exchange systems have programmed initiatives for cost reductions which were accepted by the DoD study group at face value. After the DoD study was published, the Navy and Marine Corps presented new programs that were expected to save almost as much as the savings from the consolidation recommended by the DoD study. This appendix summarizes those savings.

Table B-1 presents the savings claimed by the Navy and Marine Corps in summary form and in each category in it is detailed in Tables B-2, B-3, and B-4. Table B-5 summarizes the savings the DoD study had credited to existing Army and Air Force Exchange Service (AAFES) initiatives.

TABLE B-1

SUMMARY OF SAVINGS CLAIMED FOR NAVY AND MARINE CORPS INITIATIVES

(FY89 $ millions)

Savings area	Fiscal year							Cumulative total
	92	93	94	95	96	97	98	
Navy exchange internal streamlining	7.0	12.0	17.0	22.0	22.0	29.0	29.0	138.0
Marine Corps exchange internal streamlining	5.1	10.3	10.8	11.1	11.1	11.1	11.1	70.6
Navy and Marine Corps exchanges' cooperative efforts	7.0	7.0	8.4	8.4	8.4	8.4	8.4	56.0
Total alternative savings	19.1	29.3	36.2	41.5	41.5	48.5	48.5	264.6

TABLE B-2

NAVY EXCHANGE INTERNAL STREAMLINING

Potential savings area	Anticipated annual savings ($000)
Reducing number of FSOs from seven to three	7,600
Eliminating programmed 112 accountant positions	1,000
Improving management of case management/hospital bill audit program	500
Computerizing store labor scheduling	500
Reducing IS cost	600
Total	10,200[a]

Note: FSOs = Field Service Offices; IS = Information System.

[a] We could not reconstruct the Navy's annual savings figure used in Table B-1 from the data Navy Resale and Services Support Office gave us.

TABLE B-3

MARINE CORPS EXCHANGE INTERNAL STREAMLINING

Potential savings area	Anticipated annual savings ($000)
Retail restructuring – elimination of 64 buyers and 75 clerical support personnel	
Salaries	2,900
Travel	300
Merchandise managers	300
IS hardware modernization and off-the-shelf software reduced maintenance cost and personnel savings	2,300
MWR efficiencies gained through reduction in administrative and support costs and operational efficiencies	2,300
Centralized power buying on case column categories to add 1 percent to gross margin or rebates	3,000
Total	11,100

TABLE B-4

NAVY AND MARINE CORPS EXCHANGES' COOPERATIVE EFFORTS

Potential savings area	Anticipated annual savings ($000)
Facility design and construction Reduced expenses and added profit from faster implementation	900
IS hardware/software Avoids FAR and Brooks Act	200
Data communication networks Avoid duplicating networks in areas where both have operations	200
Off-shore procurement Avoids duplicative staffs and offices	500
Captive self-insurance cooperative Avoids premiums for excess liability coverage (property/casualty/liability) and frees up assets currently restricted for general corporate purposes	4,000
Overseas pay telephone program Piggyback on *AAFES' Call America contract*	2,000
Employee training Avoids duplicative training programs and staffs	600
Total	8,400

Note: FAR = Federal Acquisition Regulation.

TABLE B-5

SAVINGS CLAIMED FROM AAFES STREAMLINING

Potential savings area	Anticipated annual savings ($000)
Closeout four CONUS exchange regions	15,600
European area exchange realignment	2,700
European headquarters realignment and drawdown	18,900
Implement AAFES Store Automation Program (ASAP)	19,800
Convert to satellite telecommunication network	2,000
Eliminate consultant service	3,900
Reduce systems project development requirements	2,300
Total	65,200

A joint Navy and Marine Corps study claimed that the proposed merger will require $104 million in up-front costs, yielding break-even at the seventh year with a net savings of $11 million. Instead, the Navy and Marine Corps proposed to implement some internal streamlining and cooperative efforts that will save $264.4 million over the next 7 years rather than consolidation, which they claim offers very little savings.

APPENDIX C

LIST OF INDUSTRY FORUM ATTENDEES

APPENDIX C

LIST OF INDUSTRY FORUM ATTENDEES

H. Lynn Hazlett, Vice President for Business Systems, Vanity Fair Corporation

Robert Kahn, Publisher of *Retail Today*, and Wal-Mart director

Walter F. Loeb, Retail Consultant and Publisher of *The Loeb Retail Letter*

Bradley T. MacDonald, Chief Financial Officer, Begley Drug Co.

Rip Rowan, Vice President, Armed Forces Marketing Council

Tim Smith, Capital South West

Richard Steinberg, President, Armed Forces Marketing Council

Richard Tessier, Vice President, American Logistics Association

APPENDIX D

EXPLANATION OF SAVINGS AND COST ESTIMATES FOR AN IMMEDIATE CONSOLIDATION

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EXPLANATION OF SAVINGS AND COST ESTIMATES FOR AN IMMEDIATE CONSOLIDATION

This appendix provides detailed explanations of the estimated savings and costs of a full and immediate consolidation of the three exchange systems. Those savings and costs are listed in Tables 3-1 and 3-2 of this report. A major task of the Logistics Management Institute (LMI) study was to validate the savings and cost estimates of the DoD Study Group report since little detail was presented in that document. In this appendix, we explain any deviations we made from the DoD report because we used the estimates in that report as the point of departure for our estimates.

We describe the costs associated with five major areas and the savings possible through consolidation in those areas. The areas are general and administrative (G&A), distribution and transportation, design and construction, purchasing, and information systems.

NOTE: UNLESS OTHERWISE STATED, ALL DOLLAR VALUES ARE GIVEN IN THOUSANDS OF DOLLARS (E.G., $330 IS $330,000, AND $1,300 IS $1,300,000) IN THE TEXT OF THIS APPENDIX AND IN THE TABLES.

GENERAL AND ADMINISTRATIVE SAVINGS AND COSTS

The G&A savings and costs that can be realized from a consolidation are summarized in Table D-1. While information systems (ISs) are normally considered a part of G&A, their large dollar costs and important place in the consolidation make it more reasonable to discuss them in a separate section.

The first six lines in Table D-1 show the most likely savings that can be realized by eliminating G&A functions at Navy and U.S. Marine Corps (USMC) headquarters (HQ) and Field Support Offices (FSOs) that would be redundant in a consolidated organization. The savings are FY89 actual expenditures for accountants, buyers, and other HQ and regional staff. We do not give a pessimistic or optimistic range for these savings since the offices and positions would be completely eliminated. The

TABLE D-1

ANNUAL RECURRING G&A SAVINGS AND COSTS
FROM A FULL CONSOLIDATION

($000)

Item	Savings			Costs		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Eliminate USMC accountants	2,295	2,295	2,295			
Eliminate USMC buyers	6,838	6,838	7,315			
Eliminate USMC HQ staff	1,010	1,010	1,010			
Eliminate Navy HQ staff	28,763	28,763	28,763			
Eliminate Navy FSOs	42,945	42,945	42,945			
Reduce Navy independent exchange support expenses	2,495	2,495	2,495			
Reduce Navy/USMC personnel services expenses	282	313	344			
Augment AAFES accountants				10,000	9,500	9,000
Augment AAFES buyers				10,780	9,800	8,820
Augment AAFES directors of CONUS operations				770	770	770
Augment AAFES area exchange management				9,253	8,812	4,406
Augment other AAFES HQ				3,744	3,566	3,388
HQ consolidation expenses				6,401	6,401	6,401
Increased Navy/USMC long-term employee benefit costs				550	550	550
Total	84,628	84,659	85,167	41,498	39,399	33,335

Note: AAFES = Army and Air Force Exchange Service.

consolidated HQ office (e.g., in Dallas) would have to be augmented to handle these functions for a larger system.

The G&A staff associated with the Navy exchange stores that are now operated independently would be reduced as would expenditures for Navy and USMC personnel services. We placed a small variance (10 percent) on the personnel services savings ($313 ± $31).

Although the Navy and Marine Corps G&A functions discussed above would be eliminated at their current sites, a consolidated exchange organization would have to augment its G&A staff to accommodate the increased workload at the consolidated

HQ site (assumed to be Dallas). The augmentation of Army and Air Force Exchange Service (AAFES) accountants and buyers is assumed to be proportional to the addition of Navy/USMC sales, calculated on a sales dollar/accountant and sales dollar/buyer ratio for current AAFES accountants and buyers to yield the most likely cost estimates. For buyers, this seems to be a relatively pessimistic assumption since AAFES performs central buying anyway. Therefore, our optimistic cost estimate is 10 percent below the most likely estimate. To be conservative on the downside of a consolidation, we also added 10 percent to arrive at the pessimistic estimate. For accountants, our pessimistic and optimistic estimates are about 5 percent above and below the most likely estimate.

The AAFES currently has a number of Directors of CONUS Operations (DCOs) who are essentially regional directors, each responsible for the overall management of specific geographic regions. They all operate out of AAFES headquarters in Dallas. The $770 cost estimate shown in Table D-1 is for personnel costs and assumes that AAFES will add 12 new DCOs as a result of the consolidation.

The AAFES also has an "area exchange management" structure under the DCOs, with a general manager and seven support staff for each four to eight installation exchanges. We selected as the most likely cost estimate the DoD Study Group's cost estimate for augmenting the area exchange management structure with an additional eight area exchange management offices. However, AAFES has flattened its regional/middle management structure, as have private-sector retailers, dropping from 29 to 16 area exchange management staffs in the past 5 years. Therefore, we believe that a reasonably optimistic estimate is half of the Study Group's cost estimate. We added only 5 percent to arrive at a pessimistic estimate because we believe that the most likely estimate is already somewhat pessimistic.

Other miscellaneous HQ staff would need to be added at AAFES to accommodate the increased workload. The most likely estimate ($3,566) is our revision of the DoD Study Group's estimate of $4,367 and represents an additional 86 staff, based on increases proportional to sales volume. (The DoD Study Group had double counted the 12 DCOs by originally including them here also.)

The HQ consolidation expenses are nonlabor miscellaneous expenses that would need to be augmented at the consolidated headquarters. They include such items as stationery, travel, communications, utilities, janitorial services, and minor repairs.

The DoD Study Group's estimate of $6,401 is based on existing expenditures for these items, and we reviewed it and accepted it as reasonable.

The Navy/USMC long-term employee benefit costs would be increased by the closure of HQ and field offices in the Navy and USMC exchange systems. These costs are based on the current expenditures for long-term employee benefit programs, and thus, no pessimistic or optimistic adjustments are made.

DISTRIBUTION SAVINGS AND COSTS

Annual Recurring Savings and Costs

DoD Study Report: $34,000 savings; $24,300 costs

LMI: $23,500 savings (pessimistic = $22,324; optimistic = 23,956)
$16,900 costs (pessimistic = $27,200; optimistic = $12,250)

In the DoD Study Group report, the cost and savings figures are shown in Table 3-18 (taken from the summary figures in Table 5-7). The following subsections discuss the line-item details that make up those summary figures.

Distribution Summary

The following figures and discussion support the LMI projections shown in the previous section. A summary of the supporting line items is presented in Table D-2. Unlike the DoD study report, we included the costs of, and the savings realized by, eliminating the Navy's West Coast distribution centers and the USMC's West Coast store-level merchandise managers and at the same time expanding AAFES' new southwest distribution center. Although that center is yet to be built, it is programmed because the existing facility must be closed. Thus, we view the Services' West Coast distribution systems as suitable candidates for consolidation and include that portion of the analysis in our projections.

Additional Direct Labor

Additional staff would be hired at the AAFES distribution centers listed in Table D-3. Those staff members would be used to expand the operations as necessary to assume the workload of the Navy distribution centers that would be closed and of the reduced Marine Corps local staffs. We subtracted the USMC portion of the additional costs from the savings we projected from reducing the USMC staff; we did that to avoid trying to translate savings to manpower and then back to savings as

TABLE D-2

SUMMARY OF LMI'S DISTRIBUTION AND TRANSPORTATION PROJECTIONS

($000)

Item	Optimistic	Most likely	Pessimistic
Additional direct labor	(6,170)	(10,500)	(14,700)
Additional outbound transportation	(6,080)	(6,400)	(12,500)
Total costs	(12,250)	(16,900)	(27,200)
Navy distribution center closures	19,920	19,920	19,920
USMC staff reductions	1,056	880	704
Inbound transportation	2,100	1,900	1,700
Overseas staff reductions	880	800	0
Total savings	23,956	23,500	22,324

was done by the *DoD Study Group*. The additional cost of assuming the Navy's workload was based on a most likely estimate of 500 additional personnel. That figure is derived in Table D-3.

TABLE D-3

ADDITIONAL AAFES DISTRIBUTION CENTER STAFFING

Distribution center	Average daily dollar issues per person	Existing work force	Added direct	Added indirect	New total	Increase
Northeast	3,139	850	119	30	999	149
Southeast	3,754	1,300	87	22	1,409	109
Central	2,538	526	25	6	557	31
Northwest	2,725	782	97	24	903	121
Southwest	3,139[a]	93	137	46	183	90
Total	—	—	—	—	—	500

[a] Ratio for the Dan Daniel Distribution Center.

We calculated the number of additional personnel needed on the basis of a productivity ratio for each AAFES distribution center affected. The productivity ratio used was that of the dollar value of average daily issues to direct manpower. We increased the number of positions calculated by 25 percent to represent an increase in indirect positions. (We confirmed that 25 percent is AAFES' existing average indirect-direct labor ratio.) The DoD Study Group used a mixture of the productivity ratio we used and one based on the average number of cartons shipped daily. The DoD study increased the results to account for indirect positions using best judgments for each AAFES warehouse affected. We could not always follow or confirm those judgments. Our approach resulted in a higher number of total employees needed and we preferred to take the more conservative number.

We found the most likely number of additional personnel to be 500. For an optimistic projection, we chose the DoD Study's figure of 368, and for the pessimistic we increased the LMI projection by 10 percent to 550.

The cost of the increased personnel depends on the estimated average annual salaries.[1] For an optimistic figure, we used $16,768, which came from the Navy's rebuttal to the DoD study. For the most likely projection, we used the DoD Study Group's figure of $21,000. For the pessimistic projection, we used a third way of calculating an estimate. We took the Navy's rebuttal figure as correct for direct labor, assumed that indirect staff was 25 percent of direct staff, and took an average of UA-12 and UA-13 (nonappropriated fund employee grades) burdened salaries as the cost of that indirect staff. The weighted average, based on those figures, came to $26,721.

We took the products of the respective pessimistic, most likely, and optimistic figures for personnel and annual salaries, rounded them, and used them in Table D-2.

Additional Outbound Transportation

Consolidated AAFES distribution centers would deliver material to Navy and USMC exchanges. The DoD Study Group calculated that the additional cost of such transportation to AAFES would be $6,400. The Navy rebuttal calculated the additional cost would be $12,500. However, the Navy figure is based on a transportation cost of one dollar and fifteen cents per mile. AAFES showed us figures

[1]In this paragraph, the dollar values are given in units, not thousands as in the remainder of this appendix.

to confirm that its cost per mile is only one dollar. It is lower than the industry average because AAFES does not pay road and fuel taxes and its hauls are longer. Moreover, the one dollar per mile cost does not include the potential profit from back-hauling, which is a current AAFES cost-saving measure.

We used the DoD Study Group's figure of $6,400 as the most likely cost, for the pessimistic projection we used the Navy's rebuttal figure of $12,500, and for the optimistic figure, we used $6,080, which is the DoD Study Group's original estimate before it was adjusted on the basis of judgment in a compromise with the Navy.

Navy Distribution Center Closures

The annual savings from closing the affected Navy distribution centers would be $19,920. That value was used in the DoD study, and we confirmed it from the Navy's operating statements. Thus, we used it as the pessimistic, most likely, and optimistic projections.

USMC Staff Reductions

The USMC currently pays *slightly more* than $3,520 annually for store-level merchandise management. It estimates that it would save 25 percent of that cost by using AAFES distribution centers. The DoD study used that 25 percent figure although it first converted the cost to a man-year equivalent at $21 annual salary and later reconverted it to a cost using the same annual salary. We viewed the 25 percent figure as most likely and projected optimistic and pessimistic savings at 30 percent and 20 percent, respectively. Applying those percentages to the $3,520 current annual cost yielded pessimistic, most likely, and optimistic estimates of $704, $880, and $1,056, respectively.

Inbound Transportation

The DoD study calculated $1,900 in savings for inbound transportation of goods to consolidated distribution centers. The savings result from better bulk rates for the greater quantity of goods shipped to AAFES distribution centers and the closer proximity of vendors to AAFES distribution centers. We found the rationale for the savings, calculated from samples of freight bills, to be persuasive and used it for the most likely projection of savings. We added and subtracted 10 percent of that figure to give the optimistic and pessimistic figures, respectively.

Overseas Staff Reductions

Some savings would be realized by consolidating overseas overhead staffs, but specific data on those savings are not available. The DoD study chose a figure of $800 per year based on a best judgment that six staff positions would be saved at each of six overseas locations. The AAFES staff believes the savings would be several times that figure, and the Navy's rebuttal shows no savings at all. Reduction of six staff positions is an average of 9 percent of total staff at each location, which seems a reasonable expectation. Thus, we took the DoD study figure as most likely, increased it by 10 percent for the optimistic figure, and took zero as the pessimistic figure.

Augmentation of AAFES Distribution

Table D-4 shows the one-time, or start-up, cost contributors and costs of consolidating the Services' distribution systems. We discuss each contributor in the following subsections. We assumed that the consolidations would occur in equal phases over Years 3 and 4. The delay is caused by the wait for the consolidation of the information system, which must take place before the distribution systems can be consolidated. Planning for the consolidation of the distribution centers would take place in Year 2. The new southwest AAFES distribution center is also programmed to be constructed in Year 2. Other one-time costs are split between Year 3 and Year 4 when the consolidation will occur.

Planning

The DoD study did not consider the cost of planning for the consolidation of distribution centers. However, such costs as overtime hours, consultant fees, and additional travel should be considered. Our best judgment for optimistic, most likely, and pessimistic estimates is $50, $100, and $150, respectively.

Training at Distribution Centers

The DoD study projected training costs for new AAFES distribution center personnel at $150. Because the rationale for that estimate seems reasonable, we took it as the most likely cost. We added and subtracted 10 percent of that figure to give pessimistic and optimistic projections, respectively.

TABLE D-4

ONE-TIME COSTS OF CONSOLIDATING DISTRIBUTION CENTERS

($000)

Item	Optimistic	Most likely	Pessimistic
Planning	50	100	150
Training at distribution centers	127	141	155
Southwest distribution center construction	7,560	8,900	12,000
Personnel relocations	640	725	780
Forced separations	338	408	605
Unemployment contributions	530	624	726
Excessing building/ equipment	100	250	500

Southwest AAFES Distribution Center Construction

Our optimistic estimate for the cost of expanding the programmed AAFES southwest distribution center by 120,000 square feet is based on a cost of $63 per square foot. That estimate came from the Marshall Valuation Service. We conservatively took the DoD study's estimate of $74 per square foot as the most likely cost and the Navy's estimate of $100 per square foot as the pessimistic estimate.

Personnel Costs

The recommended closings of Navy distribution centers and the reductions in USMC merchandise positions would eliminate 854 jobs. We estimate that 500 additional staff would be needed at AAFES distribution centers to handle the increased workload (see Table D-3). The difference of 354 positions represents the number of employees that would have to be relocated, retired, or separated. That number is lower than the DoD study's figure of 361. We conservatively used the DoD study's figure to calculate the personnel costs of relocation, early retirement, and forced separation. Of those 361, we estimate that 75 percent of the Navy positions and 50 percent of the Marine Corps positions are direct employee positions. This gives 260 direct positions and leaves 101 indirect positions. Table D-5 shows our

estimates of the numbers of people in each category. In a departure from the DoD study, we omitted the cost of reimbursements for unused leave of separating employees. That cost should have been expensed at the time it became a liability.

TABLE D-5

DISPOSITION OF EMPLOYEES

Category of employee	Total number	Relocation			Early retirement			Forced separation (RIF)		
		Opt.	Most likely	Pess.	Opt.	Most likely	Pess.	Opt.	Most likely	Pess.
Direct	260	—	—	—	65	52	39	195	208	221
Indirect	101	32	29	26	25	20	15	46	52	58

Note: Opt = optimistic, Pess = pessimistic, RIF = reduction in force.

Relocation. We accepted the DoD study estimate that 29 people would relocate as the most likely value and increased and decreased it by 10 percent to give the optimistic and pessimistic figures, respectively. AAFES records show that the average cost of a relocation is $24; we conservatively used $25 for the most likely cost, $20 for the optimistic, and $30 for the pessimistic. The respective products of people and individual relocation costs produce the total relocation costs shown in Table D-6.

Early Retirement. On the basis of Navy and USMC experience, we project that 20 percent of the affected employees will most likely take early retirement. We used 25 percent and 15 percent as the optimistic and pessimistic projections, respectively. The numbers that result are shown in Table D-5.

Forced Separations. After relocations and early retirement, the remainder of the displaced personnel would be forced to separate from the Government in a reduction in force (RIF). For direct employees, we priced the 160 hours of RIF pay they would be authorized optimistically at $8 an hour from the Navy's estimate of $16.768 annual pay, pessimistically at $10 an hour from the DoD study, and $9 an hour as the most likely. For the indirect employees, we priced the 160 hours pessimistically at $27 an hour from the average of UA-12 and UA-13 pay. The most likely cost of $13 an hour was taken from the DoD study, and the optimistic price of

TABLE D-6

PERSONNEL COSTS

($000)

Category of employee	Relocation			Forced separation			Unemployment contribution		
	Opt.	Most likely	Pess.	Opt.	Most likely	Pess.	Opt.	Most likely	Pess.
Direct	—	—	—	250	300	354	429	499	575
Indirect	640	725	780	88	108	251	101	125	151
Total	640	725	780	338	408	605	530	624	726

$12 per hour is 95 percent of the most likely figure. The respective products of people, hours, and hourly costs yield the total RIF costs shown in Table D-6.

Unemployment Contribution. The most likely cost for unemployment contributions is $2.4 per person, which the DoD study took from previous histories of RIFs. We added and subtracted 10 percent and rounded to $2.6 and $2.2 for the pessimistic and optimistic projections, respectively. The products of RIF personnel and costs yield the total unemployment contribution costs shown in Table D-6.

Building and Equipment Excessing. The Navy will incur a cost for closing its distribution centers and disposing of their equipment. Based on our best judgment, we estimate the most likely cost to be $250, the optimistic costs to be $100, and the pessimistic cost to be $500.

Additional Inventory (Cost)

DoD Study Report: $3,122

LMI: $2,571 (pessimistic = $3,122; optimistic = $2,204)

We concur with the DoD Study Group analysis. This cost must be added to the consolidation cost because the rate at which the AAFES turns over its inventory is lower than that of the Navy and Marine Corps exchanges.

Our pessimistic and optimistic values are based on different percentages used for calculating an opportunity cost of having the additional capital tied up in the higher inventory. The DoD study used 8.5 percent to calculate its opportunity cost. We believe that percentage is too high and represents the optimistic figure. We used 7 percent for calculating the most likely cost and 6 percent to calculate the pessimistic cost.

DESIGN AND CONSTRUCTION SAVINGS AND COSTS

Annual Recurring Savings and Costs

DoD Study Report: $921 net savings

LMI: $2,987 net savings (optimistic = $3,868; pessimistic = $1,968)

Should AAFES assume responsibility for Navy and USMC facility design and construction, savings would accrue from elimination of some employee positions, from lower design fees, and from faster construction. With very few exceptions, the DoD study's analysis of those savings appeared excellent, and we used most of its calculations. We added costs for planning such as consolidation and for displacing the Navy and USMC personnel who would lose their positions. Moreover, we counted all of the costs and savings the DoD study calculated. The DoD study disregarded the potential savings it had calculated for personnel reductions. Table D-7 summarizes the projections we used. Since, in the design and construction area, the DoD study projected pessimistic, most likely, and optimistic costs and savings, we used its results for each of those scenarios.

One-Time Conversion Costs

The one-time costs used in the facility design and construction calculations are shown in Table D-8. We assumed that planning costs would occur in Year 1 and that all other costs would occur in Year 2 when the Services would make the transition. Since the DoD study did not account for the costs of displacing Navy and USMC personnel, we based those costs on the data used for those same costs in the distribution center calculations. For example, we assumed the same percentages of employees accepting early retirement, relocating, and being forced to separate as we used for distribution center indirect staff. For the most likely number of personnel

TABLE D-7

PROJECTED ANNUAL COSTS AND SAVINGS FOR FACILITIES DESIGN AND CONSTRUCTION CONSOLIDATION

($000)

Costs/savings	Pessimistic	Most likely	Optimistic
Annual costs			
Additional AAFES engineering staff	660	600	450
Additional AAFES engineering support staff	840	764	688
Total	1,500	1,364	1,138
Annual savings			
Lower design fees	557	920	1,145
Reduced construction time	364	601	748
Reduced Navy/USMC engineering staff	1,579	1,754	1,929
Reduced Navy/USMC field staff	968	1,076	1,184
Total savings	3,468	4,351	5,006
Net savings	1,968	2,987	3,868

displaced, we took the DoD study's figure of 59 people. For the pessimistic and optimistic projections, we decreased and increased that figure by 5 percent.

OTHER DIRECT SAVINGS AND COSTS

Food Services Operations (Savings)

DoD Study Report: $300

LMI: $300 (pessimistic = $270; optimistic = $330)

We concur with the savings that the DoD study reports for food services under consolidated operation. We used a 10 percent variance for calculating both the optimistic and the pessimistic figures. We did not include possible sales/direct operating profit increases that could be realized if AAFES in-house concepts were expanded to Navy and Marine Corps installations under the consolidation. AAFES has developed six fast food concepts that are very profitable.

TABLE D-8

ONE-TIME COSTS OF FACILITY DESIGN AND CONSTRUCTION CONSOLIDATION

Item	Cost ($000)		
	Pessimistic	Most likely	Optimistic
Planning	15	10	5
Personnel relocations	443	434	420
Forced separations	133	61	54
Unemployment contribution	80	71	61
Total	671	576	540

The Navy and the Marine Corps do not have similar programs; instead, they rely on brand name fast food concessions that are not as profitable as the AAFES franchising. If the food services are to be integrated under the consolidation, Navy and Marine Corps installations provide a potential market increase of 200 additional AAFES-developed franchise food units. Based on a preliminary analysis, the Navy and Marine Corps could increase their net profit by $10.5 million by adapting the AAFES food concept.

Augmentation of Navy/Marine Corps Store Staffing (Cost)

DoD Study Report: $13,300

LMI: $7,400 (pessimistic = $13,300; optimistic = $2,204)

This cost is imposed by the fact that AAFES stores have more employees at the store level than do Navy and Marine Corps stores. Therefore, under the consolidation, AAFES will incur an additional cost to bring the Navy and Marine Corps store staff level up to the AAFES manning standard. Since all Navy and Marine Corps buyers at the store level are being eliminated and since their job descriptions required them to perform some store-level merchandising functions, AAFES needs to add more retail personnel to fill the merchandising shortfall caused by the loss of the Navy and Marine Corps store-level buyers.

We believe AAFES will not expend the additional $13,300 in personnel costs without the corresponding increase in revenue. The AAFES Sales Plus Program

requires more store-level personnel since the program is designed to improve customer satisfaction by implementing a policy of providing a high level of customer contact. That policy, AAFES learned, has increased its sales revenue. If the potential increase in revenue is not realized, it is highly unlikely that AAFES will increase its store staffing level. The $13,300 additional cost would be the most pessimistic figure under the worst circumstances.

The most likely circumstance is that AAFES may have to get additional staff to compensate for the loss of regional and store-level buyers who are currently performing merchandising functions. The Navy and Marine Corps have claimed that they needed to retain 40 percent of their buyers and 20 percent of their procurement support staffs and reassign them to stores to perform merchandising functions. LMI believes these percentages are unrealistic. We reviewed position descriptions from AAFES and Navy Resale Services and Support Office (NAVRESSO) and they are similar; the 40 percent difference cannot be supported.

We used 20 percent for NAVRESSO buyers and support staff and 30 percent for the Marine Corps buyers and support staff for determining the most likely additional number of merchandising staff that need to be added at the store level. Although the final staff requirement ultimately depends upon a marketing strategy, we believe our percentage is realistic under the assumption that sales revenue will stay the same.

Under the most optimistic circumstances, AAFES may not have to add many additional store-level staff to avoid a sales loss. It might be able to maintain sales revenue by rearranging store-level staffs and transferring some responsibilities from stores to headquarters. We therefore chose an optimistic cost of about 30 percent of the most likely cost.

INFORMATION SYSTEMS COSTS

Introduction

Approach

The greatest difference in the LMI estimates and those of the DoD Study Group is in the costs of information systems and the methodology used to measure those costs. The DoD Study Group approached IS costs in the following way: First, it determined that 4 years would be needed to convert the Navy and Marine Corps ISs to the AAFES ISs, and it estimated the year-by-year expenditures for one-time

conversion (including capital) and annual operating costs for a period of 7 years. The total of those 7 years of costs was then divided by seven to get an "average annual IS cost of consolidation." That cost was referred to in the DoD study report as the Navy/Marine Corps MIS (management information system) Consolidation cost estimate. Second, the DoD Study Group determined the time required to convert the Navy ISs and the Marine Corps ISs to new separate systems (per existing plans) to be 5 years and 4 years, respectively, and the year-by-year expenditures for both one-time conversions (including capital expenditures) and annual operating costs were estimated for a 7-year period. The total of these 7 years of costs was divided by seven to get an "average annual IS cost of separate IS." That cost was referred to in the DoD study report as the Navy/Marine Corps MIS separate cost estimate. The DoD report stated that the difference between the 7-year averages for the conversion-to-AAFES and the conversion-to-separate IS was the MIS "savings" from consolidation.

In this LMI study, we take a different approach to estimating the IS cost because we believe that one-time (conversion) costs should be separated from steady-state annual operating costs. One-time costs should be counted in the year they occur so that they are discounted by the proper factor, and steady-state savings (or costs) should be shown as the difference between annual operating costs of converted and separate (as planned) systems after that conversion process is complete. Our approach provides the correct net present value (NPV) of the two IS approaches to be consistent with other consolidation cost estimates in this report and also highlights the timing of specific conversion expenditures to achieve important aspects of IS consolidation or separate IS development. It also ensures an "apples-to-apples" comparison of IS expenditures between consolidation and separate operation.

Navy IS Cost Estimates: One-Time Conversion Costs from Consolidation

The costs of immediate consolidation of Navy exchange and AAFES ISs are summarized in Table D-9.

Base Costs

The base costs for the Navy and Marine Corps are the annual operating costs for their ISs prior to consolidation or planned separate improvements. Those costs are subtracted from the annual estimates of expenditures to yield the net annual expenditures during the transition Years 1 through 4 (Years 1 through 5 for the Navy separate modernization) for the consolidation and separate modernization

scenarios. The base cost amount for Navy and USMC ISs is from published NAVRESSO and USMC accounting information.

NCR Software Conversion

DoD Study Report, Year 1: $1,000
LMI, Year 1: $150 (pessimistic = $500; optimistic = $80)

This software (SW) conversion involves modifying communications SW and store- processing SW. It is needed to pass store transaction data (generated and stored on NCR 9150 hardware) to AAFES mainframes (IBM compatible) with different record structures. The work is expected to be performed by the NCR Corporation, and costs will depend on project definition and project difficulty. Other unknowns that affect the cost estimate are the degree to which the currently running software has already been modified and the quality with which those past modifications have been made. Nevertheless, the DoD Study Group report estimate of $1,000 is unnecessarily pessimistic since that cost would reflect a 12 to 15 man-year effort ($67,000 to $83,000 per man-year). We estimate that the work should require a 2-person, 6-month effort optimistically; a 4-person, 6-month effort most likely; and a 6-person, 1 year effort pessimistically.

Seven-Region Storekeeping Unit Data Conversion

DoD Study Report, Year 1: $1,595
LMI, Year 1: $823 (pessimistic = $1,025; optimistic = $700)

DoD Study Report, Year 2: $1,595
LMI, Year 2: $823 (pessimistic = $1,025; optimistic = $700)

This activity consists of converting storekeeping unit (SKU) data from an inconsistent naming/coding convention to a convention standardized around the AAFES system's. Currently, each of the seven Navy exchange regions associates store items with a different unique SKU code. That procedure makes centralized information processing difficult until a standardized coding scheme is adopted by buyers and store personnel. The standardized coding scheme must then be reflected in all software dealing with orders, inventory, sales, etc. Furthermore, data from the current files must be converted to the new format. Finally, the software conversion is

TABLE D-9

LMI ESTIMATES OF NAVY EXCHANGE INFORMATION SYSTEM ONE-TIME CONVERSION COSTS FROM CONSOLIDATION

Cost area	Year 1			Year 2		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	7,027	7,027	7,027	7,027	7,027	7,027
NCR SW conversion (9150 box)	500	150	80	—	—	—
7-region SKU data conversion	1,025	823	700	1,025	823	700
Financial pkg. conv. and data cross-reference	2,200	1,600	1,200	2,200	1,600	1,200
Training	3,000	1,900	1,500	3,000	1,900	1,500
VDTs, printers, and PCs	2,400	2,200	2,000	2,400	2,200	2,000
VSATs and controllers	1,000	900	800	1,200	1,100	1,000
Navy/AAFES data center upgrade	—	—	—	3,000	2,600	2,000
ASAP hardware	—	—	—	—	—	—
Personnel – HQ	3,500	3,000	2,500	3,500	3,000	2,500
Personnel – Field	2,500	2,100	1,700	2,500	2,100	1,700
ASAP operators	—	—	—	—	—	—
Hardware/software	800	750	700	800	750	700
Telecommunications and satellite	1,700	1,400	1,200	2,400	2,100	1,900
VDT, printer, and mainframe maintenance	—	—	—	300	250	200
Operations/ops maintenance (other)	100	100	100	100	100	100
Total difference from base costs	(11,698)	(7,896)	(5,453)	(15,398)	(11,496)	(8,473)

Cost area	Year 3			Year 4		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	7,027	7,027	7,027	7,027	7,027	7,027
NCR SW conversion (9150 box)	—	—	—	—	—	—
7-region SKU data conversion	—	—	—	—	—	—
Financial pkg. conv. and data cross-reference	—	—	—	—	—	—
Training	—	—	—	—	—	—
VDTs, printers, and PCs	—	—	—	—	—	—
VSATs and controllers	—	—	—	—	—	—
Navy/AAFES data center upgrade	3,000	2,600	2,000	—	—	—
ASAP hardware	4,243	3,600	3,390	4,243	3,600	3,390
Personnel – HQ	2,500	2,000	1,500	1,800	1,400	1,000
Personnel – Field	—	—	—	—	—	—
ASAP operators	900	857	800	1,800	1,713	1,600
Hardware/software	—	—	—	—	—	—
Telecommunications and satellite	2,400	2,100	1,900	1,400	1,200	1,000
VDT, printer, mainframe maintenance	600	500	400	650	550	475
Operations/ops maintenance (other)	—	—	—	—	—	—
Total difference from base costs	(6,616)	(4,630)	(2,963)	(2,866)	(1,436)	(438)

Note: SKU = storekeeping unit; VDT = video display terminal; PC = personal computer; VSAT = very small aperture terminal; ASAP = AAFES store automation project.

expected to permit the inclusion of size and color data in accordance with industry trends.

The recent conversion of the Navy's single Northeast region [merchandising, accounting, and electronic point of sale (EPOS), or files] provides some insight into the costs that may be anticipated. That conversion cost to the Navy for one region was $319. Since only five regions are to be converted (the others will continue as manual systems), the expected cost of converting the five regions is $1,595. To that cost must be added the cost of converting additional Navy Honeywell files to the AAFES-IBM standard. The latter expense involves converting an unknown number of files whose sizes are also unknown. Since we believe that none of the Pick Operating System (POS) files will require movement to the central computer system, we estimate that the cost of moving these extra Honeywell files to another system will be between $100 and $400.

The LMI pessimistic estimate assumes a cost of $350 per region ($1,750) plus $400 for the movement of all other Honeywell files. That totals $2,050 or $1,025 per year. The most likely cost assumes a cost of $319 per region ($1,595) plus $150 for all other Honeywell files. That total is $1,745, or $823 per year. The most optimistic cost estimate assumes that some learning can occur across the regions. This scenario assumes a cost of $300 per region ($1,500) plus a negligible amount for all other Honeywell files for a total cost of $1,400 or $700 per year.

Financial Package Conversion and Vendors' Data Cross-Reference

DoD Study Report, Year 1: $1,555
LMI, Year 1: $1,600 (pessimistic = $2,200; optimistic = $1,200)

DoD Study Report, Year 2: $1,555
LMI, Year 2: $1,600 (pessimistic = $2,200; optimistic = $1,200)

This cost is for the conversion of financial and vendor data files currently resident on the Honeywell computer to an AAFES-IBM environment. It also includes the conversion and major upgrading of the general ledger and other components of the financial system.

The DoD Study Group's conversion cost of $3,100 (for 2 years) was not based on actual experience. Since no detailed work plan has yet been proposed, no precise cost estimates can be made. Without access to more complete information, LMI has had to

assume a most likely cost of $3,200, a pessimistic cost of $4,400 (37.5 percent increase), and an optimistic cost of $2,400 (25 percent decrease).

Training

DoD Study Report, Year 1:$1,900

LMI, Year 1: $1,900 (pessimistic = $3,000; optimistic = $1,500)

DoD Study Report, Year 2:$1,000

LMI, Year 2: $1,900 (pessimistic = $3,000; optimistic = $1,500)

This task involves training software developers in new tools and processes to facilitate the IS conversion and to train store personnel who will be using new equipment in their jobs.

The Navy estimated this cost at $1,900 for the first year and $1,000 for the second. AAFES estimated the training cost at $3,000 for each of 2 years. A second Navy source estimated that a large portion of the training would cost $893. Given the widely divergent estimates of the cost of necessary training, LMI estimated $1,900 a year as the most likely cost, $3,000 a year as the pessimistic cost, and $1,500 as the optimistic cost.

Video Display Terminals, Printers, and PCs

DoD Study Report, Year 1: $2,200

LMI, Year 1: $2,200 (pessimistic = $2,400; optimistic = $1,500)

DoD Study Report, Year 2: $2,200

LMI, Year 2: $2,200 (pessimistic = $2,400; optimistic = $1,500)

TAB B on page C-67 of the DoD study report shows the number of VDTs, printers, and PCs thought to be needed for each of the four sizes of store. It does not specify equipment unit prices nor the necessity of each piece of equipment.

Our pessimistic estimate for both years adds 9 percent to the DoD study's estimate of $2,200. Our optimistic estimate subtracts 32 percent from $2,200 to give $1,500 per year. The optimistic scenario assumes that the price of equipment in this category will continue to decrease and that the quantity of equipment was overestimated slightly in the first place since the number of each equipment type was estimated on the basis of equipment found in AAFES stores of similar size. Until

additional information becomes available, the most likely estimate is the DoD study's estimate of $2,200 per year for each of the 2 years.

Very-Small-Aperture Terminals and Controllers

DoD Study Report, Year 1: $900
LMI, Year 1: $900 (pessimistic = $1,000; optimistic = $800)

DoD Study Report, Year 2: $1,100
LMI, Year 2: $1,100 (pessimistic = $1,200; optimistic = $1,000)

This cost is for communications equipment needed to link exchange locations with the centralized AAFES headquarters computer equipment. It consists of 95 very-small-aperture terminals (VSATs) at $17 each, ($1,615); 95 Comten controllers at $770.64 each ($73.2); and 95 Hub and Backhaul equipment at $2,294 each ($217.9). These costs ($1,906) are those incurred by AAFES to date in providing their stores with such capabilities.

The LMI most likely cost estimate is the DoD Study Group's estimate. The pessimistic estimate is 10 percent greater to cover unanticipated installation expenses. The optimistic estimate is 10 percent less to allow for technology-driven price decreases.

Navy/AAFES Data Center Upgrade

DoD Study Report, Year 2: $2,600
LMI, Year 2: $1,300 (pessimistic = $2,600; optimistic = $780)

DoD Study Report, Year 3: $2,600
LMI, Year 3: $1,300 (pessimistic = $2,600; optimistic = $780)

This upgrade is intended to accommodate the increased data processing load on the AAFES data center as that center assumes the Navy and Marine Corps' data processing workload. The DoD study report estimates that a 50 percent increase in data center cost will be required to handle an approximately 22 percent increase in sales volume. We accept that estimate as a pessimistic value. However, we believe that a 25 percent increase of $1,300 each year is most likely and a 15 percent increase of $780 each year is optimistic.

AAFES Store Automation Project (ASAP) Hardware

DoD Study Report, Year 3: $4,243
LMI, Year 3: $3,600 (pessimistic = $4,243; optimistic = $3,390)

DoD Study Report, Year 4: $4,243
LMI, Year 4: $3,600 (pessimistic = $4,243; optimistic = $3,390)

The ASAP project is directed toward automating certain store functions to provide better service with fewer employees. Its equipment cost estimates are a function of store size, and each store will require a grade UA-9 computer operator. The ASAP equipment costs used in the DoD study report were projected several years ago, and they are expected to be considerably lower today because advances in technology have driven prices down.

We accept the DoD study report estimate of $4,243 for each of 2 years as the pessimistic cost estimate. We believe that a 15 percent decrease to $3,600 is the most likely cost estimate and that a 20 percent decrease to $3,390 is an optimistic cost estimate.

Headquarters Personnel

DoD Study Report, Year 1: $3,000
LMI, Year 1: $3,000 (pessimistic = $3,500; optimistic = $2,500)

DoD Study Report, Year 2: $3,000
LMI, Year 2: $3,000 (pessimistic = $3,500; optimistic = $2,500)

DoD Study Report, Year 3: $2,000
LMI, Year 3: $2,000 (pessimistic = $2,500; optimistic = $1,500)

DoD Study Report, Year 4: $1,400
LMI, Year 4: $1,400 (pessimistic = $1,800; optimistic = $1,000)

Headquarters personnel costs are for staff members needed to oversee data conversion, migration to new application systems, and installation of store VDTs, printers, controllers, VSATs, etc. After Year 2, these employees are to be absorbed into the AAFES Dallas Data Center or other locations.

The absence of detailed requirements makes it difficult to validate the DoD study report estimate of $3,000 for the first 2 years, $2,000 for the third year, and $1,400 for the fourth year. The LMI pessimistic and optimistic estimates, respectively, added or subtracted $500 from the base during the first 3 years and $400 from the base in the fourth year. It is reasonable to expect that by the fourth year, this budget item should be decreased by at least 50 percent as called for by the DoD study report estimates.

Field Personnel

DoD Study Report, Year 1: $2,100
LMI, Year 1: $2,100 (pessimistic = $2,500; optimistic = $1,700)

DoD Study Report, Year 2: $2,100
LMI, Year 2: $2,100 (pessimistic = $2,500; optimistic = $1,700)

Field personnel costs consist of the salaries of FSO data processing operations personnel. The absence of detailed requirements makes it impossible to validate the report estimate of $2,100 for each of the first 2 years. We derived the pessimistic and optimistic estimates, respectively, by adding or subtracting $400 (20 percent) from the base value.

ASAP Operators

DoD Study Report, Year 3: $857
LMI, Year 3: $857 (pessimistic = $900; optimistic = $800)

DoD Study Report, Year 4: $1,713
LMI, Year 4: $1,713 (pessimistic = $1,800; optimistic = $1,600)

Costs for ASAP operators are based on the cost of a single computer operator (UA-9) per CONUS store as the ASAP is implemented during the transition period. We have increased or decreased the DoD study report estimates by a small percentage to yield the pessimistic and optimistic estimates.

Hardware and Software

DoD Study Report, Year 1: $800
LMI, Year 1: $750 (pessimistic = $800; optimistic = $700)

DoD Study Report, Year 2: $800
LMI, Year 2: $750 (pessimistic = $800; optimistic = $700)

These costs are for HQ hardware and software that are to be replaced by the AAFES consolidation in Year 3. The hardware costs are $383 per year, the software maintenance cost is $162 per year, and the HQ operational supplies are $75 per year for a total of $620. We have increased that figure to $750 to allow for unanticipated expenses. The DoD study report estimate ($800) became LMI's pessimistic estimate, and $700 is the optimistic estimate.

Telecommunications and Satellite

DoD Study Report, Year 1: $1,700
LMI, Year 1: $1,400 (pessimistic = $1,700; optimistic = $1,200)

DoD Study Report, Year 2: $2,400
LMI, Year 2: $2,100 (pessimistic = $2,400; optimistic = $1,900)

DoD Study Report, Year 3: $2,400
LMI, Year 3: $2,100 (pessimistic = $2,400; optimistic = $1,900)

DoD Study Report, Year 4: $1,400
LMI, Year 4: $1,200 (pessimistic = $1,400; optimistic = $1,000)

These estimates cover the current leased telecommunications lines connecting each FSO with its stores and the satellite rental for CONUS and overseas line costs as the consolidation is completed. Scant supporting evidence is available for this expense category, and LMI has reduced its estimates slightly from those of the report. In each case, the report value has become the LMI pessimistic value and the optimistic value is 20 percent to 30 percent less than the report value.

Video Display Terminal, Printers, and Mainframe Maintenance

DoD Study Report, Year 2: $300
LMI, Year 2: $250 (pessimistic = $300; optimistic = $200)

DoD Study Report, Year 3: $600
LMI, Year 3: $500 (pessimistic = $600; optimistic = $400)

DoD Study Report, Year 4: $600

LMI, Year 4: $550 (pessimistic = $650; optimistic = $475)

Because the equipment being maintained will have been recently installed, LMI has reduced early maintenance cost estimates to slightly below those of the DoD study report and increased the cost estimates for Year 4 to slightly above those of the DoD study when maintenance costs may begin to be a more important consideration.

Operations and Operational Maintenance (Other)

DoD Study Report, Year 1: $100

LMI, Year 1: $100 (pessimistic = $100; optimistic = $100)

DoD Study Report, Year 2: $100

LMI, Year 2: $100 (pessimistic = $100; optimistic = $100)

These costs are for maintaining the required complement of equipment to support the Navy IS conversion as implemented. Since AAFES has experience with these cost estimates at its own sites, we accepted the DoD study report amounts as reasonable.

Separate Navy Information System Modernization

The estimated one-time costs of a separate Navy modernization of its exchange information system are summarized in Table D-10.

NOTE: UNLESS OTHERWISE STATED, ALL DOLLAR VALUES ARE GIVEN IN THOUSANDS OF DOLLARS (E.G., $330 IN $330,000, AND $1,300 IS $1,300,000) IN THE TEXT OF THIS APPENDIX AND IN THE TABLES.

Seven-Region SKU Data Conversion

DoD Study Report, Year 1: $1,595

LMI, Year 1: $923 (pessimistic = $1,125; optimistic = $800)

DoD Study Report, Year 2: $1,595

LMI, Year 2: $923 (pessimistic = $1,125; optimistic = $800)

These costs are for the conversion of SKU data from an inconsistent naming convention to a standardized one. Currently, each of the seven Navy regions associates store items with different SKU codes. (See the section in this appendix on "Seven-Region Storekeeping Unit Data Conversion" under the costs of consolidation scenario).

The recent conversion of the Navy's single Northeast region (merchandising, accounting, and EPOS files) provides some insight into the costs that may be anticipated. This conversion cost the Navy $319 for one region. Since only five regions are to be converted (the others will continue as manual systems), the expected cost of converting the five regions is $1,595. To that cost must be added the cost of converting additional Navy Honeywell files to a standard. The latter expense involves converting an unknown number of files whose sizes are also unknown. Since we believe that none of the POS files will require movement to the central computer system, we estimate that the cost of moving these extra Honeywell files to a new system will be between $100 and $500.

The LMI pessimistic estimate assumes a cost of $350 per region ($1,750) plus $500 for the movement of all other Honeywell files. That totals $2,250, or $1,125 per year. The most likely cost assumes a cost of $319 per region plus $250 for all other Honeywell files. That total is $1,845, or $923 per year. The most optimistic cost estimate assumes that some learning can occur across the regions. This scenario assumes a cost of $300 per region ($1,500) plus $100 for all other Honeywell files for a total cost of $1,600, or $800 per year.

Financial Package Conversion and Vendors' Data Cross-Reference

DoD Study Report, Year 1: $1,555
LMI, Year 1: $1,600 (pessimistic = $2,200; optimistic = $1,200)

DoD Study Report, Year 2: $1,555
LMI, Year 2: $1,600 (pessimistic = $2,200; optimistic = $1,200)

This cost is for the conversion of financial and vendor data files currently resident on the Honeywell Computer. It also includes the conversion and major upgrading of the general ledger and other components of the financial system. (An explanation of this cost is presented in the subsection on "Financial Package Conversion and Vendors' Data Cross-Reference" on page D-23 of this appendix).

TABLE D-10

LMI ESTIMATED ONE-TIME CONVERSSION COSTS OF A SEPARATE NAVY MODERNIZATION OF ITS EXCHANGE INFORMATION SYSTEM

Cost area	Year 1			Year 2		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	7,027	7,027	7,027	7,027	7,027	7,027
Old system operations	7,500	7,027	6,800	7,500	7,027	6,800
7-region SKU data conversion	1,125	923	800	1,125	923	800
Financial pkg. and data cross-reference	2,200	1,600	1,200	2,200	1,600	1,200
New system data processing service	2,500	2,350	2,000	2,500	2,350	2,000
Network management	600	500	400	600	500	400
Software maintenance	500	450	400	500	450	400
Additional CRTs and conversion boards	120	60	40			
EPOS CPUs	86	84	80	84	80	75
HQ processor	40	35	32			
Personnel – NAVRESSO transition (burdened)	1,300	1,001	780	1,300	1,001	780
Personnel – NAVRESSO modify ADP operations (burdened)						
Personnel – HQ and field						
Telecommunications	1,200	1,000	900	1,200	1,000	900
Outsourcing						
Software license fees						
Software acquisition fo. migration						
Service bureau migration						
Training	3,000	1,900	1,500	3,000	1,900	1,200
Speciality retail						
HW/SW maintenance and operating supplies						
Total difference from base cost	(13,144)	(9,903)	(7,905)	(12,982)	(9,804)	(7,528)

Cost area	Year 3			Year 4			Year 5		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	7,027	7,027	7,027	7,027	7,027	7,027	7,027	7,027	7,027
Old system operations									
7-region SKU data conversion									
Financial pkg. and data cross-reference									
New system data processing service									
Network management									
Software maintenance									
Additional CRTs and conversion boards									
EPOS CPUs									
HQ processor									
Personnel – NAVRESSO transition (burdened)									
Personnel – NAVRESSO modify ADP operations (burdened)	1,225	1,021	816	1,225	1,021	816	1,599	1,333	1,066
Personnel – HQ and field	2,225	1,934	1,644	2,225	1,934	1,644	2,071	1,801	1,530
Telecommunications	1,200	1,000	900	1,200	1,000	900	1,200	1,000	900
Outsourcing	13,000	12,900	12,000	13,000	12,900	12,000	13,000	12,900	12,000
Software license fees	8	7	6	30	27	24	36	33	30
Software acquisition for migration				2,625	2,625	2,625			
Service bureau migration				800	344	200	1,000	800	700
Training									
Speciality retail	750	665	600	2,225	1,300	1,300	2,225	1,300	1,300
HW/SW maintenance and operating supplies	150	120	100	150	120	100	150	120	100
Total difference from base cost	(11,3[illegible])	(10,500)	(8,940)	(16,302)	(14,124)	(12,483)	(14,104)	(12,139)	(10,499)

Note: CRT = cathode-ray tube

New System Data Processing Service

DoD Study Report, Year 1: $ N/A
LMI, Year 1: $2,350 (pessimistic = $2,500; optimistic = $2,000)

DoD Study Report, Year 2: $ N/A
LMI, Year 2: $2,350 (pessimistic = $2,500; optimistic = $2,000)

Our costs for data processing service for the new system were based on several "information quotes" provided by major vendors; we examined those quotes at NAVRESSO Headquarters.

Network Management

DoD Study Report, Year 1: $500
LMI, Year 1: $500 (pessimistic = $600; optimistic = $400)

DoD Study Report, Year 2: $500
LMI, Year 2: $500 (pessimistic = $600; optimistic = $400)

Our costs for network management are also based on the information quotes we examined at NAVRESSO Headquarters.

Software Maintenance

DoD Study Report, Year 1: $450
LMI, Year 1: $450 (pessimistic = $500; optimistic = $400)

DoD Study Report, Year 2: $450
LMI, Year 2: $450 (pessimistic = $500; optimistic = $400)

The costs for software maintenance were taken from "information quotes" provided by vendors; we examined those quotes at NAVRESSO Headquarters.

Additional CRTs and Conversion Boards

DoD Study Report, Year 1: $60
LMI, Year 1: $60 (pessimistic = $120; optimistic = $40)

These costs are for extra in-store equipment needed to communicate with the upgraded "backroom" processor. Because the pricing for this equipment is not yet firm, we estimated the pessimistic cost to be $120 and the optimistic cost to be $40.

EPOS Central Processing Units

DoD Study Report, Year 1: $84
LMI, Year 1: $84 (pessimistic = $86; optimistic = $80)

DoD Study Report, Year 2: $84
LMI, Year 2: $84 (pessimistic = $86; optimistic = $80)

This cost is for replacing the current NCR 9150 "backroom" processor with two IBM 80286-compatible computers to collect data from POS terminals, store those data, and upload them to a central HQ minicomputer. The estimates include the cost of cabling and necessary software.

Headquarters Processor

DoD Study Report, Year 1: $40
LMI, Year 1: $35 (pessimistic = $40; optimistic = $32)

These costs are for the purchase and installation of a minicomputer at NAVRESSO Headquarters to consolidate data from all stores so that necessary reports can be generated from current and historical data. Since the original request for proposals (RFP) was issued, minicomputer costs have decreased; therefore, LMI's pessimistic cost estimate is $40 and the optimistic cost estimate is $32.

Personnel – NAVRESSO Transition

DoD Study Report, Year 1: $1,001
LMI, Year 1: $1,001 (pessimistic = $1,300; optimistic = $780)

DoD Study Report, Year 2: $1,001
LMI, Year 2: $1,001 (pessimistic = $1,300; optimistic = $780)

This estimate is the burdened cost of personnel needed to convert from the current NAVRESSO system to an "outsourcing" vendor. Costs include systems programmers, applications programmers, systems analysts, and data base

administrators. Since the actual scope of work has not yet been defined, we have assigned a pessimistic estimate of $1,300 and an optimistic estimate of $780.

Personnel – NAVRESSO Modify Automatic Data Processing Operations

DoD Study Report, Year 3: $1,021 (burdened)
LMI, Year 3: $1,021 (pessimistic = $1,225; optimistic = $816)

DoD Study Report, Year 4: $1,021 (burdened)
LMI, Year 4: $1,021 (pessimistic = $1,225; optimistic = $816)

DoD Study Report, Year 5: $1,333 (burdened)
LMI, Year 5: $1,333 (pessimistic = $1,599; optimistic = $1,066)

The costs cited here are for HQ expenses for applications programmers, functional analysts, systems analysts, data base administrators, computer operators, and telecommunications specialists to develop and modify the software running on the HQ minicomputer that processes the data collected by the outsourcing vendor or the service bureau. Year 5 is expected to require additional expenses for telecommunications specialists.

Personnel – Headquarters and Field

DoD Study Report, Year 3: $1,934
LMI, Year 3: $1,934 (pessimistic = $2,225; optimistic = $1,644)

DoD Study Report, Year 4: $1,934
LMI, Year 4: $1,934 (pessimistic = $2,225; optimistic = $1,644)

DoD Study Report, Year 5: $1,801
LMI, Year 5: $1,801 (pessimistic = $2,071; optimistic = $1,530)

Headquarters personnel consist of applications programmers, functional analysts, systems analysts, data base administrators, computer operators, and telecommunications specialists. Field personnel consist of repairmen maintaining EPOS terminals, printers, "backroom" computers, and other related equipment throughout the exchange system. Since detailed work estimates cannot yet be defined, our cost estimates range from a pessimistic $2,225 in Years 3 and 4 to an

optimistic $1,644 in the same years. Costs are expected to decline slightly in Year 5 since most of the needed software is expected to have been developed by that time.

Telecommunications

DoD Study Report, Year 1: $1,000
LMI, Year 1: $1,000 (pessimistic = $1,200; optimistic = $900)

DoD Study Report, Year 2: $1,000
LMI, Year 2: $1,000 (pessimistic = $1,200; optimistic = $900)

DoD Study Report, Year 3: $1,000
LMI, Year 3: $1,000 (pessimistic = $1,200; optimistic = $900)

DoD Study Report, Year 4: $1,000
LMI, Year 4: $1,000 (pessimistic = $1,200; optimistic = $900)

DoD Study Report, Year 5: $1,000
LMI, Year 5: $1,000 (pessimistic = $1,200; optimistic = $900)

These costs are the telephone line charges to connect stores with HQ and outsourcing vendors or service bureaus. The estimates are based on current expenditures.

Outsourcing

DoD Study Report, Year 3: $12,900
LMI, Year 3: $12,900 (pessimistic = $13,000; optimistic = $12,000)

DoD Study Report, Year 4: $12,900
LMI, Year 4: $12,900 (pessimistic = $13,000; optimistic = $12,000)

DoD Study Report, Year 5: $12,900
LMI, Year 5: $12,900 (pessimistic = $13,000; optimistic = $12,000)

Outsourcing costs consist of all daily operations costs for a service bureau to replace the current NAVRESSO financial, merchandising, distribution, and human resources IS processing. Our estimates for outsourcing are based on NAVRESSO "informational inquiries" that we examined and discussed with NAVRESSO IS personnel.

Software License Fees

DoD Study Report, Year 3: $7
LMI, Year 3: $7 (pessimistic = $8; optimistic = $6)

DoD Study Report, Year 4: $27
LMI, Year 4: $27 (pessimistic = $30; optimistic = $24)

DoD Study Report, Year 5: $33
LMI, Year 5: $33 (pessimistic = $36; optimistic = $30)

The expenditures cited here are for license fees for the selected service bureau's software that will be used to process NAVRESSO's financial, merchandising, distribution, and human resources data. As years go by, more modules are incorporated into the system and license fees increase. Our estimates are based on a percentage of the software acquisition costs.

Software Acquisition for Migration

DoD Study Report, Year 4: $2,625
LMI, Year 4: $2,625 (pessimistic = $2,625; optimistic = $2,625)

This cost is for a one-time expenditure of $2,625 to purchase software in Year 4 for NAVRESSO's financial, merchandising, distribution, and human resources IS processing. These costs are also based on vendor information provided to NAVRESSO.

Service Bureau Migration

DoD Study Report, Year 4: $344
LMI, Year 4: $344 (pessimistic = $800; optimistic = $200)

DoD Study Report, Year 5: $800
LMI, Year 5: $800 (pessimistic = $1,000; optimistic = $700)

These costs include moving the software used in Year 3 for NAVRESSO's financial, merchandising, distribution, and human resources IS processing to a new service bureau. The costs include software installation, data base installation, and labor for data base administrators, systems programmers, telecommunication specialists, and trainers. In Year 5, the cost also includes a telecommunications refit.

Training

DoD Study Report, Year 1: $1,900
LMI, Year 1: $1,900 (pessimistic = $3,000; optimistic = $1,500)

DoD Study Report, Year 2: $1,000
LMI, Year 2: $1,900 (pessimistic = $3,000; optimistic = $1,500)

The costs cited here are for training software developers in new tools and processes to facilitate the conversion and for training store personnel who will be using new equipment in their jobs. The Navy estimated this cost at $1,900 for Year 1 and $1,000 for Year 2; AAFES estimated the training cost at $3,000 for each of these years. A second Navy source estimated that a large portion of the training would cost $893. Given the widely divergent estimates of the cost of necessary training, we estimated $1,900 a year as the most likely cost, $3,000 a year as the most pessimistic cost, and $1,500 a year as the most optimistic cost.

Specialty Retail

DoD Study Report, Year 3: $665
LMI, Year 3: $665 (pessimistic = $750; optimistic = $600)

DoD Study Report year 4: $1,300
LMI, Year 4: $1,300 (pessimistic = $2,225; optimistic = $1,300)

DoD Study Report, Year 5: $1,300
LMI, Year 5: $1,300 (pessimistic = $2,225; optimistic = $1,300)

These are one-time equipment and labor costs to establish PC-based POS terminals for food service, package stores, video rental, auto service, and convenience stores and are based on the number of specialty stores in the NAVRESSO system.

Hardware and Software Maintenance and Operating Supplies

DoD Study Report, Year 3: $120
LMI, Year 3: $120 (pessimistic = $150; optimistic = $100)

DoD Study Report, Year 4: $120
LMI, Year 4: $120 (pessimistic = $150; optimistic = $100)

DoD Study Report, Year 5: $120

LMI, Year 5: $120 (pessimistic = $150; optimistic = $100)

These costs are for headquarters hardware and software maintenance and for operating supplies from the time of outsourcing through transition to, and operation by, the service bureau.

Annual Recurring Navy Information System Benefits from Consolidation

The annual recurring Navy IS benefits from consolidation are summarized in Table D-11. The steady-state portions of the separate Navy IS modernization costs are subtracted from the consolidated steady-state IS costs to yield the net annual recurring IS benefits from consolidation.

Headquarters Personnel

LMI steady-state costs beginning Year 5: $1,400 (pessimistic = $1,600; optimistic = $1,100)

These costs are for increasing the AAFES IS staff in proportion to the sales dollars to accommodate the increased workload. Since we believe the assumption to be slightly pessimistic, our range on the optimistic side is greater than our range on the pessimistic side.

ASAP Computer Operators

LMI steady-state costs beginning Year 5: $1,713 (pessimistic = $1,800; optimistic = $1,500)

Our discussions with the DoD Study Group staff confirmed that these costs are reasonably appropriate for this item. The LMI pessimistic value is 5 percent higher than the most likely estimate, and its optimistic value is 12 percent less than the most likely estimate.

Satellite/Line Rental

LMI steady-state costs beginning Year 5: $1,400 (pessimistic = $1,500; optimistic = $1,100)

TABLE D-11

ANNUAL RECURRING NAVY IS BENEFITS (COSTS) FROM CONSOLIDATION

Navy IS consolidation (steady-state periods)	Steady-state pessimistic	Steady-state most likely	Steady-state optimistic
Headquarters personnel	1,600	1,400	1,100
ASAP computer operations	1,800	1,713	1,500
Satellite/line rental	1,500	1,400	1,100
VDT, printer, mainframe maintenance	800	600	400
Headquarters operating supplies	30	25	20
Total steady-state costs	5,730	5,138	4,120
Navy IS modernization (steady-state periods)	**Steady-state pessimistic**	**Steady-state most likely**	**Steady-state optimistic**
Service bureau charges			
Basic service	3,800	3,360	3,000
Volume charge	150	120	100
Basic software maintenance	400	394	210
Software extensions	140	65	0
Telecommunications	1,200	1,000	900
Headquarters personnel	2,161	1,801	1,440
Field personnel	400	360	320
Headquarters hardware/software maintenance	30	20	15
Headquarters operating supplies	120	100	70
Equipment maintenance	400	300	150
Total steady-state costs	8,801	7,520	6,205
Consolidation yearly benefits over Navy modernization	3,071	2,382	2,085

The expenditures cited here are based on AAFES current costs for such services; however, such costs are highly variable. The LMI pessimistic value is 7 percent higher than the most likely estimate, and the optimistic value is 21 percent less than the most likely estimate.

Video Display Terminal, Printer, and Mainframe Maintenance

LMI steady-state costs beginning Year 5: $600 (pessimistic = $800; optimistic = $400)

Our discussions with the DoD Study Group staff confirmed that our estimated costs for this maintenance are reasonably appropriate. Therefore, we assumed the cost from the DoD study report as the most likely cost. Because the equipment being maintained will have been installed for 4 years, we estimate the pessimistic case as being 33 percent greater than the most likely estimate as maintenance becomes more and more important. The optimistic estimate is 33 percent less than the most likely estimate.

Headquarters Operating Supplies

LMI steady-state costs beginning Year 5: $25 (pessimistic = $30; optimistic = $20)

These are the costs for increasing the AAFES consumable IS supplies in proportion to the sales dollars to accommodate the increased workload.

Service Bureau Charges

This is the first category of Navy separate IS modernization in Table D-11.

LMI steady-state costs beginning Year 6:

- Basic service: $3,360 (pessimistic = $3,800; optimistic = 3,000)
- Volume charge: $120 (pessimistic = $150; optimistic = $100)
- Basic software maintenance: $394 (pessimistic = $400; optimistic = $210)
- Software extensions: $65 (pessimistic = $140; optimistic = $0)

The Navy long-run IS modernization plan hinges on using an outside computer service bureau to perform a majority of the Navy's routine processing functions. Only limited managerial decision support and report processing would be performed in

house at NAVRESSO headquarters on a minicomputer. We have selected as the most likely service bureau charges the Navy estimates based on unofficial information quotes provided by major service bureaus. We reviewed those quotes and found them to be reasonable although potentially highly variable, as reflected in our pessimistic and optimistic ranges.

Telecommunications

LMI steady-state costs beginning Year 6: $1,000 (pessimistic = $1,200; optimistic = $900)

These costs are the telephone line charges to connect stores with headquarters and the service bureau. The estimates are based on current expenditures.

Headquarters Personnel

LMI steady-state costs beginning Year 6: $1,801 (pessimistic = $2,161; optimistic = $1,441)

The most likely estimate was provided by the Navy and reflects its move to an outside service bureau. With a service bureau, fewer HQ IS staff would be required than are now employed by the HQ and regional office divisions. We added a 20 percent range on either side to account for excess staff potential on the pessimistic side and economies of scale in downsizing potential on the optimistic side.

Field Personnel

LMI steady-state costs beginning Year 6: $360 (pessimistic = $400; optimistic = $320)

The most likely estimate was provided by the Navy and is consistent with the Navy's planned IS organization under outsourcing and a reduction in the number of regional offices.

Headquarters Hardware and Software Maintenance

LMI steady-state costs beginning Year 6: $20 (pessimistic = $30; optimistic = $15)

These expenditures are needed to maintain at HQ the minicomputer hardware and software that would be used for decision support and report generation. We find them reasonable and relatively small in comparison to the total IS budget.

Headquarters Operating Supplies

LMI steady-state costs beginning Year 6: $100 (pessimistic = $120; optimistic = $70)

These relatively small costs are for consumable IS supplies, given that most IS processing will be "outsourced."

Equipment Maintenance

LMI steady-state costs beginning Year 6: $300 (pessimistic = $400; optimistic = $150)

In-store equipment will still be owned by the Navy Exchange under outsourcing, and the exchange must continue to maintain that equipment. The cost estimates presented here are based on current expenditures.

Marine Corps IS Cost Estimates: One-Time Conversion Costs from Consolidation

One-time conversion costs of consolidated Marine Corps exchange ISs into the AAFES IS are summarized in Table D-12 for each of 4 years. Those costs are explained in the following subsections.

Headquarters Personnel

DoD Study Report, Year 1: $1,100
LMI, Year 1: $1,100 (pessimistic = $1,200; optimistic = $1,000)

DoD Study Report, Year 2: $1,100
LMI, Year 2: $1,100 (pessimistic = $1,200; optimistic = $1,000)

DoD Study Report, Year 3: $300
LMI, Year 3: $300 (pessimistic = $350; optimistic = $250)

DoD Study Report, Year 4: $100
LMI, Year 4: $100 (pessimistic = $125; optimistic = $75)

TABLE D-12

LMI ESTIMATES OF MARINE CORPS EXCHANGE INFORMATION SYSTEM ONE-TIME CONVERSION COSTS FROM CONSOLIDATION

Cost area	Year 1			Year 2		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	4,800	4,800	4,800	4,800	4,800	4,800
Headquarters personnel	1,200	1,100	1,000	1,200	1,100	1,000
Field personnel	2,400	2,200	2,100	2,400	2,200	2,100
SKU and other data conversion	1,400	1,150	900	1,400	1,150	900
Training	600	400	300			
Store VDTs and printers	450	400	350	550	500	450
Store VSATs and controllers				250	200	175
MC/AAFES data center upgrade				450	400	350
ASAP hardware						
ASAP computer operators						
Hardware/software	600	500	400	600	500	400
Telecommunications	125	100	80	125	100	80
Satellite/line rental	125	100	80	125	100	80
Operations/ops maintenance (other)	650	600	575	650	600	575
VDT, printer, and mainframe maintenance	220	200	180	220	200	180
Total difference from base costs	(2,970)	(1,950)	(1,165)	(3,170)	(2,250)	(1,490)

Cost area	Year 3			Year 4		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	4,800	4,800	4,800	4,800	4,800	4,800
Headquarters personnel	350	300	250	125	100	75
Field personnel						
SKU and other data conversion						
Training						
Store VDTs and printers						
Store VSATs and controllers	125	100	85			
MC/AAFES data center upgrade	350	300	250			
ASAP Hardware	1,300	1,143	1,000	1,300	1,143	1,000
ASAP computer operators	300	261	240	580	521	480
Hardware/software						
Telecommunications						
Satellite/line rental	230	200	160	230	200	160
Operations/ops maintenance (other)						
VDT, printer, and mainframe maintenance	240	200	180	250	200	180
Total difference from base costs	1,905	2,296	2,635	2,315	2,636	2,905

A portion of the headquarters personnel cost is for disentangling the exchange data files from the combined exchange morale, welfare, and recreation (MWR) application system. This cost also includes the costs of data conversion, migration to new application systems, and installation of store and communication equipment. Our discussions with Marine Corps Headquarters exchange IS staff regarding the tasks involved led us to accept the original DoD study report figures as the most likely estimates.

Field Personnel

DoD Study Report, Year 1: $2,200
LMI, Year 1: $2,200 (pessimistic = $2,400; optimistic = $2,100)

DoD Study Report, Year 2: $2,200
LMI, Year 2: $2,200 (pessimistic = $2,400; optimistic = $2,100)

Field personnel are data processing operations personnel currently working at the store level. Our discussions with Marine Corps Headquarters exchange IS staff regarding the tasks involved led us to accept the original DoD report figures as the most likely estimates.

SKU and Other Data Conversion

DoD Study Report, Year 1: $1,150
LMI, Year 1: $1,150 (pessimistic = $1,400; optimistic = $900)

DoD Study Report, Year 2: $1,150
LMI, Year 2: $1,150 (pessimistic = $1,400; optimistic = $900)

The costs cited here are for the conversion of SKU data from an inconsistent naming convention across stores to a standardized one. Currently, each of the 19 Marine Corps exchanges associates unique store items with possibly several unique SKU codes. The new coding scheme must be uniformly adopted by buyers and store personnel, and it must be reflected in all software dealing with orders, inventory, sales, etc. The data from the current files must also be converted to the new format. Finally, the software conversion is expected to permit the inclusion of size and color data in accordance with industry trends. Our discussions with Marine Corps Headquarters exchange IS staff regarding the tasks involved led us to accept the original DoD report figures as the most likely estimates.

Training

DoD Study Report, Year 1: $300
LMI, Year 1: $1,140 (pessimistic = $1,800; optimistic = $900)

The costs cited here are for training software developers to use new tools and processes to facilitate the data and software conversions and for training store personnel who will be using new equipment in their jobs.

The Marine Corps has about 30 percent as many stores as the Navy. Assuming that the number of people per store is approximately the same (the Marines have slightly fewer large stores), the Marine training budget should be about 30 percent that of the Navy. AAFES estimated the Navy's training costs to be $3,000 for each of 2 years, while the Navy estimated its training costs as only $1,900 each year. We accepted the Navy estimate as the most likely and the AAFES estimate as the pessimistic cost and took $1,500 as the optimistic cost.

LMI's pessimistic estimate for 2 years is therefore 30 percent of $6,000 or $1,800. The most likely estimate for 2 years is 30 percent of $3,800 or $1,140. The most optimistic estimate is 30 percent of $3,000 or $900.

Store Video Display Terminals and Printer Equipment

DoD Study Report, Year 1: $400
LMI, Year 1: $400 (pessimistic = $450; optimistic = $350)

DoD Study Report, Year 2: $500
LMI, Year 2: $500 (pessimistic = $550; optimistic = $450)

These expenses are store equipment costs for VDTs, printers, and PCs. Table B on page C-67 of the DoD study report shows the number of devices needed for each of the four sizes of stores. Our discussions with DoD Study Group staff confirmed that these are reasonably appropriate expenditures for this item.

Our pessimistic estimates add about 11 percent to the Marine Corps' estimate to total $1,000 over 2 years compared to the $968 found in Table B, page C-67, of the DoD study report. LMI's most likely estimate for the 2 years is the Marine Corps' estimate of $900. The optimistic estimate assumes a technology-driven price decrease of about 11 percent to only $800.

AD-A255 738 TOWARD A MORE EFFICIENT MILITARY EXCHANGE SYSTEM(U) 2/2
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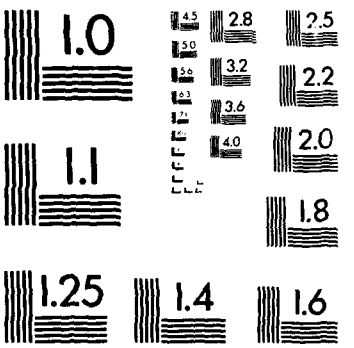
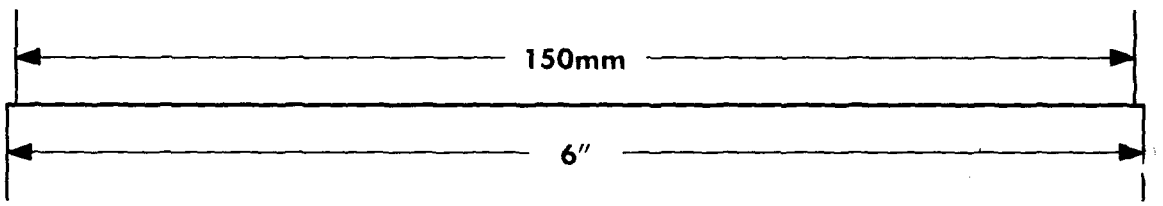
IMAGE EVALUATION TEST TARGET (MT-3)





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Store VSATs and Controllers

DoD Study Report, Year 2: $200
LMI, Year 2: $200 (pessimistic = $250; optimistic = $175)

DoD Study Report, Year 3: $100
LMI, Year 3: $100 (pessimistic = $125; optimistic = $85)

Communications equipment needed to link exchange locations with the centralized AAFES headquarters computer equipment consists of 14 VSATs at $17,000 each, 14 Comte controllers at $770.64 each, and 14 hub and backhaul equipments at $2,294 each.

Our most likely estimate is the same as that of the DoD study report. The pessimistic estimate is 25 percent greater to allow for unanticipated installation expenses. The optimistic estimate is 13 percent less to allow for technology-driven price decreases.

MC/AAFES Data Center Upgrade

DoD Study Report, Year 2: $400
LMI, Year 2: $416 (pessimistic = $520; optimistic = $364)

DoD Study Report, Year 3: $300
LMI, Year 3: $416 (pessimistic = $520; optimistic = $364)

This cost is intended to accommodate the increased data processing load on the AAFES data center as it assumes the Marine Corps data processing workload. The DoD study report estimates that 50 percent in data center costs will be required to accommodate the 36 percent increase in sales volume resulting from the AAFES-Navy-Marine Corps consolidation. If the cost of the data center upgrade is proportional to the increase in sales volume, the Marine Corps, with $0.56 billion, will increase the $6.77 billion AAFES program by 8 percent. Thus, the most likely upgrade cost will be 8 percent of the data center cost of $10,400 or $832 ($416 in each of 2 years). The pessimistic estimate is 10 percent increase in cost or $1,040 ($520 each year); the optimistic cost is 7 percent increase or $728 ($364 each year).

ASAP Hardware

DoD Study Report, Year 3: $1,143
LMI, Year 3: $972 (pessimistic = $1,143; optimistic = $915)

DoD Study Report, Year 4: $1,143
LMI, Year 4: $972 (pessimistic = $1,143; optimistic = $915)

The ASAP is intended to automate certain store functions to provide better service with fewer employees. Its equipment costs are estimated by store size, and each store will require a grade UA-9 computer operator. The ASAP equipment costs used in the DoD study report were projected several years ago; they are expected to be significantly lower today because of lower technology-driven prices.

Given current knowledge, LMI accepts the DoD report estimate of $1,143 for each of 2 years as the pessimistic cost estimate. We believe that a 15 percent decrease to $972 yearly is the most likely cost and that a 20 percent decrease to $915 yearly is optimistic.

ASAP Computer Operators

DoD Study Report, Year 3: $261
LMI, Year 3: $261 (pessimistic = $300; optimistic = $240)

DoD Study Report, Year 4: $521
LMI, Year 4: $521 (pessimistic = $580; optimistic = $480)

This is for the cost of a single computer operator (UA-9) for each CONUS store as the ASAP is implemented during the transition period. The DoD report estimates have been increased by approximately 12 percent to yield the pessimistic estimate and decreased by about 8 percent to yield the optimistic estimates.

Hardware and Software

DoD Study Report, Year 1: $500
LMI, Year 1: $500 (pessimistic = $600; optimistic = $400)

DoD Study Report, Year 2: $500
LMI, Year 2: $500 (pessimistic = $600; optimistic = $400)

These costs include the headquarters hardware and software that are being replaced by the AAFES consolidation in Year 3. The pessimistic amount has been increased by LMI to $600 to allow for unanticipated expenses. The DoD study report estimate became LMI's most likely estimate, and $400 is the optimistic estimate.

Telecommunications

DoD Study Report, Year 1: $100
LMI, Year 1: $100 (pessimistic = $125; optimistic = $80)

DoD Study Report, Year 2: $100
LMI, Year 2: $100 (pessimistic = $125; optimistic = $80)

These costs mirror the current expenses for the leased telecommunications lines connecting HQ with each store.

Satellite and Line Rental

DoD Study Report, Year 1: $100
LMI, Year 1: $100 (pessimistic = $125; optimistic = $80)

DoD Study Report, Year 2: $100
LMI, Year 2: $100 (pessimistic = $125; optimistic = $80)

DoD Study Report, Year 3: $200
LMI, Year 3: $200 (pessimistic = $230; optimistic = $160)

DoD Study Report, Year 4: $200
LMI, Year 4: $200 (pessimistic = $230; optimistic = $160)

These expenses reflect current expenses for this type of service. The optimistic and pessimistic range reflect our expectation that volume and/or usage charges will vary under consolidation.

Operations and Operations Maintenance (Other)

DoD Study Report, Year 1: $600
LMI, Year 1: $600 (pessimistic = $650; optimistic = $575)

DoD Study Report, Year 2: $600
LMI, Year 2: $600 (pessimistic = $650; optimistic = $575)

Our discussions with DoD Study Group staff regarding the tasks involved led us to accept the original DoD report figures as the most likely estimates. The pessimistic estimate is the most likely plus 8 percent, and the optimistic is the most likely minus 4 percent.

Video Display Terminal, Printer, and Mainframe Maintenance

DoD Study Report, Year 1: $200
LMI, Year 1: $200 (pessimistic = $220; optimistic = $180)

DoD Study Report, Year 2: $200
LMI, year 2: $200 (pessimistic = $220; optimistic = $180)

DoD Study Report, Year 3: $200
LMI, Year 3: $200 (pessimistic = $240; optimistic = $180)

DoD Study Report, Year 4: $200
LMI, Year 4: $200 (pessimistic = $250; optimistic = $180)

Because the equipment being maintained will have been recently installed, LMI estimates the pessimistic case as being 10 percent greater than the DoD study report estimate in Years 1 and 2, and 15 percent and 20 percent greater in Years 3 and 4, respectively, as maintenance becomes more important. In all 4 years, the optimistic estimate is 10 percent below the DoD report estimate.

Separate Marine Corps Information System Modernization

The estimated one-time costs of a separate U.S. Marine Corps modernization of its exchange IS are summarized in Table D-13.

Scanning Hardware

DoD Study Report, Year 1: $1,000
LMI, Year 1: $1,000 (pessimistic = $1,100; optimistic = $900)

DoD Study Report, Year 2: $900
LMI, Year 2: $900 (pessimistic = $1,000; optimistic = $800)

TABLE D-13

LMI ESTIMATED ONE-TIME CONVERSION COSTS OF A SEPARATE MARINE CORPS MODERNIZATION OF ITS EXCHANGE INFORMATION SYSTEM

Cost area	Year 1			Year 2		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	4,800	4,800	4,800	4,800	4,800	4,800
Scanning hardware	1,100	1,000	900	1,000	900	800
Minicomputers/OTS accounting software/UNIX shell	2,300	2,200	2,100	2,400	2,300	2,100
Software enhancements	1,200	900	800	1,000	900	800
Old system operation	4,100	3,700	3,500	3,200	2,600	2,400
Telecommunications	110	100	90	110	100	90
Total difference from base cost	(4,010)	(3,100)	(2,590)	(2,910)	(2,000)	(1,390)
Cost area	Year 3			Year 4		
	Pessimistic	Most likely	Optimistic	Pessimistic	Most likely	Optimistic
Base cost	4,800	4,800	4,800	4,800	4,800	4,800
Scanning hardware						
Minicomputers/OTS accounting software/UNIX shell						
Software enhancements	1,000	900	800	1,000	800	800
Old system operation	2,400	2,000	1,800	2,000	1,700	1,500
Telecommunications	105	95	85	105	95	85
Total difference from base cost	(1,295)	(1,805)	(2,115)	(1,695)	(2,205)	(2,415)

Note: OTS = off the shelf.

The costs here are those incurred in adding scanner equipment to cash registers to improve customer service and reduce expenses. We believe the DoD report estimates of 900 units at $2 per unit, or $1,800, is reasonable.

Minicomputers Off-the-Shelf UNI-Based Accounting System

DoD Study Report, Year 1: $2,200

LMI, Year 1: $2,200 (pessimistic = $2,300; optimistic = $2,100)

DoD Study Report, Year 2: $2,300

LMI, Year 2: $2,300 (pessimistic = $2,400; optimistic = $2,100)

The costs cited here are for the purchase and installation of minicomputers running an off-the-shelf UNIX-based accounting system. Our discussions with

Marine Corps Headquarters exchange IS staff regarding the tasks involved led us to accept the DoD study report figures as the most likely estimates.

Software Enhancements

DoD Study Report, Year 1: $900
LMI, Year 1: $900 (pessimistic = $1,200; optimistic = $800)

DoD Study Report, Year 2: $900
LMI, Year 2: $900 (pessimistic = $1,200; optimistic = $800)

DoD Study Report, Year 3: $900
LMI, Year 3: $900 (pessimistic = $1,200; optimistic = $800)

DoD Study Report, Year 4: $900
LMI, Year 4: $900 (pessimistic = $1,200; optimistic = $800)

These costs are for software enhancements to accounting and other systems on the UNIX-based minicomputers. Our discussions with Marine Corps Headquarters exchange IS staff regarding the tasks involved led us to accept the original DoD study report figures as the most likely estimates.

Old System Operation

DoD Study Report, Year 1: $3,700
LMI, Year 1: $3,700 (pessimistic = $4,100; optimistic = $3,500)

DoD Study Report, Year 2: $2,600
LMI, Year 2: $2,600 (pessimistic = $3,200; optimistic = $2,400)

DoD Study Report, Year 3: $2,000
LMI, Year 3: $2,000 (pessimistic = $2,400; optimistic = $1,800)

DoD Study Report, Year 4: $1,700
LMI, Year 4: $1,700 (pessimistic = $2,000; optimistic = $1,500)

These are the base costs of operating the existing system during the transition to the new system. Costs in Year 1 are based on current expenditures. Our discussions with Marine Corps Headquarters exchange IS staff regarding the timing

and tasks involved led us to accept the original DoD study report figures as the most likely estimates.

Telecommunications

DoD Study Report, Year 1: $100
LMI, Year 1: $100 (pessimistic = $110; optimistic = $90)

DoD Study Report, Year 2: $100
LMI, Year 2: $100 (pessimistic = $110; optimistic = $90)

DoD Study Report, Year 3: $100
LMI, Year 3: $100 (pessimistic = $110; optimistic = $90)

DoD Study Report, Year 4: $100
LMI, Year 4: $100 (pessimistic = $110; optimistic = $90)

These are the telephone line charges to connect stores with Marine Corps Headquarters, and they are based on current expenditures.

Annual Recurring Marine Corps IS Benefits from Consolidation

The annual recurring Marine Corps IS benefits from consolidation are summarized in Table D-14. The steady-state separate USMC IS modernization costs are subtracted from the consolidated steady-state IS costs to yield the net annual recurring IS benefits from consolidation.

ASAP Computer Operators

LMI steady-state costs beginning Year 5: $480 (pessimistic = $521; optimistic = $450)

Our discussions with DoD Study Group staff confirmed that these are reasonably appropriate expenditures for this item. The LMI pessimistic value is 8 percent higher than the most likely estimate, and the optimistic value is 6 percent less than the most likely estimate.

Satellite/Line Rental

LMI steady-state cost beginning Year 5: $150 (pessimistic = $175; optimistic = $100)

TABLE D-14

ANNUAL RECURRING MARINE CORPS IS BENEFITS (COSTS) FROM CONSOLIDATION

Marine Corps IS consolidation (steady-state periods)	Steady-state pessimistic	Steady-state most likely	Steady-state optimistic
ASAP computer operators	521	480	450
Satellite/line rental	175	150	100
VDT, printer, and mainframe maintenance	240	200	160
Total steady-state costs	936	830	710
Marine Corps IS modernization (steady-state periods)	Steady-state pessimistic	Steady-state most likely	Steady-state optimistic
Software enhancement	200	150	50
Old system operations	1,800	1,500	1,300
Telecommunications	150	100	80
Total steady-state costs	2,150	1,750	1,430
Consolidation yearly benefits over MC modernization	1,214	920	720

These expenditures are based on AAFES current costs for such services; however, such costs are highly variable. The LMI pessimistic value is 17 percent higher than the most likely estimate, and the optimistic value is 35 percent less than the most likely estimate to account for the high variability.

Video Display Terminal, Printer, and Mainframe Maintenance

LMI steady-state costs beginning Year 5: $200 (pessimistic = $240; optimistic = $160)

Our discussions with DoD Study Group staff confirmed that these are reasonably appropriate expenditures for this item. Therefore, we assumed the DoD study report estimates to be most likely. Because the equipment being maintained will have been installed for 4 years, LMI estimates the pessimistic case as being 20 percent greater than the DoD study report estimate as maintenance becomes more and more important. The optimistic estimate is 20 percent below the DoD study report estimate.

Software Enhancement

This is the first category of separate Marine Corps IS modernization in Table D-14.

LMI steady-state costs beginning Year 5: $150 (pessimistic = $200; optimistic =$50)

These costs are for software enhancements to accounting and other systems on the UNIX-based minicomputers. No other information is available. Our discussions with Marine Corps Headquarters exchange IS staff regarding the timing and tasks involved led us to accept the original DoD study report figures as the most likely estimates.

Old System Operations

LMI steady-state costs beginning Year 5: $1,500 (pessimistic = $1,800; optimistic =$1,300)

These costs are based on current expenditures for existing IS services to the USMC exchanges. Our optimistic and pessimistic ranges reflect the uncertainties of future troop strengths and sales and how the USMC exchange system will respond to them.

Telecommunications

LMI steady-state costs beginning Year 5: $100 (pessimistic = $150; optimistic = $80)

These costs are for telephone line charges to connect stores with HQ and are based on current expenditures. The optimistic and pessimistic ranges reflect our expectation that volume and/or usage charges may vary slightly in the future.

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An April 1990 DoD study recommended a full consolidation of the three military exchange systems. Although the Army and Air Force generally concurred with the recommendation, the Navy and Marine Corps challenged the Study's analysis and results. Our independent review of the study and subsequent rebuttals recommend increasing cooperation and coordination among the current exchange systems and integrating some of their functions without a full and immediate consolidation. Expected annual savings from consolidation are $36.6 million with a net present value over 10 years of $104.9 million. Although those savings represent an 8 percent potential increase in annual profits, nonquantifiable issues raise the risks to a level too high to justify full and immediate consolidation. However, some of the first steps on the road to consolidation make good economic sense, whether or not the exchanges actually consolidate. They include increased management cooperation and coordination, a common chart of accounts, and a standard system of merchandise numbering. DoD should not make a decision on consolidation until at least 3 years have passed and the above actions have given decision makers a much better comparison of exchange operations and also time to reach consensus on buying and managing strategies.

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