

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**AN ACTIVITY-BASED COST ANALYSIS OF RECRUIT
TRAINING OPERATIONS AT MARINE CORPS RECRUIT
DEPOT, SAN DIEGO, CALIFORNIA**

by

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June 2000

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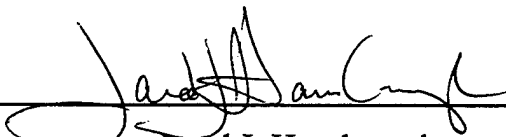
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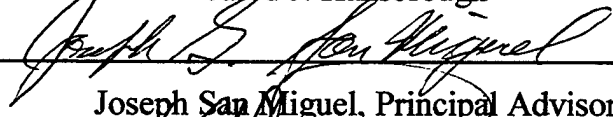
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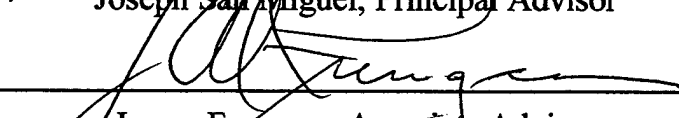
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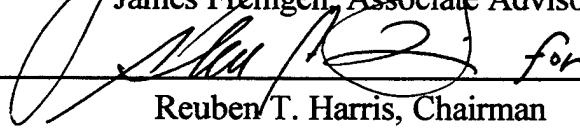
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ABSTRACT

Activity-based costing has been embraced as the methodology which will be used to structure and organize cost management information for the Marine Corps. This methodology is applied to operations at the Marine Corps Recruit Depot, San Diego, California. Training operations have been examined for a three-year period from fiscal years 1997-1999. Cost analysis identifies total resource consumption of \$230 million annually, depot level activities, and the services and products provided by the depot. Detailed information is provided for determining the cost to train a Marine, which is \$13,300. Capacity analysis discusses the output of training operations under four capacity frameworks, theoretical, practical, normal, and annual budgeted capacity. Analysis of minimum resource usage examines process scheduling and the quantity of training companies needed. The core competencies of the depot are discussed and value chain analysis is used to map the depot activities into the Porter value chain model. Final recommendations offer improvements to existing ABC models and opportunities for operational cost savings.

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I. INTRODUCTION

A. OVERVIEW

This study is an activity-based cost analysis of the Marine Corps Recruit Depot, San Diego, California. This thesis contains four major discussions: a description of the recruit training operations, a presentation of the data collected, an analysis of the data in the ABC model framework, and an application of best business practices to the data. The closing summary highlights the findings and recommendations of this study.

This type of analysis is vital to the branches of the Armed Services as they strive to improve efficiency to meet demanding fiscal mandates while maintaining their effectiveness. Across the Department of Defense, the Armed Services have been tasked with finding real cost savings through the implementation of best business practices in the supporting establishment operations. These savings have already been programmed into future funding levels, so that they are not just recommendations or suggestions, but instead real cuts in future funding reflecting projected future savings. The first step in improving efficiency of operations is to understand what is currently being spent.

The main effort of this study has been to analyze operations at Marine Corps Recruit Depot, San Diego using the ABC methodology in order to capture the full cost structure of the depot in this framework. The goal was to identify the relevant costs, relevant ranges, cost drivers, and outputs for the training operation in order to determine the cost to train a Marine. Additional analysis has also identified capacity utilization, top-level core competencies, and examined value-added processes provided by the depot in support of recruit training operations.

Annually, the Marine Corps trains over 38,000 recruits. As one of the two recruit training depots of the Marine Corps, MCRD, San Diego handles roughly half of this population. In the process of supporting training operations and conducting other depot activities, resources in excess of \$230,000,000 are consumed annually. Given this large scope of operations, it is critical that top-level decisions makers have accurate, relevant cost information to assist them in decisions relating to cost management efforts and improvements in efficiency.

Identifying and quantifying the cost structure of MCRD, San Diego provides an example of how ABC analysis can be applied to military activities at the installation level. This thesis also provides cost structure data and information to MCRD, San Diego which may assist in understanding operational costs and which may be used to support decision making.

B. BACKGROUND

Activity based costing is a methodology and managerial tool which provides full cost visibility to operations and more closely relates the services provided by an organization with their appropriate costs. This new approach provides insight into existing cost relationships and resource consumption. Within the Department of Defense, organizations have begun to realize the benefits that the ABC approach can yield when applied to military installations, logistics, and operations. Cost information that was never previously available is being discovered, and commanders are beginning to receive financial data that enables them to make real cost effective decisions. The Marine Corps

is currently in the implementation stage of adapting and applying this philosophy towards cost management at its sixteen major installations and two maintenance depots.

The Marine Corps Recruit Depot, San Diego provided an excellent opportunity for ABC analysis. The Depot has a clearly defined mission, a clearly defined output, and is structured as an independent installation. Actual costs are identifiable and traceable to their supported functions. This research is appropriately timed, as the Depot is currently in the implementation stage of adapting activity-based costing and activity-based management, with the ultimate goal being to transition to activity-based budgeting.

This thesis will:

- Serve as an example of how ABC can be applied to installation and depot operations at the macro level.
- Provide a relevant examination and evaluation of the cost structure, drivers, core competencies, capacities, and value-added processes of the depot.
- Provide real world training cost data which will be beneficial to decision makers at the depot.

C. OBJECTIVES

The primary purpose of this research is the application of the activity-based costing methodology to the recruit training operations at MCRD, San Diego in order to determine the cost to train a Marine. The goal was to identify the relevant costs, relevant ranges, cost drivers, and outputs in providing this cost information. This analysis also addresses capacity utilization, identifying maximum output under ideal conditions, current output, and minimal resource usage for current output under ideal conditions. Top-level core competencies of the depot have been identified and examined. Finally,

value-chain analysis highlights the value-added processes provided by the depot in support of recruit training operations.

D. RESEARCH QUESTIONS

1. Primary Research Question

What is the cost to produce a trained Marine at MCRD, San Diego?

In answering this question, a multi-step process was followed. First, all resources which are consumed in the operation of the depot were identified. Then, the activities which occur aboard the depot were defined, and the resources were allocated to the activities they support. Finally, the outputs of the depot were identified, and the activities were linked to the outputs that they support. The completed analysis shows the full cost of all resources consumed and the final outputs which bear the cost of these resources. From this data, the cost to train a Marine, as well as the component costs and costs which are incurred but not relevant, are revealed.

From the model, additional information addresses:

- What costs are relevant training expenditures?
- Of the relevant costs, which are fixed costs and which are variable costs?
- What are the relevant ranges of output for the cost structure?
- What are the appropriate cost drivers and cost bases?

2. Secondary Research Questions

a. *What is the training capacity and utilization of MCRD, San Diego?*

This question first addresses the maximum sustainable output of trainees under current structure and operational policies, or normal capacity. For the purpose of

this discussion, normal capacity is the number of recruits that could be processed without changing the current number of companies, series, platoons, and training cycles that transform the recruits into Marines. Additionally, under ideal conditions, attrition would be zero. Capacity utilization addresses the current output of trainees, or actual capacity, taking into consideration both attrition and the supply of recruits available for training. Finally, minimum resource usage analysis identifies the amount of resources needed to produce the current level of output under the conditions of zero attrition, while minimizing additional capacity.

b. What are the core competencies of MCRD, San Diego?

In addressing what are the core competencies of MCRD, San Diego the question to be answered was, "What is it that occurs aboard the depot that the Marine Corps does better than anyone else, or which only the Marine Corps can do?" In examining core competencies, a broad look at the depot was taken, identifying those critical functions which, due to experience, resources, and capabilities the Marine Corps has a competitive advantage which cannot be duplicated or effectively and efficiently provided by another agency.

c. What are the depot level value-added processes at MCRD, San Diego?

Aboard the depot, a clearly defined organizational structure creates a myriad of working level units which provide a variety of different services. Identification of organizations and functions which add value to the training operation highlights those activities that provide a positive input to training operations during the recruit training cycle. Conversely, a value-added activity would be missed by training operations if it were not there.

E. SCOPE. LIMITATIONS AND ASSUMPTIONS

This research has been limited to training operations at MCRD, San Diego, and does not address operations at MCRD, Parris Island, SC. This boundary is necessary due to the large additional volume of information that would be involved in analyzing both depots and due to subtle but significant differences in training at the two depots. This study analyzed archival data from fiscal years (FY) 1997, 1998, and 1999. The use of several years of data avoids any abnormal patterns in a single year's operations. Costs considered by this research were limited to those incurred aboard the depot, literally from the time the recruit steps onto the yellow footprints at arrival until the time he is dismissed from graduation as a Marine, and to those costs which occur aboard Camp Pendleton in direct support of the recruit training operations. Costs external to the depot prior to and after training, such as recruiting costs or transportation costs to and from the depot before or after training were excluded. This limitation is set forth to limit the volume of information and to direct the focus upon training costs.

Finally, efficiency has been assumed in the training content of the recruit training cycle. The 12-week recruit training process itself is a highly evolved, dynamic training program developed through decades of experience, one which has been constantly monitored and fine tuned to meet the future's changing demands. The specific training content of the program is best left to the experts who deal with it on a day-to-day basis. This study will address available time during the 12-week program not associated with training. This study has examined the costs associated with supporting the recruit-training program. Capacity utilization, core competencies, and value-added activities

were examined at the depot level in relation to their support of the recruit-training mission.

F. METHODOLOGY

The research methodology includes the following:

1. Literature Review

A review of relevant articles relating to activity-based costing, value chain analysis, and core competencies was conducted to ensure the most current methods have been applied. At the depot level, organizational structures and mission statements have been reviewed to better understand the operations.

2. Data Collection

Historical data has been obtained from several sources at MCRD, San Diego. Operations and Maintenance funding information, the historical budget of the depot, has been collected from the comptroller's office. Additional appropriations and sources for funds which support or are consumed by the depot have also been identified through the comptroller's office. Staffing levels and tables of organization for manpower were obtained from the Manpower Analysis section of the depot. Military composite standard pay and reimbursement rates were obtained from the Department of Defense, Comptroller. Input levels for the number of recruits shipped to the depot were obtained from the Headquarters, Western Recruiting Region. Output quantities for the number of trained Marines produced and subsequent attrition rates from MCRD, San Diego were obtained from the Recruit Training Regiment Headquarters. Capacity information relating to recruit training operations has been identified through personal interviews with

training staff. Operational relationships between working groups and components of the depot were defined from data gathered from the depot's ABC stand-up conference. Additional information pertaining to resource usage and activities performed aboard the depot has been gathered through personal interviews with key personnel.

3. Analysis

Data obtained has been examined to identify the relevant costs, the relevant ranges, and the fixed and variable costs associated with recruit training operations. Training capacity analysis has examined the maximum output level achievable under ideal conditions with the current structure and operational policy in place, while assuming availability of the supply of recruits and zero attrition. Capacity utilization has compared ideal maximum output against current output levels. Finally, minimum resource usage analysis identified the minimum resource structure needed to produce current output levels. Additional analysis identified top-level core competencies and value-added processes as they relate to the recruit-training mission.

G. OUTLINE

This thesis is organized as follows:

Chapter I: Introduction

Chapter II: MCRD Operational Overview

Chapter III: Data Presentation

Chapter IV: ABC Model Presentation and Analysis

Chapter V: Best Business Practices: Training Capacities/Core Competencies/
and Value-Chain Analysis

Chapter VI: Conclusions and Recommendations

H. BENEFITS OF STUDY

The strength of this study lies in the research conducted in the development of the ABC Model and in the capacity analysis. Through the documentation of the total resources consumed, the ABC model presents the full cost of operations. Once this is known, operational questions can now be posed, and in most cases a defensible quantitative answer can be produced. The capacity analysis provides a framework in which to define and discuss what the capacity of the depot is.

The findings of this study document the average cost to train a recruit during FY 97-FY99. The final recommendations highlight opportunities that would return to the operating forces over \$12 Million in MPMC annually should the leadership of the depot find these recommendations operationally sound.

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II. OPERATIONAL OVERVIEW

A. SYSTEM DESCRIPTION

The United States Marine Corps is tasked with being the nation's premiere force in readiness, the most ready when the nation is least ready. In order to maintain its manpower levels and ultimately its war fighting capability, the Marine Corps must continually train new recruits, transforming them into the Marines who fill the ranks and billets vacated by previous Marines who are discharged from active duty. Congress has prescribed manning levels at 174,000 active duty and 38,000 reserve Marines. Additionally, retirement and discharge patterns are relatively predictable, with some fluctuation occurring due to the level of economic prosperity of the nation. With this environment, the Marine Corps has a fairly accurate measure of the future demand for newly trained Marines.

To satisfy the demand for new Marines, the Marine Corps has established two training depots. On the East Coast is the Marine Corps Recruit Depot (MCRD), Parris Island, South Carolina. This depot trains recruits drawn from the Eastern Recruiting Region, which covers the United States from east of the Mississippi River. On the West Coast MCRD, San Diego, California trains all recruits coming from the Western Recruiting Region (WRR), which covers all areas of the United States west of the Mississippi River. Combined, these two depots annually train approximately 38,000 recruits.

Both depots are similar in organization and mission, with two notable differences. The first observable difference is that all of the female recruits entering the Marine Corps

are trained at MCRD, Parris Island. Due to the proportionately smaller number of female recruits, economies of scale do not support training operations for females at both depots. The second difference pertains to the availability and location of training areas. MCRD, Parris Island has organic weapons ranges and conducts all aspects of recruit training aboard its own facilities. Due to its size and urban location, MCRD, San Diego cannot organically support weapons and munitions training, which is part of the basic training program for new recruits. To accomplish this, weapons training ranges at Marine Corps Base, Camp Pendleton, California (MCB CPEN), approximately 30 miles to the north, are used. Given the broad scope of operations of a single depot, and the subtle operational differences between the depots, this discussion will focus solely upon MCRD, San Diego.

MCRD, San Diego was founded in 1919 when Colonel Joseph H. Pendleton selected its location for use as an expeditionary base. Since 1923, the depot has been training recruits and transforming them into Marines. It was during World War II that recruit training became the primary mission of the depot as it trained over 223,000 recruits. Today, with a staff of approximately 1,700 active duty personnel, MCRD, SD trains over 19,000 recruits annually, approximately half of the more than 38,000 young men and women who will try to join the ranks of the Marine Corps.

1. Mission

The Marine Corps Recruit Depot, San Diego has two distinct missions:

To provide reception, processing, and recruit training for male enlistees from the Western Recruiting Region upon their entry into the Marine Corps; to provide schools for training officers and enlisted Marines entrusted with the training of recruits; to conduct other schools as directed; to provide rifle and pistol marksmanship training for Marines stationed in

the Southwest and for members of other services, as requested; and to conduct training for Marine Reserves, as directed.

As headquarters of the Marine Corps Recruiting Command's Western Recruiting Region, to exercise operational control of enlisted recruiting operations in the 8th, 9th, and 12th Marine Corps Districts, through guidance and direction on quality control matters for all enlisted accessions in accordance with standards established by the Commandant of the Marine Corps (CMC).¹

2. Organization

The Commanding General of the depot is charged with overseeing both the recruit training operations aboard the depot as well as the recruiting efforts of the WRR. This dual responsibility billet logically empowers the Commanding General to integrate the different functions of recruiting and training, as the recruiting efforts feed the recruit training process. Under this structure, the depot carries out its primary mission, which is to take America's youth and transform them into basically trained Marines.

To support these efforts, the depot is organized into three large commands, complemented by the headquarters of the WRR, and supplemented by many supporting staff activities and several tenant commands. The large commands of the depot are the Recruit Training Regiment (RTR), the Weapons and Field Training Battalion (WFTBN), and the Headquarters and Service Battalion (H&S BN). Figure 2.1 displays the depot's organization, listing supporting staff activities and tenant commands under the Chief of Staff.

¹ DepO P5450.4L.

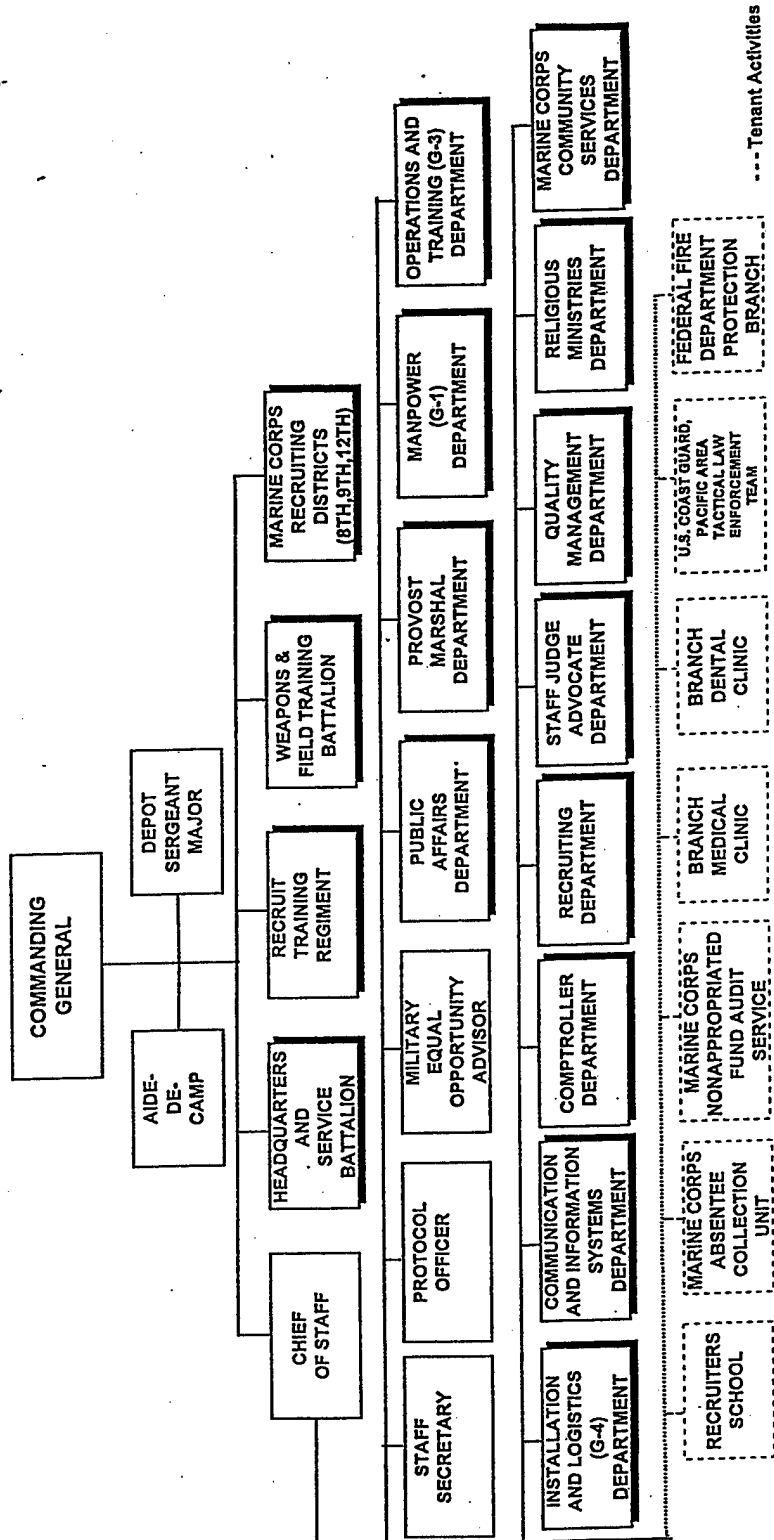


Figure 2.1. Marine Corps Recruit Depot Organization Chart

*a. **Recruit Training Regiment***

The Recruit Training Regiment provides recruit training for enlisted personnel upon their initial entry into the Marine Corps, conducts training for Reserve Marines as directed, exercises military command over the Regimental headquarters and all Marines, Sailors, civilians and Marine recruits assigned to the Recruit Training Regiment. Within the RTR are the Regimental Headquarters, the 1st, 2nd, and 3rd Recruit Training Battalions (BNs), and the Support BN, as shown in Figure 2.2. The Regimental Headquarters provides leadership and guidance to the Recruit Training BNs and acts as their liaison agent to the depot's supporting services. The Recruit Training BNs are tasked with processing the recruits through the training cycle and transforming them into Marines, with the Support BN providing support to this mission and to the permanent personnel of the RTR.

(1) **Recruit Training Battalions.** The three Recruit Training Battalions train male recruits to become basic enlisted Marines. To accomplish this mission, the BNs are organized as shown in Figure 2.3. Nearly 28% of the depot's permanent personnel are committed to the Recruit Training Battalions in support of its mission. The Battalion Headquarters Staff includes a personnel office which provides administrative support for the BN; a training office which monitors recruit training for compliance with the training Standard Operating Procedure and which coordinates training requirements for both recruits and permanent personnel; a logistics office which provides logistical support for the BN and which provides financial requirements to the

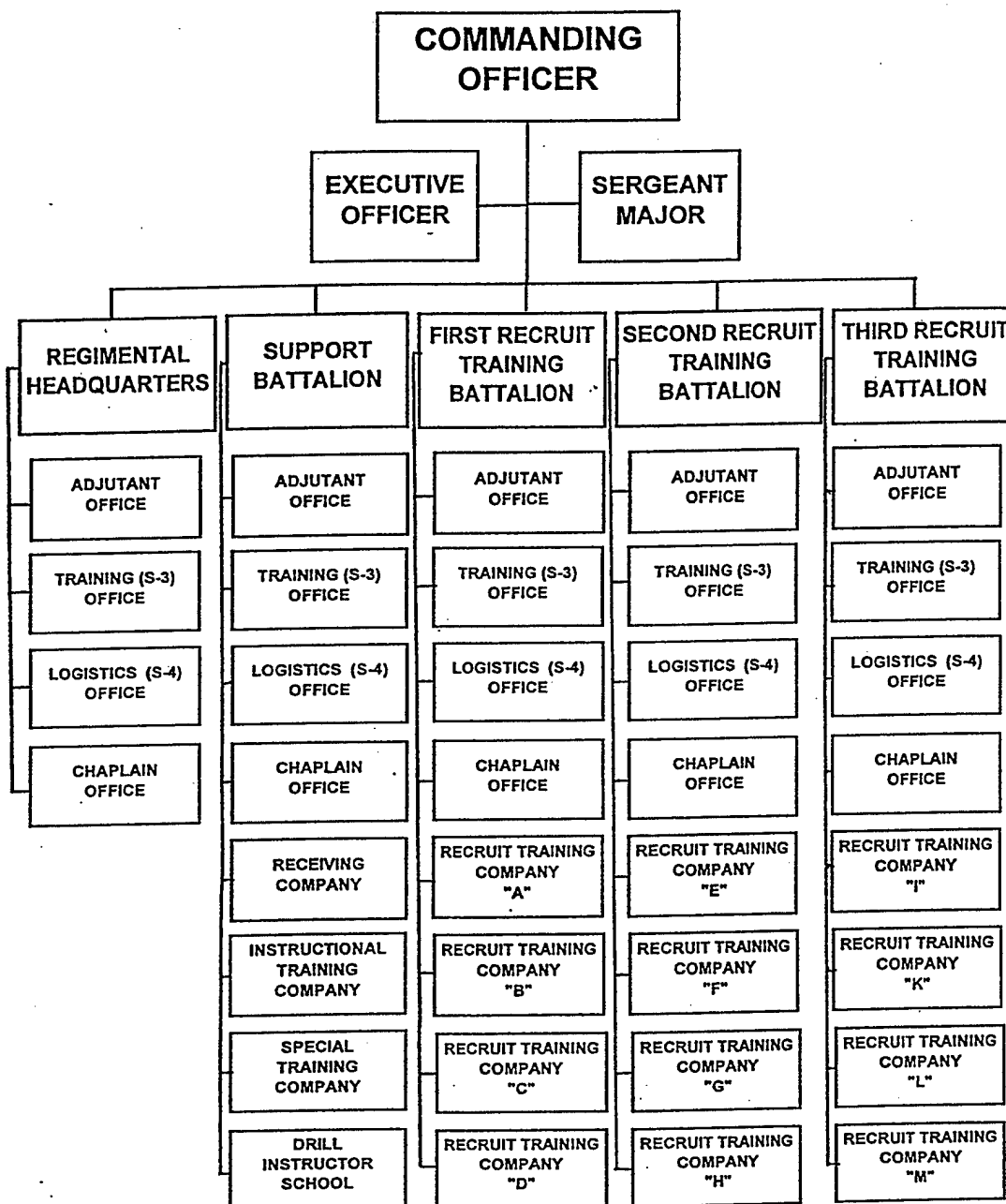


Figure 2.2. Recruit Training Regiment Organization Chart

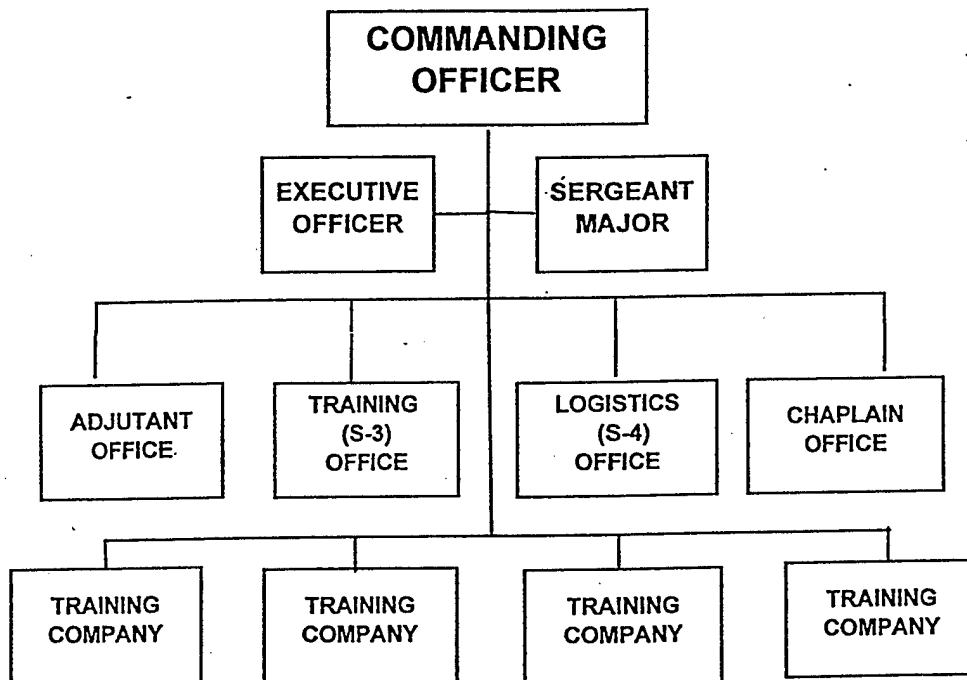


Figure 2.3. Recruit Training Battalion Organization Chart

Regimental logistics office; and a Chaplain's Office which plans and coordinates religious programs. Each of the three Recruit Training BNs is divided into four training companies, with each subsequent company being divided into two series. Within the series, further division is made into three or four training platoons, as shown in Figure 2.4.

The recruit training cycle is a very regimented, detailed program that occurs over a 12-week period aboard MCRD, SD and CPEN. A new training cycle begins with the midweek arrival of recruits at the depot from MEPS's across the WRR. Following processing through the Receiving Company, the recruits spend their first 3-4 days completing gear issue, weapons issue, and a final screening. Once a company of recruits has been formed and processed through receiving company, the 300-700 recruits

will be transferred to their training company. For practical purposes, all activity above the company level is unseen by the recruit in the daily operation of the depot.

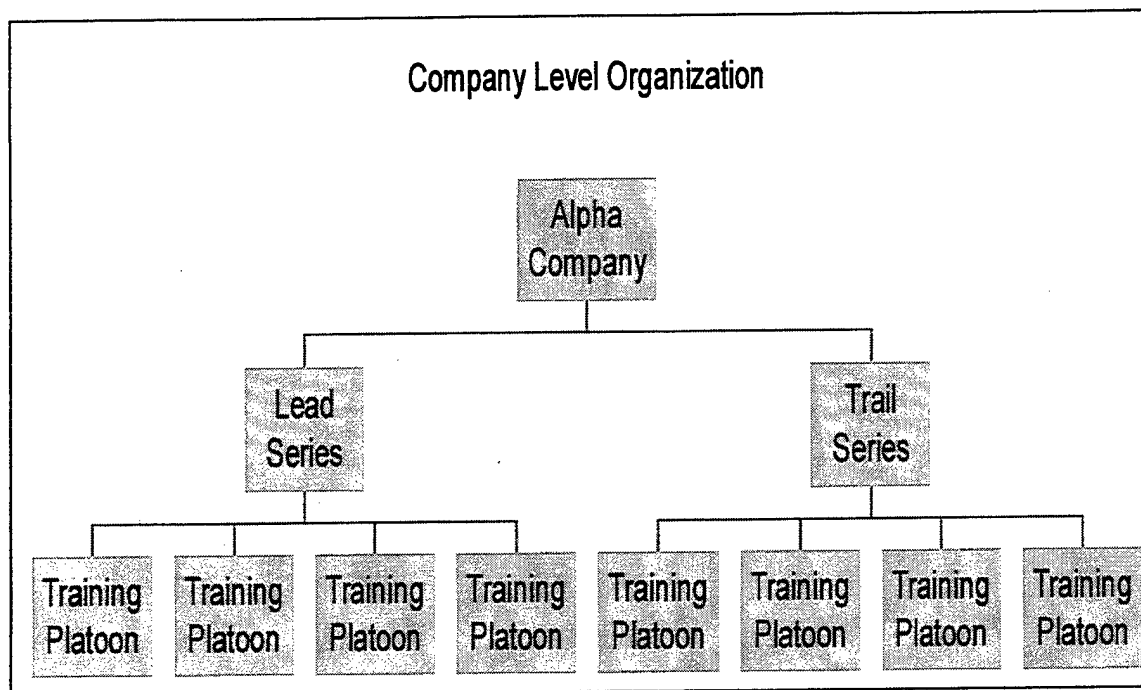


Figure 2.4. Recruit Training Company Organization Chart

When the recruits arrive at their pre-assigned training platoons, they quickly meet their Drill Instructors, dedicated professionals who will prove to be some of the most influential Marines in the recruit's military career. A team of two to four Drill Instructors, led by a Senior Drill Instructor, a seasoned Marine with experience on the drill field, will be responsible for everything the new platoon of 50-90 recruits does or fails to do during the ensuing twelve weeks. It is at the platoon level that the recruit experiences boot camp, with some interaction with fellow platoons of their series, and limited interaction with the company staff.

The 12-week training program is divided into three phases. Phase I occurs during the first seven weeks aboard MCRD, San Diego and is the initial indoctrination for the recruits. During this time they are provided instruction in a wide range of military subjects, everything from physical training, military history, and close order drill to swim qualifications and combat hitting skills. The fourth to fifth week of phase I is known as "Team Week," with recruits historically performing mess and maintenance duties, staffing the recruit chow halls and performing basic maintenance around the depot. This is a week without as much direct supervision from the drill instructors, and one that will be addressed later. As recruits enter into Phase II, they are transported to Camp Pendleton for their next three-week long phase. Here they will receive entry-level marksmanship training, land navigation instruction, and hands-on training in field firing techniques. Phase III continues aboard CPEN, as the training culminates in the crucible, a grueling 54-hour non-stop field-training event that tests the recruit and everything he has learned. Upon completion of the crucible, the recruits are recognized for the first time as Marines. Returning to MCRD, San Diego recruits shift into transition week, a mostly administrative week of out-processing and graduation preparation. The new Marines will exit the Depot at the end of their last week after completing a formal graduation ceremony open to friends and family.

(2) **Support Battalion.** The Support Battalion of the RTR provides specialized training to Marine recruits, provides specialized support to the Marines and recruits of the Recruit Training Regiment, and operates the Drill Instructor School.¹ Figure 2.5 diagrams the internal organization of the Support BN. The staff of

¹ DepO P5450.4L.

the Support BN together with the Regimental Headquarters makes up 10% of the depot's permanent personnel and is dedicated to supporting the recruit-training mission. One of the most important functions of the Support BN is the operation of the Drill Instructor School. It is here where the future trainers of Marines are trained themselves. With the Marine Corps' unwavering quality standards and a history rich with tradition, future Drill Instructors must pass an arduous screening, training, and evaluation process before they are sent forth to make Marines.

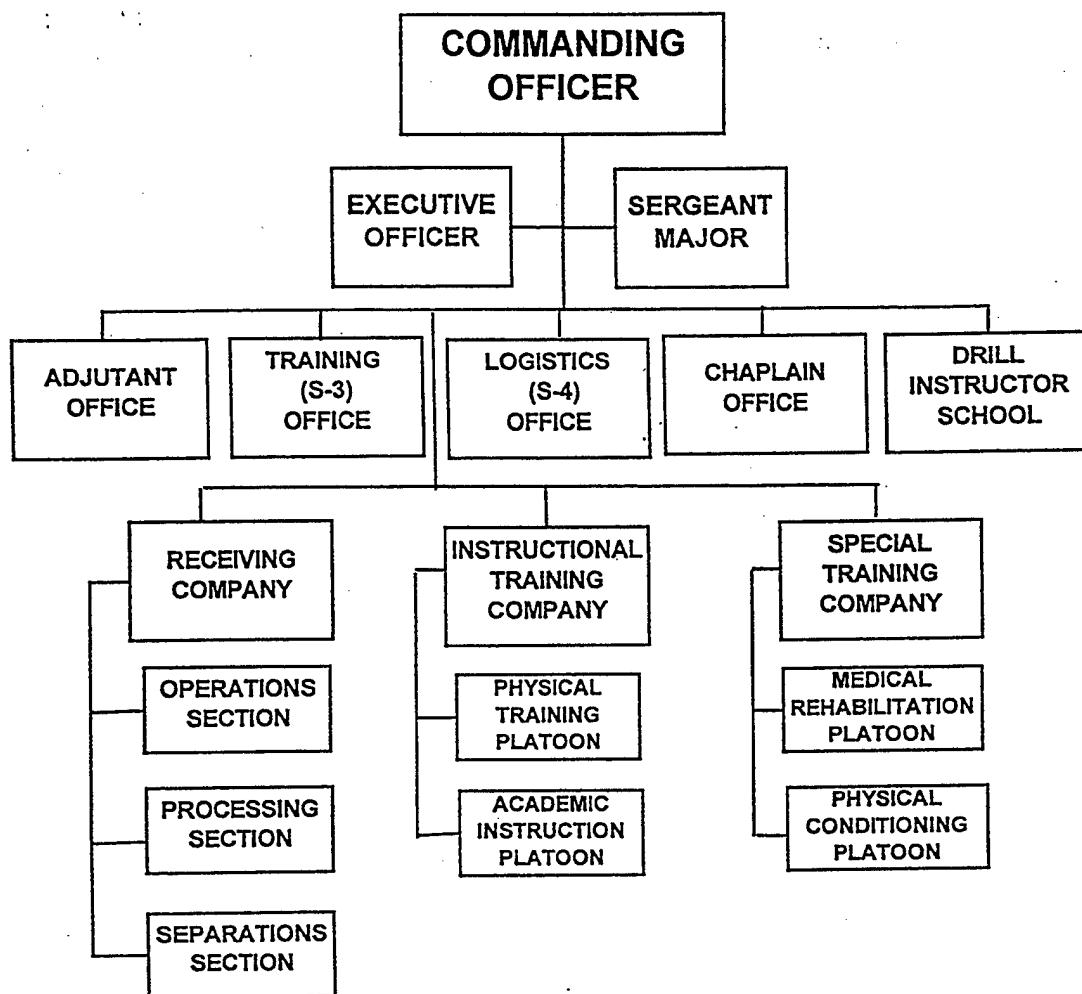


Figure 2.5. Support Battalion Organization Chart

Remedial training provided to recruits by the Support BN is organized under the Special Training Company (STC). The STC is organized into three platoons with very distinct missions, the Medical Rehabilitation Platoon (MRP), the Physical Conditioning Platoon (PCP), and the Basic Marine Platoon (BMP).

The MRP supervises the recovery of recruits who incur a physical injury which temporarily prevents them from continuing training. The PCP provides remedial physical training for recruits who have no medical problems preventing them from training but have failed to meet the physical requirements, due to a lack the endurance, strength, agility, or desire to sustain themselves in training. The BMP is a temporary holdover unit for Marines who have successfully completed the recruit-training program, but have incurred an injury which, while not preventing them from graduating, does prevent them from immediately continuing their remaining training.

The Support BN also provides specialized support to the RTR through its Instructional Training and Receiving Companies, as well as through its administration, training, logistics, and chaplain offices. The Instructional Training Company provides military instructors to the Recruit Training BNs to teach various military subjects, from military history to field first-aid. The Physical Training Platoon provides specialized instruction in physical fitness areas, including close combat and water survival instruction. The Receiving Company processes arriving recruits and forms them into training companies and handles the administrative discharge of recruits who fail to complete the training program through its separation section.

(3) **Weapons and Field Training Battalion.** The Weapons and Field Training Battalion (WFTBN) provides instruction to recruits in rifle marksmanship and combat field training; conducts requalification firing for permanent personnel based in the San Diego Area; conducts schools to train selected personnel in the methods and procedures of marksmanship instruction; and provides field medical services for recruits undergoing combat field training. Physically located aboard CPEN, nearly 25% of the depot's permanent personnel are dedicated to the WFTBN in support of this mission. The internal structure of the WFTBN is displayed in Figure 2.6.

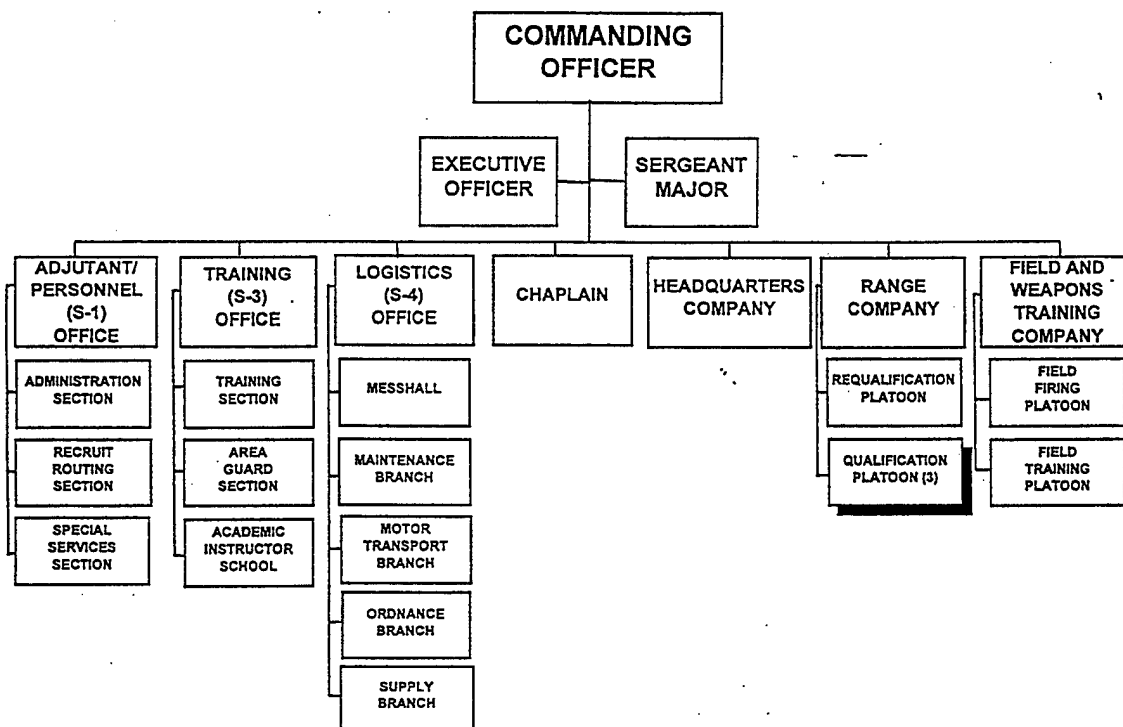


Figure 2.6. Weapons and Field Training Battalion

The recognizable functions of the administration, training, logistics, and chaplain's offices provide services similar to those that have already been previously described in these areas. The two unique companies of the WFTBN are the Range Company and the Field and Weapons Training Company. The Range Company conducts entry-level marksmanship training for the recruits and rifle and pistol sustainment training for permanent personnel and manages range operations. The Field and Weapons Training Company conducts basic entry level infantry and field marksmanship training for recruits, provides range support, and facilitates and supports the crucible event of recruit training.

b. Headquarters and Service Battalion

The Headquarters and Service BN provides technical direction, staff cognizance, and supervision of Headquarters and Service Battalion functions and provides administrative support for personnel assigned to the Battalion, Recruiter School, and Marine Corps detachments in the San Diego area. The H&S BN essentially serves as an administrative headquarters for all other activities that exist aboard the depot which do not warrant a separate higher headquarters. A full 38% of all permanent personnel are administratively organized under this BN. Along with the common support offices of administration, operations, logistics, and chaplain, a headquarters and a service company have been established. These companies exercise command authority and provide support as needed to their assigned personnel.

c. Western Recruiting Region

Finally, the depot serves as home to the Headquarters of the Western Recruiting Region. Its mission is to procure applicants for enlistment in the regular and

reserve establishments of the Marine Corps and to select the best qualified applicants for all reserve officer candidate programs and to ensure every possible qualified candidate is appointed to commissioned grade and ordered to active duty. While proportionately a much smaller function in terms of manpower staffing, this critical function is vital to the Marine Corps and receives an appropriately large amount of high-level interest.

d. Supporting Staff Activities

As part of the supporting infrastructure of the depot, a myriad of staff supporting activities exist. These activities, outlined in Figure 2.1, are under the cognizance of the Chief of Staff, with each having a very specific mandate or service which they provide. The specialized activities comprise much of the headquarters staff of the depot and operate under the leadership and guidance of the Commanding General. The services they provide support both the depot in the execution of its missions and the assigned personnel and commands aboard the depot.

While many of the staff functions provide the exact services expected from their descriptive titles, it is important to annotate the services provided by the Installation and Logistics Department (G-4). This department carries the bulk of some of the most visible support services, including facilities management, motor transportation services, food services, and supply management. Also, the Operations and Training Department (G-3), in addition to the implied support of the training mission, supports the Marine Band, San Diego, the Command Museum, and organizes the substantial number of ceremonial activities performed or supported by the depot.

e. Tenant Commands

A tenant command at an installation is one which is physically located aboard the base but which does not organically fall under the table of organization of the

installation. Two types of tenant commands may exist, those which are present to provide support to the installation and those that have no functional relationship to the installation beyond that of a tenant/leasing agent relationship. Both types of tenant commands are funded independently from the installation and will normally have a different administrative chain of command than that of other depot activities. Often, as is the case at MCRD, San Diego, the tenant commands fully reimburse the installation for use of services such as facilities, maintenance, and utilities. Employing tenant commands may add specialized skills not possessed by resident organizations to an installation or may make use of excess infrastructure through a tenant/lease agent arrangement.

B. PROBLEM DEFINITION

An installation like MCRD, San Diego has many characteristics similar to those that are found in a common business organization. Both are organized with some hierarchical structure and have an objective or mission, one that is hopefully clearly defined. Both strive to maximize their performance. However, while military installations like MCRD, San Diego have historically been more concerned with effectiveness than efficiency in operations, business entities have perhaps pursued a more balanced approach of effectiveness and efficiency. Stark differences will exist in the source of financing for the different organizations, as well as the traditional use, availability, and reporting of financial data.

On the business side, the company or corporation has much more latitude in the use of funding and in deciding which areas or markets it chooses to do business in. While both organizations may prepare budgets on an annual basis, corporate America has much more flexibility during budget execution than does a military organization in both

the choices of how to spend funds and in the options of operating under or over budget. Standardized financial reporting is mandated for corporations through documents such as income statements, balance sheets, and corporate reports. Internally, financial data is normally an integral part of decision-making and management control processes for businesses.

Conversely, MCRD, San Diego has its budget passed down from higher commands through several sources of funding, all of which originate in the congressional budgeting process. Likewise, output levels and missions that will be undertaken are decided upon at command levels above the depot. While military commands like MCRD, San Diego may have the opportunity to provide valuable input on ideal funding levels and preferred mission assignments, the difference from a business organization is notable. Finally, the use and application of data has had a much different role in the military. Historically, the military has been primarily concerned with inventory levels, accountability of property, and full expenditure of all available funding. Only in recent years has the Department of Defense (DoD) begun to embrace the usefulness of cost management information for the decision making levels of installations.

One difficulty currently facing military installations like MCRD, San Diego is a lack of relevant managerial oriented financial data. While great effort has been expended to improve the DoD financial management arena, there is still a need for relevant financial data to assist senior leadership in their decision-making processes. Historically, commanders have been presented financial information that pertains only to their Operating and Maintenance budget. This may not provide full cost visibility of other

sources of funding that are consumed by the command, such as funding for military personnel salaries. In today's operating environment, commanders need to know more than just the "balance" remaining in their Operations and Maintenance account; they also need to understand how their choices in operations affect that balance, as well as the total amount of resources being consumed by their operations.

In order to provide insight into how their funds are being expended, commanders need a firm grasp on where the money is coming from, where it is going, and what is driving their costs. Structurally, the depot may have one of the most stringent management control systems to be found. For the recruit, it would seem as if every second of his day is planned, organized, and set forth for him; and indeed it is! Commanders truly have superior control over personnel, property, and equipment. Management of resources is also closely scrutinized, with every budget stretched to maximize its utility. However, connecting the functions of conducting operations and managing the resources provided to perform those operations is a difficult task, one that creates a need for a more relevant presentation of financial information.

The need for this type of data is threefold. First, with the end of the cold war, DoD funding has decreased significantly when compared to peak levels in the mid 1980's. Second, the DoD does not have the best track record with effective resource management. While the examples of poor financial decisions may be the exception to the rule, enough examples have occurred to at least create the appearance of a lack of fiscal prudence within the DoD. Third, delays in modernization and advances in the technology base and complexity of weapon platforms have greatly increased the price tag

of systems procurement. Given decreased funding levels, increased scrutiny, and more expensive procurement, commanders need accurate, timely, and meaningful financial data.

MCRD, San Diego finds itself in a unique position among military installations in addressing this problem. Many other military units and installations perform a wide variety of functions and missions. The depot, however, exists almost entirely for a single mission, that being to transform recruits into Marines. Additionally, the inputs and outputs of the depot can be measured quite accurately using quantitative methods. Given this set of circumstances, there is a business model which can accurately capture the financial data of the depot in a meaningful format.

C. METHODOLOGY

Activity-based costing is a methodology that provides full visibility of cost and performance data as it relates to an organization's processes, products, and services. This framework identifies the total amount of resources that are committed to an organization, the activities that an organization conducts, and the resultant cost objects, which are the services or products that the organization provides.

The ABC methodology analyzes operations, looking for "costs drivers" in the operation. Cost drivers are those functions carried out by an organization, which, in the process, cause additional costs to be incurred or resources to be consumed. Also important is an understanding of which drivers are appropriate to reflect how the organization operates. Finally, the full cost, including the allocable direct fixed, indirect fixed, and variable costs are combined and analyzed so that the user may now have a

picture of the relationship of inputs to services provided and how different iterations of an operation can affect costs.

MCRD, San Diego is essentially a production process. During a fiscal year the standard process of the recruit training cycle is repeated in 41 cycles. Taking the inputs of this operation, the recruits, it transforms them into outputs, Marines. In applying the ABC methodology to the depot's operations, three types of data were needed to build the ABC model, resource data, activity data, and cost object data. A clear understanding of the relationship between these resources, activities, and cost objects was also necessary in developing the model, with activity drivers being used to relate the flow of resources to the appropriate activity and cost drivers distributing activity costs to the beneficiary service under cost objects.

When data collection began, it was important to identify the scope of data that was to be used for this research. In order to avoid a flawed analysis resulting from an irregular fluctuations in processing costs, three years of historical data were gathered to provide a look at what would be an "average" operational year. For this purpose, fiscal years 1997 to 1999 (FY97-FY99) were used.

The first type of data that was needed for the model was resource data. This proved to be primarily archival data that depicted resource allocation and consumption aboard the depot. The second category of data, activity data, captured the many various activities that occur aboard the depot in the process of carrying out its mission. This area proved to be the most challenging in the data collection phase, as the scope of supporting

activities was substantial and, yet, in trying to create a strategic level model for the organization, it was necessary to limit operational areas from one to three key activities.

These activities were identified through observation of the stand-up activity-based costing conference held at the depot during February and March 2000, during which the depot began its own ABC project to examine its operating costs. Interviews with key personnel supplemented this information. Finally, cost object data was required. Keeping in mind the purpose of a strategic level model of an entire base like MCRD, San Diego, the services or outputs provided by the depot had to be defined.

Lastly, it was necessary to identify those activities which had no connection or made no contribution to the mission of training Marines. This determination was made through the identification of the core competencies of the depot and value chain analysis. Armed with production inputs and outputs, an operational and structural understanding, and complete resource consumption and cost data, the ABC model was developed. With the ABC model constructed, a very different picture of the organization and the resources it consumes is presented.

D. BEST BUSINESS PRACTICES

As this study is itself an effort to apply best business practices to the depot, it is important to recognize the positive improvements and efforts already underway at the depot.

1. ABC/ABM Implementation

As previously presented, the Marine Corps is currently implementing ABC/ABM across its installations and depots. In March of 2000, MCRD, San Diego held its stand-up conference for its internal ABC project. After the initial story-boarding sessions,

during which the depot developed its first ABC model, the model was refined and developed through May 2000. During late May the depot had completed its ABC efforts and had shifted to the ABM phase of implementation.

2. A-76 Outsourcing Study for Facilities Maintenance

The depot is currently in a review of its facilities maintenance operations and is comparing its internal operations to bids from outside contractors to determine the most efficient and effective way to provide this service.

3. Approved Outsourcing of the Mess Hall for FY 2001

Beginning in October 2000, the start of FY2001, the mess hall operations aboard the depot have been outsourced to a civilian contractor. This step is in line with the common business practice of outsourcing those activities which are not core competencies when an outside organization can provide the same level of service more efficiently. With a civilian contractor providing the labor for the chow halls, the manpower requirements of "team week" for recruits working in the mess halls has been eliminated. This point will be addressed further in later analysis.

4. Regionalization of Transportation

Taking advantages of economies of scale and reducing redundant capabilities, the Marine Corps is regionalizing all Motor Transportation assets in the San Diego County area. Under the cognizance of CPEN, these assets will be maintained and dispatched from a central location to the surrounding commands of CPEN, MCRD San Diego, and MCAS Miramar.

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III. DATA PRESENTATION

The empirical and archival data gathered during this study and presented below is organized into three groupings, resource data, shipping data, and data concerning supplemental activities carried out by the depot. Resource data pertains to the total amount of resources consumed by depot operations. Within this data will also be found information on recruit attrition and recycles, as this phenomenon creates an additional burden on the resources of MPMC. Shipping data relates the actual number of recruits entering the depot, inputs, to the number of Marines graduating from the depot, outputs. Supplemental activity information highlights community relations and other activities outside of the training program which the depot supports.

It is important to note that the presentation of cost data is only the first step toward an understanding of it. A dollar amount associated with an activity by itself is nothing more than data. While it is important to know what is being spent, the significance of that amount depends upon an analysis of the various factors that underlie it. Some of the cost data presented here has not been seen before. Further analysis is needed to answer the question of whether the amount is appropriate.

A. RESOURCE DATA

MCRD, San Diego has a wide range of funding sources for its operations, which is a result of the current defense funding process. With all appropriations having specific purposes, restrictions, and limitations for use, an installation will often receive support from many different sources. Operationally, this policy creates an environment in which it is very difficult to determine the total amount of resources consumed. The following

data represents the major sources of support which the depot receives. Some of these funds are indirect, paid for at a higher level, while the depot is receiving the full benefit. Other sources of support are provided and directly traceable to the depot.

Table 3.1 summarizes all resources consumed by the depot that were identified by this research. This data represents the closest effort to date in revealing the full cost of operating the depot and conducting training. Fund sources are identified by appropriation or by a major identifiable category. Following Table 3.1, the individual components of the total resource consumption chart are examined in greater detail.

**Table 3.1. Funding Sources for MCRD, San Diego
FY97 – FY99**

	1997	1998	1999
O & M	26,304,881	32,424,061	33,129,549
MPMC	63,817,836	62,866,692	63,329,970
MPN	1,536,738	1,560,373	1,626,133
MPMC (TAD)	7,092,540	6,935,862	7,207,029
MPMC (Recruits)	89,527,123	88,563,792	96,626,995
Subsistence MCRD	7,701,768	6,423,529	6,601,492
Subsistence CPEN*	3,850,884	3,211,765	3,300,746
PMC**	4,018,554	4,119,278	3,917,830
Housing	1,695,021	1,647,885	1,777,947
Supply Issue	12,769,232	19,111,376	16,514,232
Quality of Life	637,719	1,224,602	1,562,225
Transition Assistance	97,500	102,000	171,600
Family Advocacy	172,000	180,000	208,500
Relocation Assistance	90,500	105,000	108,900
Total Resources	\$219,312,296	\$228,476,214	\$236,083,148

* CPEN estimated is based upon 50% of MCRD subsistence. Funding is provided based upon recruit endstrength, recruits spend 8 weeks at MCRD and 4 weeks at CPEN.

** FY97 unavailable; 2-year FY 98-99 average used for FY97 in order to provide full cost data for subsequent analysis.

1. O&MMC

The Operations and Maintenance budget is the primary financial management tool which the depot has historically used to measure financial performance. The "operating budget," this is the money allocated directly to the depot from HQMC and T & E, MCCDC, Quantico and is directly controlled by the base CG. The operating budget has traditionally been divided into 32 cost centers for internal tracking purposes. Funding levels for FY 97-99 are presented in Table 3.2.

2. Military Personnel Salaries

Money spent to field the military personnel assigned and trained at MCRD, San Diego is the largest category of resources consumed. With a healthy depot population of over 1,600 permanent personnel and a continuous, fluctuating stream of recruits being trained, personnel costs quickly escalate. Actual funding levels attributed to the depot have been calculated with the use of the Military Composite Standard Pay and Reimbursement Rates charts from the DoD and depot tables of manpower requirements (T/O's). MCRD, San Diego is categorized as a priority command for staffing purposes, which means that the Marine Corps will staff the depot with personnel at a rate of 95% of the T/O or higher. For calculation purposes, the standard percentage of 95% has been used for all manpower levels, though actual staffing may often be at a point above 95%.

a. Permanent Personnel Salaries

There are four separate T/O's which list the manpower requirements for the depot. Broken down organizationally, these T/O's are for the H&S BN, the Support BN, the Weapons and Field Training BN, and the Recruit Training BN, the latter of the

**Table 3.2. Operations and Maintenance Budget
MCRD, San Diego FY97 – FY99**

Cost Center	1997	1998	1999
Chaplain	64,140	64,170	70,743
H&S Battalion	25,755	20,310	13,176
Staff Judge Advocate	13,637	18,263	11,470
Recruiters School	74,332	63,491	95,096
RTR	509,219	506,543	517,384
RTR Travel	72,325	84,719	77,840
WFTBN	1,407,035	1,598,449	1,694,479
Printing/MA	263,986	257,864	254,968
Audiovisual	310,532	679,056	562,340
Maintenance	1,984,680	2,065,088	3,569,835
Property Control	2,825,537	2,019,858	2,264,171
Clothing Alterations	779,873	821,910	901,394
Food Services	296,360	272,422	241,854
Motor Transport	417,778	422,531	438,431
Public Works	684,307	6,278,895	3,843,874
Environmental	452,145	340,901	928,006
Utilities	3,021,800	2,618,000	2,621,989
ISM	691,278	1,264,932	1,072,071
Communications	419,920	385,825	507,876
DEP	0	24,000	51,629
Contingency	273	9,863	23,268
Headquarters	833,074	1,413,762	2,034,436
Civilian Labor	10,991,080	10,979,322	11,188,132
Credits	(189,476)	(376,848)	(331,225)
Travel - Civilian	99,167	135,591	78,494
Travel - Military	256,124	455,144	397,818
Total O&M Budget	\$26,304,881	\$32,424,061	\$33,129,549

four being staffed at three times the listed requirement, once for each of the three training BN's. US Navy personnel have been summarized from all for T/O's and listed together. Data for fiscal years 1997-1999 is presented in Table 3.3 to Table 3.6.

b. Temporary Additional Duty Status Personnel

With the operation of the Recruiters School and the Drill Instructors School occurring aboard the depot, the salaries of personnel attending the schools are another resource consumed by depot operations, as these salaries are not part of the normal table of organization. Only after successful completion of these schools are the students assigned to their new occupational specialty of Recruiter or Drill Instructor, at which time they are joined to the normal table of organization.

(1) **Recruiters School.** The Recruiters School is a seven-week program which is convened six times annually. For salary estimation purposes, the average student is assumed to be a Sergeant (E-5) with six years of service. This figure will be somewhat understated, as some attendees will be of higher rank and have more time in service. However, without an accurate measure of distribution of rank available, a conservative approach is taken. Annually, the school produces an estimated 1,300 trained recruiters. The annual salary burden for the school will be 175 FTEs, as shown in Table 3.7.

(2) **Drill Instructors School.** The Drill Instructor School is an eight-week program. For salary estimation purposes, the average student is again assumed to be a Sergeant (E-5) with six years of service. This figure will also be somewhat understated, as some attendees will be of higher rank and have more time in service. However, the conservative approach is again taken. Annually, the school produces an estimated 150 trained Drill Instructors. The annual salary burden for the school will be 23 FTEs, as shown in Table 3.8.

Table 3.3. Table of Organization/Manpower Funding FY 1997

Fiscal Year		Table of Organization Number								
		7211 H&S BN	7221 RTR/SptBN	7222 RTR BN's	7240 WFTBN	Total Billets	Composite Rate	Authorized Manpower	Staffing %	Manpower Staffed
1997	Grade									
	O-10					0	\$166,789	\$0	95.00%	\$0
	O-9					0	\$156,782	\$0	95.00%	\$0
	O-8	1				1	\$142,863	\$142,863	95.00%	\$135,720
	O-7					0	\$133,374	\$0	95.00%	\$0
	O-6	8	1		1	10	\$118,498	\$1,184,980	95.00%	\$1,125,731
	O-5	7	3	3	1	14	\$102,463	\$1,434,482	95.00%	\$1,362,758
	O-4	16	4	3	3	26	\$85,983	\$2,235,558	95.00%	\$2,123,780
	O-3	22	8	18	5	53	\$72,343	\$3,834,179	95.00%	\$3,642,470
	O-2	8	6	36	2	52	\$58,399	\$3,036,748	95.00%	\$2,884,911
	O-1					0	\$42,850	\$0	95.00%	\$0
	WO-5					0	\$89,420	\$0	95.00%	\$0
	WO-4					0	\$75,827	\$0	95.00%	\$0
	WO-3	6			4	10	\$64,511	\$645,110	95.00%	\$612,855
	WO-2	6			3	9	\$56,307	\$506,763	95.00%	\$481,425
	WO-1					0	\$48,990	\$0	95.00%	\$0
	E-9	9	2	3	1	15	\$68,764	\$1,031,460	95.00%	\$979,887
	E-8	19	3	12	5	39	\$57,210	\$2,231,190	95.00%	\$2,119,631
	E-7	53	25	36	20	134	\$49,563	\$6,641,442	95.00%	\$6,309,370
	E-6	70	77	123	49	319	\$42,834	\$13,664,046	95.00%	\$12,980,844
	E-5	87	20	222	79	408	\$35,807	\$14,609,256	95.00%	\$13,878,793
	E-4	111	3	3	156	273	\$29,520	\$8,058,960	95.00%	\$7,656,012
	E-3	182	9	9	67	267	\$25,346	\$6,767,382	95.00%	\$6,429,013
	E-2	33	1		16	50	\$23,045	\$1,152,250	95.00%	\$1,094,638
	E-1					0	\$20,306	\$0	95.00%	\$0
Total by T/O		\$23,810,736	\$7,221,204	\$19,172,298	\$13,613,598	1680	MPMC Funded			\$63,817,836

Table 3.4. Table of Organization/Manpower Funding FY 1998

Fiscal Year		Table of Organization Number							Total Billets	Composite Rate	Authorized Manpower	Staffing %	Manpower Staffed
		7211 H&S BN	7221 RTR/SptBN	7222 RTR BN's	7240 WFTBN								
1998	Grade												
	O-10							0	\$160,550	\$0	95.00%	\$0	
	O-9							0	\$158,125	\$0	95.00%	\$0	
	O-8	1						1	\$144,035	\$144,035	95.00%	\$136,833	
	O-7							0	\$134,955	\$0	95.00%	\$0	
	O-6	8	1		1			10	\$119,166	\$1,191,660	95.00%	\$1,132,077	
	O-5	7	3	3	1			14	\$104,091	\$1,457,274	95.00%	\$1,384,410	
	O-4	16	4	3	3			26	\$86,547	\$2,250,222	95.00%	\$2,137,711	
	O-3	22	8	18	5			53	\$71,987	\$3,815,311	95.00%	\$3,624,545	
	O-2	8	6	36	2			52	\$57,841	\$3,007,732	95.00%	\$2,857,345	
	O-1							0	\$45,166	\$0	95.00%	\$0	
	WO-5							0	\$89,218	\$0	95.00%	\$0	
	WO-4							0	\$77,670	\$0	95.00%	\$0	
	WO-3	6			4			10	\$66,128	\$661,280	95.00%	\$628,216	
	WO-2	6			3			9	\$54,026	\$486,234	95.00%	\$461,922	
	WO-1							0	\$51,277	\$0	95.00%	\$0	
	E-9	9	2	3	1			15	\$68,627	\$1,029,405	95.00%	\$977,935	
	E-8	19	3	12	5			39	\$57,239	\$2,232,321	95.00%	\$2,120,705	
	E-7	53	25	36	20			134	\$48,928	\$6,556,352	95.00%	\$6,228,534	
	E-6	70	77	123	49			319	\$42,402	\$13,526,238	95.00%	\$12,849,926	
	E-5	87	20	222	79			408	\$35,016	\$14,286,528	95.00%	\$13,572,202	
	E-4	111	3	3	156			273	\$28,720	\$7,840,560	95.00%	\$7,448,532	
	E-3	182	9	9	67			267	\$24,639	\$6,578,613	95.00%	\$6,249,682	
	E-2	33	1		16			50	\$22,234	\$1,111,700	95.00%	\$1,056,115	
	E-1							0	\$19,501	\$0	95.00%	\$0	
Total by T/O		\$23,462,110	\$7,151,751	\$18,905,971	\$13,346,860			1680	MPMC Funded			\$62,866,692	

Table 3.5. Table of Organization/Manpower Funding FY 1999

Fiscal Year		Table of Organization Number							
1999	7211 H&S BN	7221 RTR/SptBN	7222 RTR BN's	7240 WFTBN	Total Billets	Composite Rate	Authorized Manpower	Staffing %	Manpower Staffed
Grade									
O-10					0	\$164,698	\$0	95.00%	\$0
O-9					0	\$160,899	\$0	95.00%	\$0
O-8	1				1	\$146,431	\$137,095	95.00%	\$130,240
O-7					0	\$137,095	\$0	95.00%	\$0
O-6	8	1		1	10	\$121,341	\$1,054,560	95.00%	\$1,001,832
O-5	7	3	3	1	14	\$105,456	\$1,224,482	95.00%	\$1,163,258
O-4	16	4	3	3	26	\$87,463	\$1,903,070	95.00%	\$1,807,917
O-3	22	8	18	5	53	\$73,195	\$3,116,559	95.00%	\$2,960,731
O-2	8	6	36	2	52	\$58,803	\$2,360,696	95.00%	\$2,242,661
O-1					0	\$45,398	\$0	95.00%	\$0
WO-5					0	\$89,849	\$0	95.00%	\$0
WO-4					0	\$79,168	\$0	95.00%	\$0
WO-3	6			4	10	\$66,538	\$665,380	95.00%	\$632,111
WO-2	6			3	9	\$57,802	\$520,218	95.00%	\$494,207
WO-1					0	\$53,109	\$0	95.00%	\$0
E-9	9	2	3	1	15	\$71,384	\$1,070,760	95.00%	\$1,017,222
E-8	19	3	12	5	39	\$59,714	\$2,328,846	95.00%	\$2,212,404
E-7	53	25	36	20	134	\$51,600	\$6,914,400	95.00%	\$6,568,680
E-6	70	77	123	49	319	\$44,594	\$14,225,486	95.00%	\$13,514,212
E-5	87	20	222	79	408	\$36,385	\$14,845,080	95.00%	\$14,102,826
E-4	111	3	3	156	273	\$30,184	\$8,240,232	95.00%	\$7,828,220
E-3	182	9	9	67	267	\$25,786	\$6,884,862	95.00%	\$6,540,619
E-2	33	1		16	50	\$23,428	\$1,171,400	95.00%	\$1,112,830
E-1					0	\$20,612	\$0	95.00%	\$0
Total by T/O		\$23,543,366	\$7,146,697	\$18,855,822	\$13,784,084	1680	MPMC Funded		\$63,329,970

Table 3.6. Table of Organization/Manpower Funding USN FY 97-99

U. S. NAVY	Grade	Total USN Billets	1997 Composite Rate	1998 Composite Rate	1999 Composite Rate	Staffing %	1997 Manpower Staffed	1998 Manpower Staffed	1999 Manpower Staffed
	O-10		\$170,965	\$170,932	\$169,500	95.00%	\$0	\$0	\$0
	O-9		\$162,998	\$164,199	\$173,508	95.00%	\$0	\$0	\$0
	O-8		\$153,007	\$154,669	\$158,890	95.00%	\$0	\$0	\$0
	O-7		\$137,025	\$153,572	\$143,892	95.00%	\$0	\$0	\$0
	O-6	1	\$125,231	\$128,161	\$132,418	95.00%	\$118,969	\$121,753	\$125,797
	O-5	2	\$105,904	\$107,017	\$111,317	95.00%	\$201,218	\$203,332	\$211,502
	O-4	3	\$89,732	\$91,356	\$94,039	95.00%	\$255,736	\$260,365	\$268,011
	O-3	7	\$77,278	\$77,942	\$82,015	95.00%	\$513,899	\$518,314	\$545,400
	O-2		\$61,193	\$61,786	\$65,340	95.00%	\$0	\$0	\$0
	O-1		\$49,286	\$49,346	\$52,282	95.00%	\$0	\$0	\$0
	WO-5	-----	-----	-----	-----	-----	-----	-----	-----
	WO-4		\$87,802	\$90,190	\$91,553	95.00%	\$0	\$0	\$0
	WO-3		\$72,623	\$73,156	\$76,129	95.00%	\$0	\$0	\$0
	WO-2		\$64,155	\$64,809	\$67,728	95.00%	\$0	\$0	\$0
	WO-1	-----	-----	-----	-----	-----	-----	-----	-----
	E-9		\$70,674	\$73,563	\$73,965	95.00%	\$0	\$0	\$0
	E-8		\$59,977	\$62,052	\$63,089	95.00%	\$0	\$0	\$0
	E-7		\$52,589	\$54,293	\$55,463	95.00%	\$0	\$0	\$0
	E-6	3	\$45,752	\$46,944	\$48,210	95.00%	\$130,393	\$133,790	\$137,399
	E-5	3	\$38,288	\$39,657	\$41,164	95.00%	\$109,121	\$113,022	\$117,317
	E-4	6	\$31,956	\$32,339	\$33,967	95.00%	\$182,149	\$184,332	\$193,612
	E-3	1	\$26,582	\$26,804	\$28,521	95.00%	\$25,253	\$25,464	\$27,095
	E-2	0	\$24,341	\$24,415	\$26,126	95.00%	\$0	\$0	\$0
	E-1		\$21,547	\$21,474	\$23,188	95.00%	\$0	\$0	\$0
MPN Funded							\$1,536,738	\$1,560,373	\$1,626,133

Table 3.7. MPMC Funding for Recruiters School TAD Personnel

Total Number of Graduates	Course Length	Annualized Rate*	FTE's
1,300	7 weeks	0.1346	175.0

* Annualized rate = (7 instruction weeks)/52 = .1346

Table 3.8. MPMC Funding for Drill Instructor School TAD Personnel

Total Number of Graduates	Course Length	Annualized Rate*	FTE's
150	8 weeks	0.1538	23.1

* Annualized rate = (8 instruction weeks)/52 = .1538

c. Recruit Salaries

(1) **Overview.** Without careful consideration, recruit salaries may be easily dismissed as a fixed cost that must be paid, a cost over which the depot has no control, and one which does not pertain to relevant discussion about true training costs. While recruit salary rates are in fact fixed, actual processing and training time does vary among recruits, with the result being significant variance in the burden of recruit salaries that the depot must carry. To ignore recruit salaries would mean omitting the single largest component of the resources consumed by depot operations. Several significantly different variances contribute to the excess burden carried. These sources, which are described in detail below, include:

Attrition

Physical Conditioning Platoon

Medical Rehabilitation Platoon

Basic Marine Platoon

Recruit Separation Platoon

When discussing recruit salaries it is necessary to know recruit shipping for incoming recruits, the number of recruits who do not complete the training program, and the number of graduates from the training program. This data is summarized in Tables 3.9 and 3.10.

**Table 3.9. Attrition at MCRD, SD
FY97 – FY99**

	1997	1998	1999	Mean
Total Recruits Shipped	18,143	18,895	19,204	18,747
Loss During Receiving	797	1,072	736	868
Recruits Entering Training	17,346	17,823	18,468	17,879
Loss During Training	1,163	1,359	1,209	1,244
Recruits Graduating	16,183	16,464	17,259	16,635

**Table 3.10. Attrition Loss Percentages
FY97 – FY99**

	1997	1998	1999	Mean
Total Recruits Shipped	100.00%	100.00%	100.00%	100.00%
Loss During Receiving	4.39%	5.67%	3.83%	4.63%
Recruits Entering Training	95.61%	94.33%	96.17%	95.37%
Loss During Training	6.41%	7.19%	6.30%	6.63%
Recruits Graduating	89.20%	87.13%	89.87%	88.73%
TOTAL ATTRITION	10.80%	12.87%	10.13%	11.27%

(2) **Training Salary Costs.** Upon entering active duty, the basic recruit's military pay account is activated. Salaries are accrued from day one as the recruit travels from the MEPS to the depot and continue through graduation. The recruit who completes the training cycle with no delays or breaks in the normal schedule will be aboard the depot for 12 weeks, with an additional 1 to 3 days for entrance processing.

Accrued leave should also be counted as a cost of training, because it is a benefit owed to the Marine and is earned during the training period. Accrued leave during the training cycle will be 2.5 days per month, or 7.5 days total. Total days committed to training for salary purposes for a recruit completing a normal training cycle will then be 12 weeks (84 days), plus 1 to 3 days processing, plus 7.5 days accrued leave. Total time will be 92.5 to 94.5 days. As a percentage of the normal work year of 365 days, 25.3% to 25.9% of an annual salary of a basic Marine is consumed during training. For calculation purposes, the approximation of 25% will be used for the percent of salary consumed during a normal training cycle.

In determining MPMC burden for normal training salaries, the total amount of time in training for graduating Marines must be converted into Full Time Equivalents (FTEs), with one FTE equaling a full work year in the pay grade. To calculate the normal training salary burden of recruits, the total number of graduates is multiplied by the percentage of time during a year spent in basic training, or 25% from above. The results are listed in Table 3.11.

Table 3.11. MPMC Funding for the Normal Training Cycle

Fiscal Year	Total Number of graduates	Annualized Rate*	FTE's
1997	16,183	0.25	4,045.8
1998	16,464	0.25	4,116.0
1999	17,259	0.25	4,314.8

* Annualized rate = (12 training weeks + 1 accrued leave week)/52 = 1/4

(a) Attrition. The first salary cost in addition to the normal salary costs for trained Marines will be salary costs for training time of recruits lost to attrition and dropped from training. Specifically, attrition costs are defined as time spent in training for a recruit who does not graduate from the training program. Varying causes result in a recruit being dropped from the training program. However, this category will focus on the time spent in training prior to being dropped, and not the cause of being dropped.

Table 3.12. Attrition FTE Conversion FY97 – FY99

Attrition Loss Category	1997			1998			1999		
	Recruits Dropped	Ave # of weeks	FTE's	Recruits Dropped	Ave # of weeks	FTE's	Recruits Dropped	Ave # of weeks	FTE's
Receiving Loss	797	0.5	7.7	1,072	0.5	10.3	736	0.5	7.1
Phase I* (65%)	756	3.5	50.9	883	3.0	51.0	786	3.0	45.3
Phase II* (30%)	349	8.0	53.7	408	8.0	62.7	363	8.0	55.8
Phase III*(5%)	58	11.0	12.3	68	11.0	14.4	60	11.0	12.8
Total FTE's	124.5			138.4			121.0		

* Assumes uniform distribution of drops during phases, based upon % of total training attrition from Table 3.9.

The first category of loss occurs during receiving, with these recruits never making it to a training company. The second category of attrition is training losses, those recruits who make it through a portion of the training before being dropped from the program. The percentage distribution for loss during training is approximately 65%, 30% and 5% for Phases I, II and III, respectively. Collectively, the combined total of these times represent the burden of MPMC carried for training time salaries lost to attrition. The remaining categories will address further cost categories.

(b) Medical Rehabilitation Platoon. During the training cycle, some recruits will incur physical injuries which temporarily prevent them from continuing training. Recruits who will be able to return to training upon recovering from their injuries are sent to the Medical Rehabilitation Platoon. This unit handles recruits in a recovering status. Wages accrued by recruits in this status are real costs and should be considered in addition to the normal salary costs, as time spent in MRP does not count toward training time. To calculate salary costs incurred through the MRP, an average population approach will be used. Examining data from the Recruit Training Regiment, average monthly populations for the number of recruits for each month of the year have been provided. The average of these "averages" will produce the annualized burden carried by the MRP for recruit salaries, shown in Table 3.13. A similar approach will produce the annualized burden of recruit salaries produced through each category.

(c) Physical Conditioning Platoon. The physical conditioning platoon is designated for Marines who have no medical problems preventing them from training but fail to meet the physical requirements for training. This may include a lack of endurance, strength, agility, or desire to sustain themselves in training. These recruits are dropped from the training cycle and sent to the PCP until they are deemed qualified to return to training or they are dropped from training for discharge. As with the MRP, monthly average populations for the PCP are presented from the RTR. The average of these "averages" will be the annualized burden of recruit salaries attributable to MRP, which is in addition to the normal training salaries, shown in Table 3.14.

Table 3.13. Medical Rehabilitation Platoon FTEs

MONTH	Monthly Average Population			Three Year Average
	FY97	FY98	FY99	
Oct	137	107	91	111.7
Nov	130	94	85	103.0
Dec	102	79	78	86.3
Jan	89	73	74	78.7
Feb	102	70	95	89.0
Mar	110	87	74	90.3
Apr	91	111	61	87.7
May	77	97	76	83.3
Jun	61	114	82	85.7
Jul	77	131	70	92.7
Aug	86	126	81	97.7
Sep	108	141	109	119.3
Annual FTE's	97.5	102.5	81.3	93.8

Table 3-14. Physical Conditioning Platoon FTEs

MONTH	Monthly Average Population			Three Year Average
	FY97	FY98	FY99	
Oct	78	68	91	79.0
Nov	72	72	85	76.3
Dec	59	68	78	68.3
Jan	59	78	102	79.7
Feb	70	96	133	99.7
Mar	53	81	111	81.7
Apr	53	72	82	69.0
May	36	66	65	55.7
Jun	45	106	76	75.7
Jul	51	140	89	93.3
Aug	63	106	100	89.7
Sep	56	91	123	90.0
Annual FTE's	57.9	87.0	94.6	79.8

(d) Basic Marine Platoon. The Basic Marine Platoon is a temporary holdover unit for Marines who have successfully completed the recruit-training program, but in the process incurred an injury which, while not preventing them from graduating, does prevent them from immediately continuing on to follow-on training. These Marines will be assigned to the BMP until they are given a clean bill of health and allowed to continue to the next phase of training. Salary costs incurred here are again outside the normal parameters of the training program, and thus must be considered in addition to the normal recruit salary costs. Monthly average populations are again in Table 3.15. Data was not available in this category for fiscal year 1997, therefore a two-year average will be used for this category in later analysis.

Table 3.15. Basic Marine Platoon FTEs

MONTH	Monthly Average Population		Two Year Average
	FY98	FY99	
Oct	102	30	66.0
Nov	98	31	64.5
Dec	76	33	54.5
Jan	78	35	56.5
Feb	54	36	45.0
Mar	48	37	42.5
Apr	20	29	24.5
May	29	41	35.0
Jun	25	41	33.0
Jul	28	46	37.0
Aug	30	51	40.5
Sep	26	56	41.0
Annual FTEs	51.2	38.8	45.0

(e) Recruit Separation Platoon. As previously indicated, not all recruits who come to MCRD, SD to become Marines complete the recruit-training program successfully. They are processed for separation through the Recruit Separation Platoon (RSP). Again, salary costs incurred here are outside the normal parameters of the training program, and thus must be considered in addition to the normal recruit salary costs. The average time spent in RSP is roughly 7 days. There are some recruits who could spend several months in RSP if awaiting the results of a medical review board for discharge. However, this is a small portion of the total recruits (less than 1 in 20). For calculation of FTEs, the total number of recruits separated is multiplied by the average stay in RSP (7/365). Separation FTEs are as presented in Table 3.16.

Table 3.16. Recruit Separation Platoon FTEs

Fiscal Year	Total Separations	FTE Conversion*
1997	1960.0	37.7
1998	2431.0	46.8
1999	1945.0	37.4
3-Year Average	2112.0	40.6

*FTEs = Separations/52

A summary of all FTEs which represent MPMC consumed by recruits during fiscal years 1997-1999 is shown in Table 3.17. MRP, PCP, and BMP are collectively referred to as Special Training Company, or STC, their administrative unit. STC and RSP FTEs have been combined into a single data point.

Table 3.17. Recruit Training FTE and MPMC Summary

Fiscal Year	Training FTEs	Attrition FTEs	STC and RSP FTEs*	TOTAL FTEs	Composite Rate (E-1)	MPMC Funding
1997	4045.8	125.0	238.10	4408.9	\$20,306	\$89,527,123
1998	4116	138.0	287.50	4541.5	\$19,501	\$88,563,792
1999	4314.8	121.0	252.10	4687.9	\$20,612	\$96,626,995

The remaining categories of resources provided to the depot are line item appropriations whose quantities require no additional calculations. Please refer to Table 3.1 at the beginning of the chapter for specific dollar amounts. The nature of the appropriations are described below.

3. Subsistence

Part of the compensation that a military member receives while on active duty is that they are fed, provided either with meals directly or given a food allowance. Funding for either is referred to as "subsistence." For recruits aboard the depot, meals are provided either in the chow hall in a cafeteria-style setting or in the field, through either a field mess or from prepackaged Meals-Ready-to-Eats (MREs), the standard field issue meal. The facilities that provide this subsistence are reimbursed through an allowance based upon the population of recruits and number of meals served. With time spent in training at MCRD, SD and CPEN, both installations provide this service. Actual numbers for MCRD, SD are provided below for the eight weeks spent aboard the depot. The CPEN numbers were not available and estimates are provided based upon 50% of MCRD, SD's allowance, as recruits spend four weeks aboard CPEN. With roughly the same training population and time spent being at a 2 to 1 ratio, this method of estimation is reasonable.

4. PMC

PMC covers all ammunition and pyrotechnics consumed during the recruit training cycle. This allotment includes basic rifle ammunition, training rounds, grenades, flares, and CS gas capsules. These items are consumed in two ways, by the individual recruit, and by the series and company as part of a standard training package. Data in the category was only available for fiscal years 1998-1999. A two year average for this category will be used in later analysis.

5. Housing

MCRD, San Diego does not maintain permanent housing facilities organically for permanent personnel, with the exception of the CG's quarters. To meet the need of providing a limited number of housing units to permanent personnel, the depot has entered into a housing unit management contract with the U. S. Navy. Under current operations, the Navy provides 125 housing units to MCRD, SD, with annual payments for contracted services as listed in Table 3.1.

6. Supply Issue

Serving as the entry point into the Marine Corps for the incoming recruits, one of the functions of in-processing is a basic gear issue, or "sea-bag" uniform allowance. The sea-bag issue provides the new recruit with all uniforms that are required by regulation for normal duties. A separate funding source for the depot, annual support for FY 97-99 is listed in Table 3.1.

7. Direct Support Funding

In addition to the appropriations already set forth, the depot receives funding from several higher units throughout the Marine Corps Headquarters establishment to support very specific programs. The dollars passed down to the depot are earmarked and passed one for one to the designated programs. Direct funding support is as follows:

a. Quality of Life

Funding provided for quality of life programs are designed to support initiatives designed to enhance the lifestyle, or "quality of life," for military personnel assigned to the installation. At a training command like the depot, these programs are more often directed toward the personnel permanently assigned to the base, as the trainees aboard the base have a very different and set schedule of activities which are designed to maximize the content of the training program in the limited period of time available.

b. Transition Assistance

For some of the permanent personnel assigned to the depot, this will be their last military duty station prior to exiting active duty. To sponsor and support programs developed to assist Marines in this transition, direct funding is also received for this area, as shown in Table 3.1.

c. Family Advocacy

Realizing that the needs of the service member often extend to his or her family, various family support programs have been developed to provide assistance to Marine families assigned to the depot. This special area receives direct funding in support of this effort.

d. Relocation Assistance

Part of the lifestyle of being in a member of the armed services is moving. As military personnel move to and from the depot, various programs support their needs as they relocate. Funding is provided in direct support for this activity as shown in Table 3.1.

B. PROCESS DATA

Shipping Data

Input of recruits, and subsequently output of Marines, at the depot is far from a steady state operation, with training being a supply driven operation, the supply of trainable recruits being the limiting factor. While actual inputs into the training cycle, or shipping of recruits to the depot, fluctuate greatly during the year, the fluctuations are seasonal and repetitive. Table 3.18 shows the shipping data from the WRR to MCRD, San Diego for FY 97 – 99.

**Table 3.18. Recruit Shipping from WRR to
MCRD, SD FY97 – FY99**

	1997	1998	1999	Mean
Oct	1,645	1,626	1,664	1,645
Nov	1,395	1,466	1,405	1,422
Dec	1,321	1,105	1,081	1,169
Jan	1,825	1,799	1,945	1,856
Feb	1,060	1,019	997	1,025
Mar	970	1,008	1,043	1,007
Apr	923	975	869	922
May	1,229	1,213	1,253	1,232
Jun	2,433	2,364	2,389	2,395
Jul	2,285	2,424	2,399	2,369
Aug	2,192	2,416	2,314	2,307
Sep	1,715	1,791	1,655	1,720
FY Total	18,993	19,206	19,014	19,071

Graphically, the data presents a clear picture of the annual pattern of recruits entering the depot for training. See Figure 3.1.

For FY 2001, the number of planned training cycles is displayed in Figure 3.2. This data will be useful during later capacity analysis.

C. SUPPLEMENTAL ACTIVITIES

MCRD, SD finds itself in a unique position as a Marine Corps installation in that it is located in the center of a major metropolitan area, the city of San Diego. The visibility provided by its location, as well as from its inherent mission of making Marines, positions the depot well with the local community, and makes community relation activities perhaps even more important than they might be at a different installation.

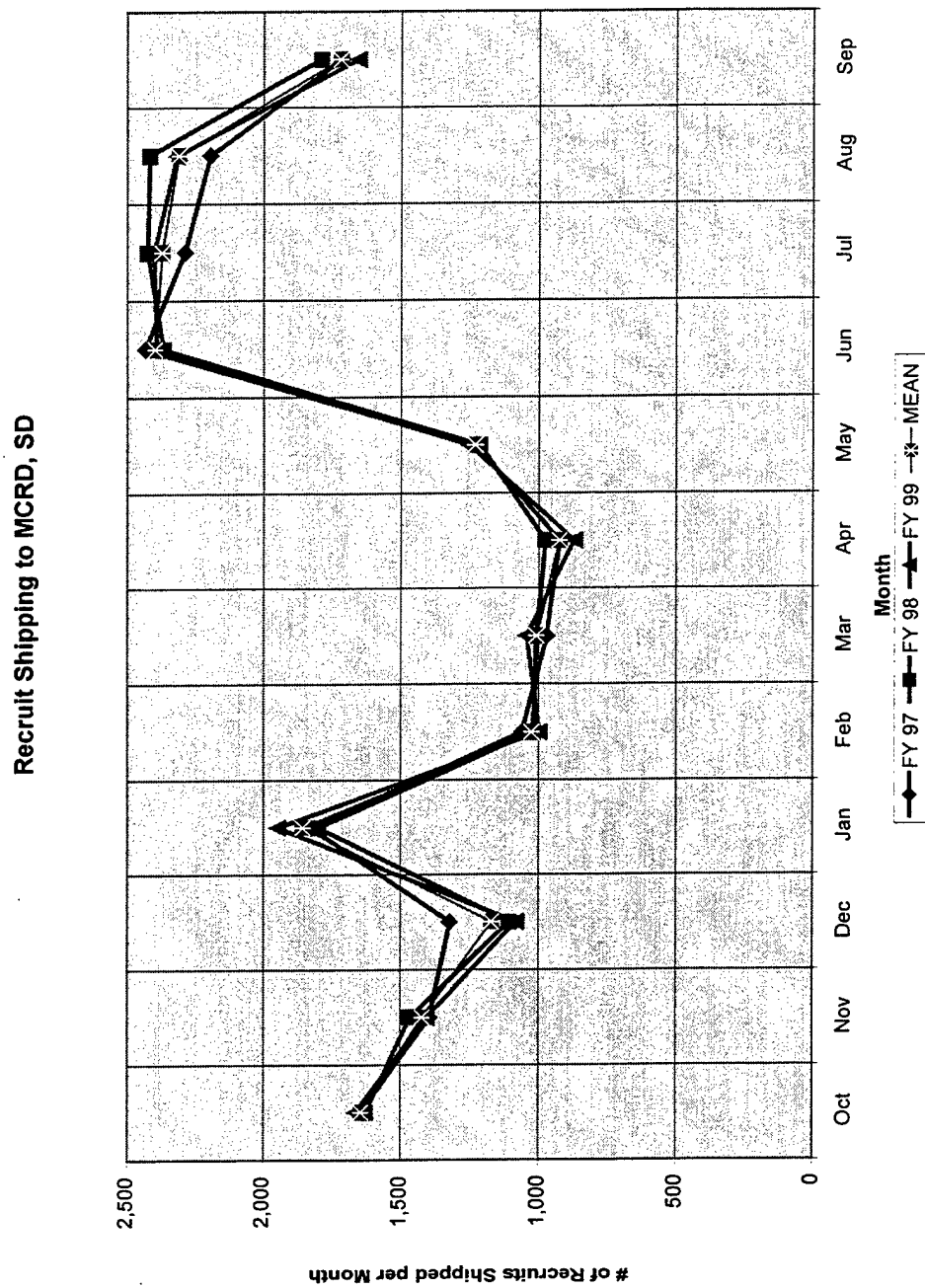


Figure 3.1. Recruit Shipping to MCRD, SD

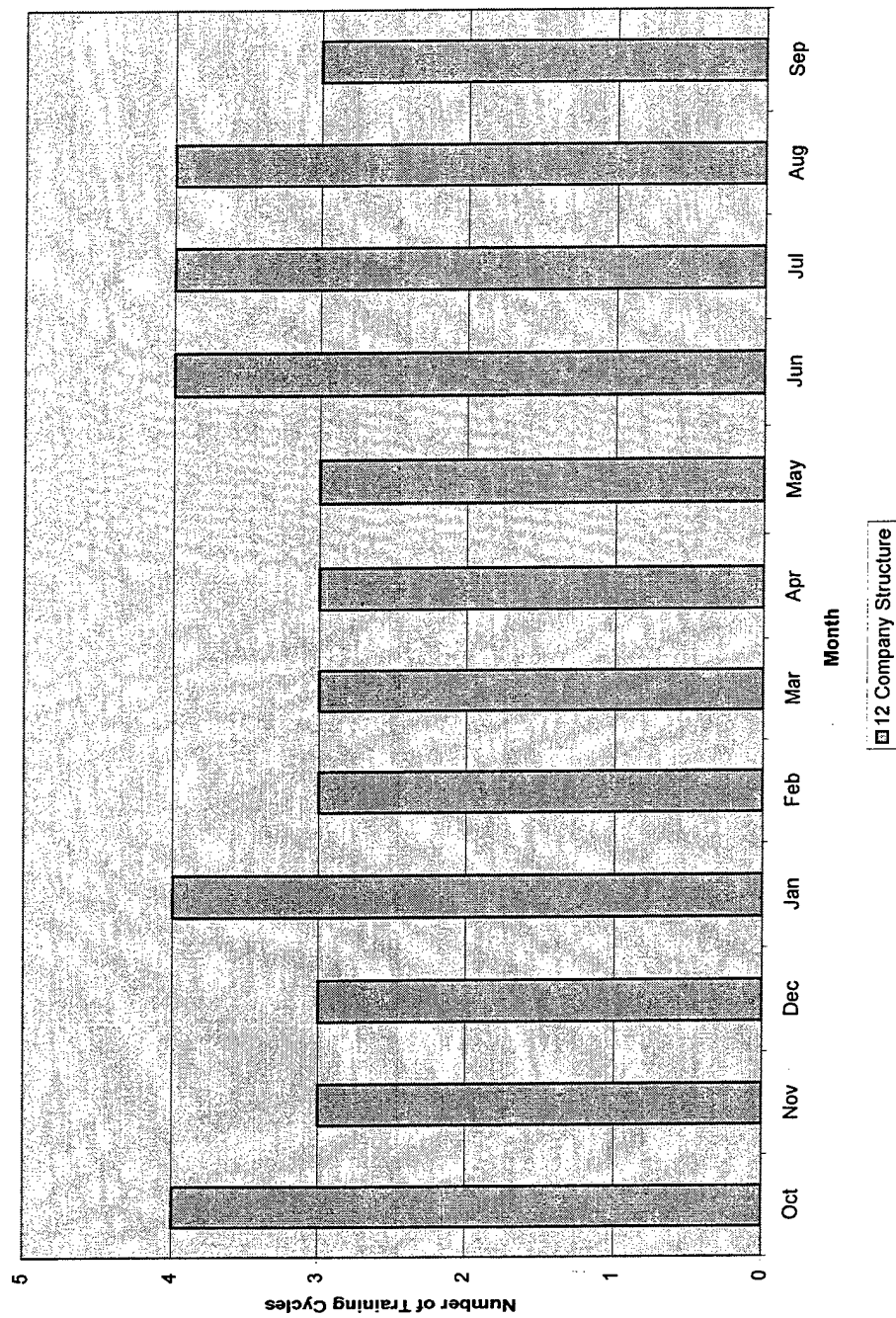


Figure 3.2. Planned Training Cycles per Month FY 2001

Quantifying community service is a task that does not lend itself to an easy answer. In order to show the relative magnitude of these activities, the data in Table 3.19 is presented to identify key community activities and the relative frequency that these are performed by the depot.

Table 3.19. Supplemental Activities

Activity Description	1997 Qty/ Attendees	1998 Qty/ Attendees	1999 Qty/ Attendees
Marine Corps Reunions	28 / 2,100	39 / 3,300	26 / 1,800
U.S. Military Personnel Visits	25 / 774	10 / 658	19 / 1,280
ROTC/JROTC visits	40 / 1,918	33 / 1,904	42 / 2,400
Foreign Military Officer Visits	9 / 107	6 / 96	16 / 250
Formal Retirement Ceremonies	7	7	8
Depot Ceremonial events	18	19	11
Band Performances	476	447	504
Color Guard Performances	94	123	138
Funeral Details	126	154	140

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IV. DATA ANALYSIS

A. MODEL INTRODUCTION

The activity-based costing philosophy that has been adopted by the Marine Corps represents the strongest effort to date in implementing best business practices across the service. The program implementation is a two-phase effort. In Phase I, the ongoing first effort has been to teach the ABC methodology approach to the installations and depots that will be using it. Partnering with ABC Technologies, Inc. and using their OROS software, a standard framework for the ABC model has been adapted, with further specialization occurring at the installation level to meet the requirements of the specific base, air station, or depot. During Phase II, the Marine Corps is partnering with Grant Thornton Consulting, who will assist in conducting Activity-Based Management (ABM) through analyzing the models built during Phase I for cost savings and efficiency improvements. By FY 2003, the Marine Corps is planning to shift to Activity-Based Budgeting (ABB), building upon the efforts of the previous years.

The Phase I ABC model is designed to show all resources that are consumed by an installation. Then, those resources are linked to the activities being performed by or at the installation which they support via activity drivers. Finally, the activities are related to "cost objects", the real outputs of the installation via cost drivers. Schematically, the model is broken down into three modules which separate the different portions of the model. These resource, activities, and cost object modules are separated to provide autonomy of thought to each separate development, then related via cost and activity drivers as described above. The generic ABC model is presented in Figure 4.1.

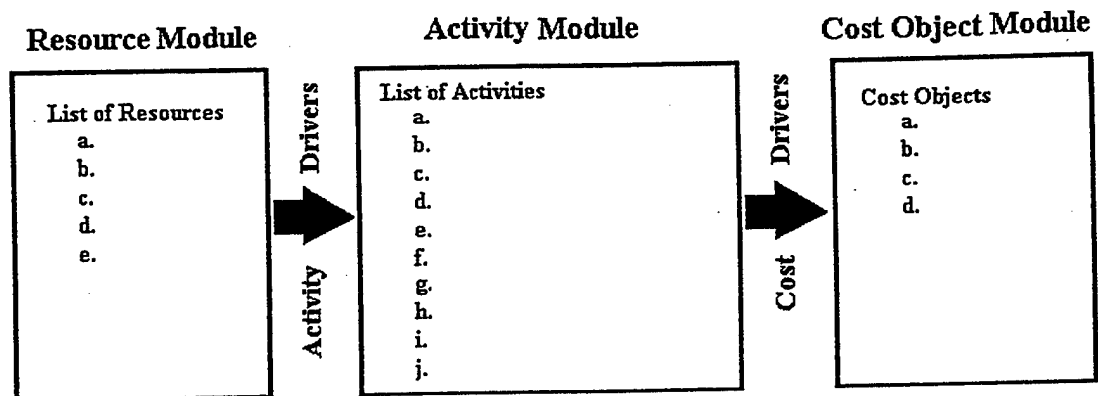


Figure 4.1. Generic Activity-Based Costing Model

As the resources flow through the model into activities and then cost objects, some costs will vary by the level of operations conducted. Other costs will be fixed and directly traceable to cost objects, and some costs will be fixed but will be indirectly related to the cost objects and will have to be allocated over some reasonable basis.

Using the standard format that has been adopted by the Marine Corps to frame this discussion, this model will be presented in the three modules, a resource, an activity, and a cost object module. To provide a structure in which to frame the activities of the activity module, an additional tool will be employed, the Installation Business Model.

Installation Business Model

To provide a common framework in which to discuss base operations, the Director, Installation Reform Division, Installations and Logistics Department, HQMC has presented the Installation Business Model. This model has been adopted primarily as a tool to collect functional accounting data in a consistent manner across installations. While the ABC approach may develop an activity chart that looks different than a functional map of an organization, the validity of having a common framework to discuss

operations, either functional or by activity, holds true. In the absence of a similar model by which to discuss activities, the installation business model is used to frame activities.

Finally, it is important to keep in mind that activity-based costing is itself a management tool. It provides cost visibility that may have been previously unachievable. The advantage of the ABC model is that it shows the full picture of resources and relates these to the ultimate cost objects via the activity and cost drivers used in the process. It therefore can produce the closest "real cost of doing business" view that a user may have seen. It will also illustrate the relationship between resources and final outputs, showing consumption by activities and cost objects, again information that may previously have been unavailable. Applied correctly, the ABC process may not only develop a model for future management decisions, it can bring together a leadership staff so that, perhaps for the first time, they have a common view of how the organization really works.

B. MODEL PRESENTATION

1. Resource Module

The resource module will reflect the many resources consumed by the depot, as presented in Chapter III. Some of these resources may have been newly identified or quantified here for the first time. The total amount of resources consumed by the organization may now be much larger than previously thought.

The data gathered represents resource amounts from FY97-FY99. With all resource data collected, conversion into constant year (CY) dollars is necessary in order to provide inflation adjusted data from which a three-year mean can be developed. Gross Domestic Product Deflators are used to adjust FY 97 and FY 98 into CY 99 dollars, as shown in Table 4.1.

Table 4.1. Inflation Adjusted Funding Sources

Funding Sources for MCRD, SD FY97 - FY99				
Inflation Adjusted to Constant Year 1999 Dollars				
	1997	1998	1999	3-Year Mean in CY99 \$
	GDP Deflator for CY 99 Conversion			
	1.026	1.013	1.000	
O & M	26,988,808	32,845,574	33,129,549	30,987,977
MPMC	65,477,100	63,683,959	63,329,970	64,163,676
MPN	1,576,693	1,580,658	1,626,133	1,594,495
MPMC (TDY personnel)	7,276,946	7,026,028	7,207,029	7,170,001
MPMC (Recruits)	91,854,828	89,715,121	96,626,995	92,732,315
Subsistence MCRD	7,902,014	6,507,035	6,601,492	7,003,514
Subsistence CPEN*	3,951,007	3,253,517	3,300,746	3,501,757
PMC (Ammo)	4,123,036	4,172,829	3,917,830	4,071,232
Housing	1,739,092	1,669,308	1,777,947	1,728,782
Supply Issue	13,101,232	19,359,824	16,514,232	16,325,096
Quality of Life	654,300	1,240,522	1,562,225	1,152,349
Transition Assistance	100,035	103,326	171,600	124,987
Family Advocacy	176,472	182,340	208,500	189,104
Relocation Assistance	92,853	106,365	108,900	102,706
TOTAL RESOURCES	\$225,014,416	\$231,446,405	\$236,083,148	\$230,847,990

The inflation adjusted three-year mean will serve as the basis for the resource module. The mean is used because real fluctuations do exist in input, output, and funding levels for the depot from FY97-99. Given that some items, such as maintenance, may be deferred, and some resources, such as supply items, may be carried over to the next fiscal year, the three-year mean will present the most accurate representation of what the operational costs were for an "average" year during the period observed. The resource module is presented in Table 4.2.

Table 4.2. Resource Module

FUNDING SOURCE	Three Year Average
O & M	30,987,977
MPMC	64,163,676
MPN	1,594,495
MPMC (TDY personnel)	7,170,001
MilPers (Recruits)	92,732,315
Subsistence MCRD	7,003,514
Subsistence CPEN*	3,501,757
PMC (Ammo)	4,071,232
Housing	1,728,782
Supply Issue	16,325,096
Quality of Life	1,152,349
Transition Assistance	124,987
Family Advocacy	189,104
Relocation Assistance	102,706
Total Resources	\$230,847,990

2. Activity Module

Once a clear grasp of resources has been established, activities should be examined. In examining the activities of the depot, the task is to capture those key activities that are occurring aboard the depot or performed by depot organizations that generate the services provided by the organization. For the first time, however, dollar figures are attributed with to activities, displaying the full costs of these activities.

This second module, the activity module, captures these activities. This area proved to be the most challenging phase of the ABC model development, in that a strategic level model presents a very broad top-level view of an organization. The difficulty rests in condensing the efforts of nearly 2,000 military and civilian personnel holding a wide range of positions into 30-40 key activities that represent the focus of effort of the entire installation.

Given the nature of the ABC methodology, a thorough understanding of operations is needed in order to be able to choose the correct activities and drivers for the process. A balance of detail and conciseness in information must also be achieved so that the effectiveness of the ABC model is not diluted. The depot was examined organizationally, identifying activities performed by functional areas. Through observation of the stand-up conference for the depot's internal ABC project and through personal interviews with depot staff, the activity list for this model was developed. It is important to keep in mind the reason why the model is being built, as different questions will require different models with varying degrees of detail. In creating a strategic level model of an the organization, it was necessary to limit functional areas to a few, sometimes one to three, key activities that are provided in the course of depot operations. The activities are presented as follows:

a. Activities

(1) **Provide Installation Housing.** The activity of providing installation housing is minimized at MCRD, SD since the depot does not have any organic housing with the exception of the CG's residence. With the Depot's housing contract, the value of the contract represents the bulk of the housing efforts.

(2) **Maintain and Repair Real Property.** This activity includes the efforts for general maintenance and repair of the depot's internal infrastructure, such as building, roads, and equipment. O&M budgets, and salaries of military and civilian personnel contribute to this activity.

(3) **Provide Utilities.** This self-descriptive activity covers the effort and resources expended in procuring electrical power and other utilities for the depot. O&M funds dedicated to this activity are reflected in this category.

(4) **Support Public Works Needs.** As a self-sufficient organization, the depot provides a wide range of general support and repair services, such as automotive, electrical, or plumbing support. These activities are represented by public works needs and reflect O&M budgets, and the salaries of military and civilian personnel.

(5) **Utilize General Recruit Labor.** As part of the current 12-week training program, recruits spend one week performing both mess and maintenance duties aboard the depot. With maintenance efforts going to various base projects, a percentage of this week of recruit labor is represented by this activity.

(6) **Provide Environmental Support.** One of the necessary activities of base operations is compliance with the appropriate environmental regulations. This activity represents O&M funding and civilian and military salaries dedicated to this effort.

(7) **Provide Musical Entertainment.** Fielding a full 50-member band, the depot provides musical entertainment for a wide range of military and civilian occasions, from recruit graduations to performances at major sporting events. The salaries of the military personnel committed to this activity are reflected in this activity.

(8) **Plan and Conduct Special Events & Community**

Support. As a highly visible installation located in a major metropolitan area, the depot conducts many special events for the retired Marine community, for local organizations, and for official visits for senior personnel and VIP's. The salaries of military personnel dedicated as event planners are reflected in this category. The percentage of MPMC consumed for personnel temporarily assigned from their primary duties to assist in this activity has not been captured in this analysis.

(9) **Provide Recreational Services.**

Various support programs are provided which make available extracurricular activities of the personnel and families of the Depot, such as the bowling alley. This activity reflects the salaries of personnel committed to supporting these efforts.

(10) **Provide Specialized Assistance.**

Several specialized offices exist aboard the depot to provide assistance in specific areas but which do not justify by magnitude an independent activity. These include efforts in programs such as relocation assistance, transition assistance, family advocacy, and quality of life programs. This activity reflects O&M budgets, direct funding, and salaries of military and civilian personnel.

(11) **Provide General Logistical Support.**

While certain activities of the G-4 are easily identifiable, such as transportation or food services efforts, the depot generates a wide range of logistical requirements. This activity represents the efforts of general logistic support provide to the depot, and reflects the salaries of personnel assigned to the area.

(12) **Procure and Issue Supply and Uniform Items.**

This activity reflects all the efforts of acquiring and distributing consumable items needed by recruit training operations. A large part of this effort is the issue of uniforms and

equipment to recruits. This activity reflects O&M budgets, salaries of military and civilian personnel, and supply funding provided for recruit uniforms.

(13) **Manage Property Control.** This activity reflects all the efforts of acquiring and distributing consumable items needed by the depot. This effort includes the items such as office furniture, reusable field gear, and small equipment and tools. This activity reflects O&M budget committed to this area.

(14) **Provide Transportation.** Another necessary support activity is transportation. The recruit training efforts consume the majority of this activity with the movement of recruits to and from CPEN. This activity reflects O&M funds and the salaries of personnel dedicated to this effort.

(15) **Provide Food Services.** With approximately 19,000 recruits entering the depot annually, the provision of subsistence is itself a large effort. This activity reflects funds provided directly for this area, O&M funds allocated to this area, the salaries of permanent personnel assigned to this task, as well as a week of recruit labor dedicated to this function.

(16) **Provide Communications and IT Support.** This activity covers efforts to provide standard phone service as well as information technology services, including programming and maintenance of IT equipment. Reflected are O&M budgets and salaries of personnel assigned to this area.

(17) **Provide Audio-Visual and Reproduction Support.** Keeping in mind that the recruit-training program is a type of school, it generates a demand for audio and visual support for services to support presentations and the showing of educational films. Additionally, reproduction efforts support classroom materials distributed to the recruits. This activity represents the O&M funds and personnel supporting this area.

(18) **Perform Internal Sustainment Training.** Military and civilian personnel are required to complete certain types of annual sustainment training. Examples include annual security briefings, semi-annual physical fitness tests, and annual weapons qualification. While it is difficult to capture the exact amount of resources dedicated to this activity, a conservative measure of two weeks annually for all enlisted personnel has been used. This represents the length of the standard rifle requalification program. This conservative estimate captures the most obvious resource commitment to this area, with actual commitment possibly considerably higher.

(19) **Provide Leadership and Guidance.** Much of the efforts of senior leadership are not as clearly defined as perhaps the duties of a Drill Instructor, whose efforts are directly reflected through the platoon he is instructing. The efforts of the staff of the Commanding General, along with his G-1, G-3, and G-4 primary staffs, and the O&M budgets dedicated to this area are reflected in this activity. Their collective efforts provide the leadership and guidance under which the depot operates.

(20) **Lead and Manage Recruit Training.** This activity represents the efforts at the Regimental level and Support Battalion in leading and managing the recruit training efforts. Military personnel salaries directly related to this activity are involved.

(21) **Transform Recruits.** As the primary mission of the depot, this activity could be defined to encompass much of the operations of the depot. For this discussion, the efforts of the Recruit Training BN's, the O&M budget dedicated to this area, and the recruit salaries are reflected in this activity.

(22) **Train Drill Instructors.** As previously described, one of the activities occurring aboard the depot is the operation of the Drill Instructors School.

This activity reflects the salaries of military personnel permanently assigned to the school and prospective drill instructors temporarily assigned to this area as students.

(23) **Provide Weapons and Field Training to Recruits.** This activity includes all weapons and field training provided to the recruits aboard CPEN. It reflects the O&M budgets, military personnel salaries, and ammunition used in provided this activity.

(24) **Provide Other Marksmanship Training and Support.** This activity is an estimate of the resources expended in providing sustainment marksmanship training to permanent personnel assigned to the depot and other marksmanship instruction as needed. It represents a percentage of military salaries dedicated to this area.

(25) **Lead and Manage Recruiting Efforts.** With the Headquarters of the WRR aboard the depot, one of the activities occurring is the leading of the recruiting efforts. This activity reflects O&M funds and military personnel salaries contributing to this effort.

(26) **Train Recruiters.** Also previously described, another activity occurring aboard the depot is the operation of the Recruiters School. This activity reflects the dedicated O&M budget and the salaries of permanent personnel and future recruiters temporarily assigned to this area.

(27) **Conduct General Base Operations and Support.** With many supporting activities occurring aboard the depot, not all are of the scope to require a separate activity in a broad strategic model. These areas are collectively combined into this category, which reflects O&M funds and military and civilian personnel salaries.

(28) **Provide Personnel and Administrative Services.** Personnel and administrative services are a large activity that includes all administrative

support provided to both permanent personnel, TAD personnel, and recruits. The salaries of the large staff of military and civilian personnel committed to this effort are reflected in this activity.

(29) **Provide Financial Support and Budgeting Services.**

Another internal support activity is the financial services provided by the comptroller and disbursing offices. This activity reflects the O&M budget and the salaries of military and civilian personnel assigned to this area.

(30) **Provide Force Protection.** This activity represents the main effort of the Provost Marshall and his staff of military police. It reflects a percentage of the total military personnel salaries dedicated to PMO.

(31) **Conduct Investigations.** This activity represents a secondary effort of the Provost Marshall and his staff of military police. It reflects a percentage of the total military personnel salaries dedicated to PMO.

(32) **Provide Religious Services and Support.** This is the key activity provided by the Chaplain staff of the depot. This activity reflects the O&M budget and a percentage of USN salaries for military personnel supporting this area.

(33) **Provide Counseling.** This area is a secondary activity provided by the Chaplain staff of the depot. This activity reflects a percentage of the military personnel contributing to this area.

(34) **Provide Legal Services and Support.** The primary activity of the Staff Judge Advocates office, this includes a wide range of legal services from prosecution and defense to legal advice provided to military members. This activity reflects the O&M budget and military personnel salaries dedicated to this effort.

(35) **Provide Public Affairs Support.** This activity represents the public relations and media support provided by the public affairs office. This activity reflects the salaries of personnel assigned to support these efforts.

b. Activity Drivers

Activity drivers represent the means by which resources have been allocated to the various activities of the depot. The following activity drivers have been used in this analysis:

(1) **Percentage of O&M Budget by Cost Center.** In order to distribute the O&M budget, the historical percentage of the O&M budget by cost center was determined. With this information, an average O&M budget can be applied to the activities that the resources are directly traceable to via cost center.

(2) **Directly Traceable by T/O and/or Billet.** For military personnel salaries, three of the four T/O's presented in Tables 3.3 to 3.5 are directly traceable to the activities they support. For these areas, costs have been directly assigned, minus an allowance for annual sustainment training.

(3) **Directly Traceable by Funding Source.** As presented in Chapter III, some funding sources are provided in direct support of a specific activity. For these funding sources, they have been directly assigned to the appropriate activity.

(4) **Percentage of Effort.** Many functional organizations partake in several activities. While difficult to distinguish within a strategic level model, where possible these functional areas have been distributed by percentage of effort to their appropriate activities.

(5) **Average Salary Method.** For the T/O of the Headquarters and Service BN and for civilian personnel, the salary variations between different grades

and seniority presented a unique dilemma. While it was possible to trace billets to the areas they supported, specific information on the pay grades and service times of the civilian and military personnel holding these billets were not available. To overcome this, the average salary for civilian personnel, military officers, and enlisted personnel was determined. For civilian employees, this task was performed by taking the average O&M funds committed to this area, \$11,052,845, and dividing it by the total number of authorized civilian billets, 239, for an average civilian salary of \$46,246. This amount was then used to apply civilian salaries to activities on a "by billet" basis.

For military salaries, the remaining T/O was not directly traceable to activities. The H&S BN T/O was divided into funding for officers and enlisted personnel. Those portions were subsequently divided by the total personnel associated with them. The resulting average salary for officers was \$59,500, and the average enlisted salary was \$35,500. These averages were then used to apply military personnel by billet to the activities they supported. While this method will allow some variance from actual salaries paid by billet, it is the most accurate method readily achievable, and the sum of all salaries allocated by this method will reflect an accurate picture of total resource consumption in this area.

The second part of the ABC model, the activity module, is presented in Table 4.3.

3. Cost Object Module

The cost object module presents the final services provided by an organization. The first step in this area is to once again ask, "Why is the model being built?" For a strategic level model of an entire base like MCRD, San Diego, services and outputs provided by the depot must be defined in the broadest terms. Once identified, this list of

services might be analogous to a restaurant menu of the selections that might be available to the customers of the organization. The services of the depot include the following:

a. Cost Objects

(1) **Recruit Training.** As the most visible of the two primary missions of the depot, it can be said that this is why the depot exists, to make Marines. The output provided is the thousands of Marines who complete basic training each year.

(2) **Recruiting Services.** As the second of the two primary missions of the depot, all recruiting activities in the WRR are led from the Recruiting Headquarters aboard the depot.

(3) **Community Relations.** An important service to the surrounding community, this cost object reflects the special activities, band performances and community service efforts performed by the depot in conjunction with its surrounding communities, as well as special events hosted for distinguished guests and visitors.

(4) **Base Operations.** In order to support the primary missions of the depot, an elaborate support structure has been developed. The provision of the infrastructure and needed support structure is a service of the depot as well.

b. Cost Drivers

As with resources to activities, drivers are now needed to relate activities to cost objects. The following cost drivers have been used in this analysis.

Table 4.3. Activity Module

Activity Description using the Installation Business Model Format	ACTIVITY Total	MODULE		
		O & M	MPMC	MPN
FACILITY MANAGEMENT				
Provide Installation Housing	\$1,728,782			
Maintain and Repair Real Property	\$5,274,584	4,967,373	307,212	
Provide Utilities	\$2,785,819	2,785,819		
Support Public Works Needs	\$5,591,893	5,364,009	227,885	
Utilize General Recruit Labor	\$1,414,168			
Provide Environmental Support	\$786,034	751,900	34,135	
COMMUNITY SERVICES	\$0			
General Support	\$0			
Provide Musical entertainment	\$1,763,942		1,763,942	
Conduct Special Events	\$170,673		170,673	
Provide Recreation Services	\$1,109,576	1,075,442	34,135	
Personal Support	\$0			
Provide Specialized Assistance	\$1,826,677	257,531		
LOGISTICS SUPPORT	\$0			
Provide General Logistical Support	\$867,136	172,424	694,712	
Supply	\$0			
Procure & Provide Supply Items & Uniforms	\$20,282,715	2,351,369	1,606,250	
Manage Property Control	\$2,235,991	2,235,991		
Motor Transportation	\$0			
Provide Transportation	\$1,409,240	1,204,432	204,808	
Subsistence	\$0			
Provide Food Services	\$21,660,894	402,012	5,450,481	
FORCE SUSTAINMENT	\$0			
Information Services	\$0			
Provide Communications and IT support	\$3,229,985	1,852,581	1,377,404	
Provide Audio-Visual and Reproduction Support	\$1,631,154	959,519	671,635	
Training and Education	\$0			
Perform Internal Sustainment Training	\$2,467,834		2,467,834	
Operations	\$0			
Provide Leadership and Guidance	\$2,936,425	1,976,810	959,615	
Recruit Training Operations	\$0			
Lead and Manage Recruit Training	\$6,351,761		6,351,761	
Transform Recruits	\$104,819,529	598,068	18,206,443	
Train Drill Instructors	\$1,418,573		558,173	
Provide Weapons and Field Training to Recruits	\$15,118,398	1,586,584	9,282,734	177,848
Provide other Marksmanship Training and Support	\$2,320,684		2,320,684	
Recruiting Operations	\$0			
Lead and Manage Recruiting Efforts	\$831,839	67,896	763,942	
Train Recruiters	\$7,365,917	77,470	978,846	
Administration and Support	\$0		0	
Conduct General Base Operations and Support	\$3,304,692	1,056,530	2,248,162	
Provide Personnel & Admin Services	\$3,479,166	257,531	3,221,635	
Provide Financial Support and Budgeting Services	\$1,484,602	687,487	797,115	
Provide Force Protection	\$1,557,000		1,557,000	
Conduct Investigations	\$605,500		605,500	
Provide Religious Support	\$819,603	111,280		708,324
Provide Counseling	\$708,323			708,323
Provide Legal Services	\$990,005	144,812	845,192	
Provide Public Affairs Support	\$498,875	43,106	455,769	
CATEGORY TOTALS	\$230,847,990	\$30,987,977	\$64,163,676	\$1,594,495

Activity Drivers

- I. Percentage of O&M Budget
- II. Directly Traceable by T/O and or Billet
- III. Directly Traceable by Cost Center or Funding Source

I., IV., V.

V.

II., V.

IV. Percentage of Effort

V. Average Salary Method for Officer, Enlisted,
and/or Civilian Billets

Table 4.3 (Continued)

[illegible]

(1) **Percentage of Effort.** Some activities may contribute to more than one cost object, or reflect both fixed and variable costs. These cost of these activities have been distributed proportionately by the amount of effort expended in each area to show the percentage of effort and resources attributed to the cost objects.

(2) **Directly Traceable.** Some activities provided are in direct support of a specific cost object. For these activities, they have been directly assigned to the appropriate cost object.

(3) **Number of Recruits Trained.** Some activities have been identified with variable costs. These costs are driven by the actual output levels of the depot, so that the number of Marines graduating is another cost driver.

c. Unrelated Costs

Finally, it was also important to identify those activities which have no correlation or make no contribution to the mission of training Marines, which was again the question of this research. Costs associated with Recruiting Services have not been allocated to the costs to train a Marine. These costs are value-added to the Marine Corps, but are not relevant training expenditures. All other costs are considered non-avoidable, a cost of doing business if training operations are to be conducted at all. The beneficiaries of some of the base operations may include other customers such as retired personnel and personnel not assigned to the depot. Community relation activities provide a positive benefit to recruiting efforts in promoting the Marine Corps image. These costs,

however, are costs that must be incurred in today's environment and are thus included as appropriate costs in the full cost model of relevant expenditures.

Table 4.4 presents the cost object module.

With the complete model presented, it is possible to see the balance of resources throughout the model. The resource module presented 14 sources of funding which provide resources exceeding \$230M. The activity module presents 35 activities which consume the same \$230M. Finally, the cost object module presents four key outputs which account for the same \$230M.

C. COST SUMMARY

Armed with the resource data presented in Chapter Three, the ABC model is complete and answers the primary research question.

1. Cost to Train a Marine

What is the cost to produce a trained Marine? As shown in the Cost Object Module, Table 5.4, the full cost to produce a trained Marine is approximately \$13,296.

2. Training Cost Analysis

a. Relevant Training Expenditures

Also revealed through the ABC model is a thorough understanding of the contributing factors of the cost to train a Marine. The Cost Object Module divides total resource consumption into four products/services provided by the depot, as shown in Table 5.4. Of the services, recruit training costs, community relation costs, and base operation costs are the costs to considered as relevant to training expenditures, with

Table 4.4. Cost Object Module

COST OBJECTS	Total Cost	Subtotal	Training Cost Per Marine
Recruit Training			
Fixed and Overhead			
CG Level Leadership and Guidance	1,468,213		
RTR HQ & Overhead	6,351,761		
RT BN and WFTBN Staffing	27,667,025		
Direct Funding	598,068		
Field Training Funding	1,586,584		
Religious Support	819,603		
DI's School	1,418,573		
Attrition/MRP/PCP/BMP/RSP	<u>7,882,247</u>	<u>47,792,075</u>	<u>\$2,873</u>
Variable			
Salary	84,850,068		
Ammo	4,071,232		
Subsistence	10,505,271		
Supply Issue	16,325,096	<u>115,751,667</u>	<u>\$6,958</u>
Recruiting Services			
Leadership and Guidance	1,468,213		
Hq and Admin	831,839		
Recruiters School	<u>7,365,917</u>	<u>9,665,968</u>	(unallocable)
Community Relations			
Band	1,763,942		
Special Events	170,673		
Special Services	<u>2,936,254</u>	<u>4,870,869</u>	<u>\$293</u>
Base Operations			
Infrastructure Support	20,438,143		
Personnel Support	7,745,871		
Operations Support	13,364,045		
Transportation	1,409,240		
Food Services	5,852,493		
Supply Issue	<u>3,957,619</u>	<u>52,767,411</u>	<u>\$3,172</u>
Total Resources		<u>230,847,990</u>	
Unallocable Costs		<u>9,665,968</u>	
Allocable Costs		<u>\$221,182,022</u>	<u>\$13,296</u>

Annual Average Output = 16,635 Marines

costs for recruiting services not allocable to training expenditures. While the recruiting costs provide a valuable service to the Marine Corps, this function could be performed at another location without loss of value to the recruit-training program. This cost object received roughly four percent of the depot's total cost of resources, which is not very significant for this analysis.

Recruit training costs are the obviously relevant costs of training Marines. Base operation and community relation costs are necessary costs that must be incurred if the decision is made to conduct training operations at MCRD, San Diego. Thus, this model is a full cost model, in which the ultimate cost object, the price of training a Marine, bears the full cost of all necessary operations.

b. Fixed and Variable Costs

As shown in the Cost Object Module, of the costs identified with training Marines, some of these costs can be classified as fixed and some as variable costs.

Fixed costs are those costs that are unchanged as volume changes within the relevant range of activity for a process or system. Fixed costs can be further described as direct and indirect. Direct fixed costs are those unchanging costs which can be directly related to a cost object. Indirect fixed costs are those unchanging costs which cannot be directly related to a cost object and must be allocated to the cost object via an allocation base.

For this analysis, the direct fixed, costs are those costs attributed to Recruit Training Overhead, for an amount of \$47,792,075. Indirect fixed costs are those costs

allocated to the community relations and base operations cost objects, for an amount of \$57,638,280. It is recognized that while no indirect variable costs have been identified in base operations, it is not unreasonable to expect some variability in this area with changes in the volume of recruits being trained.

Direct variable costs are those costs that change in direct proportion to a change in volume of activity. The variable costs identified vary with the number of graduates. The total pool of resources is \$115,751,667. With an average annual output of 16,635 Marines from the recruit-training program, the variable or incremental costs per Marine are \$6,958.

V. BEST BUSINESS PRACTICES

A. TRAINING CAPACITY AND UTILIZATION

When examining a process intensive operation that has a repetitive cycle that is designed to produce a specific output, a valuable question to answer is, "What is the capacity of the operation?" This is important to know because, over time, demand for output may vary, and an understanding of capacity capabilities is needed to plan resources to meet changing demands. MCRD, San Diego is itself a process intensive operation. The recruits are trained to very exact standards, so that a Marine graduating from one training company should not be noticeably different from a Marine trained in another company in regards to the basic skills developed and overall indoctrination received. Additionally, the history of the nation has shown that demand for Marines will in fact vary, increasing during wartime needs and decreasing during periods of drawdown in the size of the armed services. With this in mind, the concept of capacity has been approached with three questions in mind: what is the maximum capacity under current operational structure, what is the current usage of capacity, and what would be the minimum resources needed to produce current output under ideal conditions?

When discussing training capacity, it is necessary to recognize that the depot is currently structured to fulfill the needed demand for Marines in a supply driven environment. The supply of trainable recruits dictates the shipping patterns, the input levels of recruits, and the number of training cycles. As previously shown in the shipping data, the supply of recruits is quite seasonal. Therefore, an ideal structure for the depot enables it to process the necessary amount of trainees needed to produce the required

number of Marines given this seasonality. To the extent that the depot currently operates at levels approaching 100% of capacity during peak periods of recruit availability, it would be sound to say that the depot is optimally organized. However, given a structure designed to meet supply levels during peak periods, additional capacity must exist during off-peak periods of the supply of recruits, and opportunities may exist for improvements in both peak and off-peak periods.

1. Theoretical Capacity

Theoretical capacity is the optimal amount of work that a process can complete using a 24-hour, seven day operation with zero waste. Theoretical capacity is impossible to maintain for an extended period of time in a productive manner without deterioration of human and capital resources. Yet, this measure is meaningful in that it provides insight into a system's upward limits and indicates how close current operations are to those limits.

For MRCD, San Diego the limiting resource factor is training companies, as it is here that the training cycle occurs. Currently, there are 12 standing training companies. Each company can process 8 platoons with a maximum of 90 recruits per platoon in a training cycle. With a 12-week training cycle, assuming continuous operations in which the training company begins a new cycle immediately after completing a previous cycle, theoretical output would be 37,440 Marines, as shown in Table 5.1. While attrition and time lost to the STC will always have some impact upon training output, when identifying maximum output levels, attrition is assumed to be zero. This is done because actual attrition will vary depending upon operational policies and training procedures. If

attrition is then recognized as a variable which can at least be influenced by policy decisions, this variable should be removed in establishing a ceiling for output.

Table 5.1. Theoretical Capacity

Number of Training Companies	Maximum Output	Maximum Number Of Cycles	Theoretical Output*
12	720	52 weeks/12 week cycle 4.33	37,440

* = $12 \times 720 \times 4.33$

The argument could be made that the depot can actually train more Marines than the theoretical capacity sets forth, and this is indeed true. Additional Drill Instructors could be added to the organization and tents could be set up to expand berthing areas. MCRD, San Diego could even expand operations to areas aboard CPEN or 29 Palms, CA once depot facilities were completely filled. However, all of these options would require a substantial deviation from current operating procedures. Thus, the above definition for theoretical capacity has been chosen to represent the temporarily achievable level of output under ideal conditions given current operational policy and structure.

2. Practical Capacity

Practical capacity is the level of output generally attainable by a process, or the theoretical capacity adjusted downward for unavoidable non-productive time. When examining the recruit training process, the most obvious necessary and yet unavoidable non-productive time is annual leave accrued by military personnel staffing the recruit training companies. Military personnel earn 2.5 days of leave a month, or approximately 4 weeks annually. An output level that is to be considered generally attainable must

factor this time into the equation. Practical capacity would be achievable without changes in current operations, with the only changes in resource consumption being the increase in variable costs due to recruit volume as previously outlined and any additional logistical support which may be needed with an increase in the total number of training cycles.

Without detailed information to the contrary, it is assumed that annual sustainment training needed for permanent personnel assigned to the training companies could be conducted concurrently while a training cycle is being conducted, or during one of the four weeks provided for annual leave, as military personnel are not required and often elect not to take their full 30 days of annual leave. Practical capacity, adjusted for annual leave, would then be 34, 560 Marines per year, as shown in Table 5.2. This is approximately 3,000 less trainees that theoretical capacity.

Table 5.2. Practical Capacity

Number of Training Companies	Maximum Output	Maximum Number Of Cycles	Theoretical Output*
12	720	48** weeks/12 week cycle 4.00	34,560

* = $12 \times 720 \times 4.00$

** 52 weeks - 4 weeks annual leave

3. Normal Capacity

Normal capacity is the average, expected utilization of a process. In defining normal capacity for MCRD, San Diego the focus is on training companies and the number of cycles that are conducted during a year. An easy way to state this would be

that normal capacity is the capacity that would be achieved under the current structure if every current training platoon were completely filled. During FY97-FY99, the depot conducted 42, 41, and 41 training cycles respectively for an average annual rate of 41.33 training cycles per year.

Unlike theoretical and practical capacities which address a system's ability to do work, normal capacity focuses on the current utilization of capacity. Therefore, the actual number of training platoons per cycle should also be addressed, as this number is not consistently 8 across the year. The actual number of training platoons used is 8 during June through August, or for 11 cycles. For rest of the year, 6 training platoons will be used for the remaining 30 cycles. With this information, normal capacity will be the number of 6-Platoon Cycles times the yield per cycle plus the number of 8-Platoon cycles times the yield per cycle, or 24,120 Marines as shown in Table 5.3. This is 10,000 fewer trainees than practical capacity and 13,000 less than theoretical capacity output.

Table 5.3. Normal Capacity

Number of 8-Platoon Cycles	Maximum Output	Number of 6-Platoon Cycles	Maximum Output	Theoretical Output*
11	720	30	540	24,120

$$* = (11 \times 720) + (30 \times 540)$$

4. Annual Budgeted Capacity

Annual budgeted capacity is the current monthly or annual plan for utilizing a system or process. For MCRD, San Diego, annual budgeted capacity equals the annual shipping plan of incoming recruits. This shipping quantity is based upon manpower

projections and includes anticipated process attrition. Annual budgeted capacity for FY97-00, and projections for FY01 are shown in Table 5.4.

Table 5.4. Annual Budgeted Capacity

	Fiscal Year				
	1997	1998	1999	2000	2001*
Planned Number of Recruits to be Shipped per year	18,200	18,800	19,200	19,500	20,000

* estimate

5. Actual Capacity Utilization

Four measures have been introduced which provided different views of how to express the capacity of a system or process. Theoretical and practical capacity present two ways to view the maximum annualized output levels achievable by the recruit-training program of MCRD, San Diego under ideal conditions. Normal capacity and annual budgeted capacity address current utilization, benchmarking planned output levels via two methods. This final discussion shall examine the actual output of Marines compared to these baselines.

To illustrate the relation of these different measures Figure 5.1 is presented, graphically showing their relation. Normal capacity is subdivided into two important areas, productive and non-productive

a. Productive Capacity

Productive capacity is that amount of capacity actually utilized. When discussing capacity in terms of the output of the recruit training process, this can be measured by the number of Marines graduating from the training program. Defining

Summary Model	Capacity Measurement and output quantity	Strategy Specific Model	Traditional Model
Idle	Not marketable	Excess not Usable	Theoretical
	Off-limits	Management Policy Contractual Legal	
	Marketable	Idle but Useable	Practical
Non-Productive Capacity	Standby	Process Balance Variability Scrap Rework	Normal
	Waste	Yield Loss Scheduled Unscheduled	
	Maintenance Setups	Volume Changeover	
Productive Capacity	PROCESS DEVELOPMENT		
	PRODUCT DEVELOPMENT		
	GOOD PRODUCTS		

Adapted from: Klammer, T. and the CAM-I Capacity Management Core Team,
Capacity Measurement and Improvement, Chicago, IL: Irwin Professional Publishing, 1996:17.

Figure 5.1. Generic Capacity Measurement Model

capacity by total resource commitment would also require the inclusion of resources consumed by efforts geared toward process and product development, such as the training of the Drill Instructors.

b. Non-Productive Capacity

Non-productive capacity includes items such as idle capacity, wasted capacity, time spent on maintenance, and set-up time and costs. While some of these costs may be unavoidable, such as a certain amount of maintenance or process set-up, they do not directly add value to the process and should be minimized or eliminated. When discussing the non-productive capacity of the recruit training process in terms of output, this category would include attrition and the opportunity loss of platoons that are filled with less than 90 recruits. In terms of total resource commitment, resources consumed by the areas of MRP, PCP, MRP, and separation would also be included.

6. Capacity Analysis Summary

Having discussed capacity from several different perspectives, Figure 5.2 illustrates the types of capacity that have been discussed as they relate to MCRD, San Diego. The theoretical capacity of 37,440 trainees provides a look at the maximum annualized capacity that can, in reality, be maintained for only a short period of time. The practical capacity of 34,650 trainees is an achievable output given the assumption that sustainment training can be conducted in conjunction with operations. Perhaps more relevant to current operations are the latter categories of capacity. Normal capacity is attainable under current operations by filling all open training slots with a recruit so that

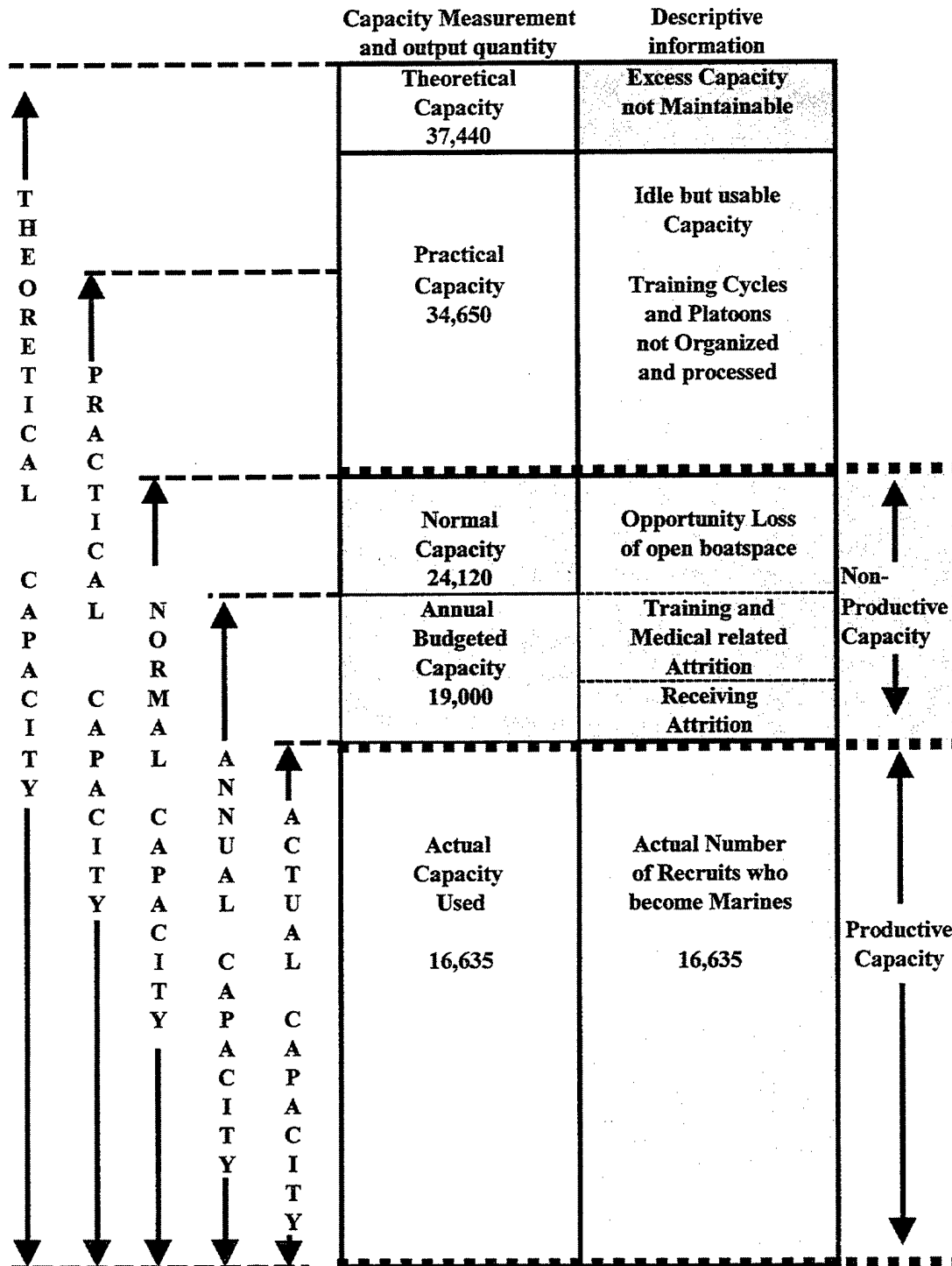


Figure 5.2. Capacity Measurement and Utilization

every platoon is fully manned at 90 recruits. Against this measure, with an actual average output of 16,635 Marines annually, the depot would be operating at approximately 69% of normal capacity, as shown in Table 5.5.

If the benchmark of annual budgeted capacity is used, the depot can be said to be operating at 88% of budgeted capacity, also shown in Table 5.5. Both measures are accurate and reflect different ways of interpreting capacity utilization.

7. Minimum Resource Usage

The ABC model of Chapter IV revealed the full cost of recruit training. Now that capacity utilization has been discussed, it is possible to re-examine the recruit training process in order to determine the minimum amount of resources needed to adequately ensure the needed output level of trained Marines. This analysis will focus solely upon the number of standing training companies the depot chooses to operate and the number of training cycles that are processed in a fiscal year. For this analysis, all other support costs, such as logistics, supply, and other related costs are assumed to remain constant. However, it is more likely that there would be a decrease in costs of some magnitude as the number of training cycles is reduced.

Table 5.5. Capacity Utilization for FY99

Capacity Measure	Annual Output Level	Actual Output	% Utilization
Practical Capacity	34,650	16,635	48.01%
Normal Capacity	24,120	16,635	68.97%
Budgeted Capacity	19,000	16,635	87.55%

a. Mess Hall Outsourcing

The first opportunity for efficiency improvement arises from the results of the outsourcing of the recruit mess hall facilities discussed in Chapter II. Scheduled to begin in October, the outsourcing removes the staffing requirement of mess halls as part of team week during the current 12-week training program. This staffing requirement has historically been a decision variable in the shipping patterns of the depot, as the RTR had to ensure that recruits were always available to man the messdecks without interruption of their normal training program. This essentially set forth the requirement that a training cycle had to begin at least every other week with a compliment of a minimum of 300 recruits. The removal of this time poses two questions.

The first question is what changes should be made to the training program when the outsourcing contract that begins in October 2000, which frees a full week out of the 12-week training cycle? This time has historically been part of the 12-week training cycle and does not add value to the training program. The ability to function in a food service capacity does not enhance combat effectiveness, and other opportunities exist in the training program to develop team-building skills and strong work habits.

Given a demanding training program to begin with, the opportunity to have an extra full week of time to train a recruit is indeed a very attractive prospect, with many possibilities existing for how to use this time. While there may be many valuable areas where recruits could use additional instruction, to use this available time for additional training would in fact be an expansion of the current training program and a deviation from the current training SOP.

The RTR has consistently achieved its prescribed mission of training male recruits to become basic enlisted Marines. It has accomplished this mission in a 12-week program, which had built into it a one-week non-value added requirement to provide labor to the mess hall. Removing this requirement should make it possible to produce the same quality Marine according to the same standards and the same training program in less time. Use of the found time for training would be the same as making the argument to expand the current training program to 13 weeks from 12. This argument may be valid if there is a current deficiency which would justify a 13 week program. However, using the additional time for more training just because it is available may be going beyond the mandate of training a *basic* enlisted Marine, assuming the current Marine produced meets the requirements of the Marine Corps, which he does.

The most effective and efficient use of the gained week is to reduce the training program to 11 weeks and to send the extra week gained to the fleet Marine force in accordance with the Commandant's guidance. The net effect of having a Marine graduate from the recruit training program in 11 weeks vice 12 would result in the return of 320 Marines to the fleet annually, as shown in Table 5.6. While no single unit will see

320 unexpected Marines, or even one, what the fleet will see is approximately 17,000 Marines reporting a week earlier. And the net gain of this shift is 320 full man-years, or \$6.6 million (CY99\$) in MPMC back to operating forces.

Table 5.6. Potential Outsourcing FTE Savings

Number of Graduating Marines	Process time Savings	Conversion Factor	Annual FTEs	FY99 MPMC
16,635	1 week	1 week/52 weeks 0.02	320	6,595,840

* = 16,635 * .02

b. Training Cycles

The second question posed by the outsourcing of the messing facilities is that of the appropriate number of training cycles, and ultimately training companies. With the absence of the requirement to begin a cycle at least every other week in order to staff the mess hall, the actual pattern of training cycles should be examined. Caution must be used when considering changes to a proven program that works. However, shifting the scheduling of operations without changes in the actual content of the operation may yield savings from reduction in non-productive capacity and reduction in resource consumption. The current number of standing training companies is based upon the demand for trained Marines, the structure of the training program, and the availability of trainable recruits. The demand for trained Marines is independent of the structure of the training program, although the quality of output from the depot can affect future demand.

Several real constraints exist when discussing training cycles and the number of standing companies. The RTR has demonstrated that there is some flexibility in the size of training companies, as current operations produce training companies with either 6 or 8 platoons and a recruit population which varies from 300-720 in size. With both the 6 and 8 platoon formats for training companies currently in use, it is assumed that both configurations provide for the appropriate training of Marines. Thus, the first model restriction is that a suitable company structure contains either 6 or 8 platoons, with platoon size being from 50 to 90 recruits.

The current operational burden per training company during a year is 3.42 cycles per year (41 cycles/12 training companies). Thus, training personnel can expect to spend 41 out of 52 weeks actually handling training companies. It is assumed that this burden provides an adequate amount of time for annual leave, refresher training, and downtime for the training personnel. Thus, 41 weeks in the production process for a company is the second restriction set forth.

As previously shown in Chapter III in Table 3.18 and Figure 3.1, recruit training operations is a supply driven process, the supply of available qualified recruits being the limiting factor. Given the clear seasonal pattern established by the data from FY 97-99, it shall be assumed that this pattern is an accurate prediction of future availability. Thus, the third restriction upon the model shall be the seasonal supply of recruits. Given these limitations, the following analysis is performed to maximize capacity usage and minimize resources consumed.

The budgeted capacity for FY 00 is 19,500, and this amount is estimated to rise to 20,000 in FY 01. Budgeted capacity for this analysis is adjusted to 22,000,

allowing a 10% upward variance to provide a buffer for operations, as it would be at a minimum difficult to fill every platoon completely, and it is acknowledged that even a 90% fill rate for training platoons may be difficult to achieve. With a yield per company of 720, the number of needed training cycles will be $(22,000 \text{ recruits} / 720 \text{ recruits per company})$, or 30.56 training cycles. With an 11 week training cycle, 337 training weeks ($11 \text{ weeks per cycle} * 30.56 \text{ cycles}$) are needed. With a current company workload of 41 weeks, the needed number of companies is 8.2, $(337 \text{ weeks} / 41 \text{ week company productivity})$ which becomes 9, as .2 companies are not possible. With a Regimental structure of three BNs of 3 standing companies, capacity is re-examined in Figure 5.3.

Under this structure, theoretical capacity is now 30,633 and practical capacity is 25,920. The reduction in practical capacity represents a freeing of committed resources, in this case manpower (MPMC), previously used to staff companies 10-12. Similar reductions have occurred in normal capacity, which is now 22,320. Budgeted annual capacity has remained the same and no changes in attrition are assumed.

The result of the reduction in committed manpower is the savings of three company staffs annually. This represents 135 Marines that can be returned to the fleet for a total benefit of \$5.5M in MPMC. Coupled with the previously outlined return of manpower resulting from the shift to an 11 week training program for a savings of 320 FTEs or \$6.6 million in MPMC, these two efforts together return on an annual basis 455 FTEs worth over \$12.1 M in MPMC annually.

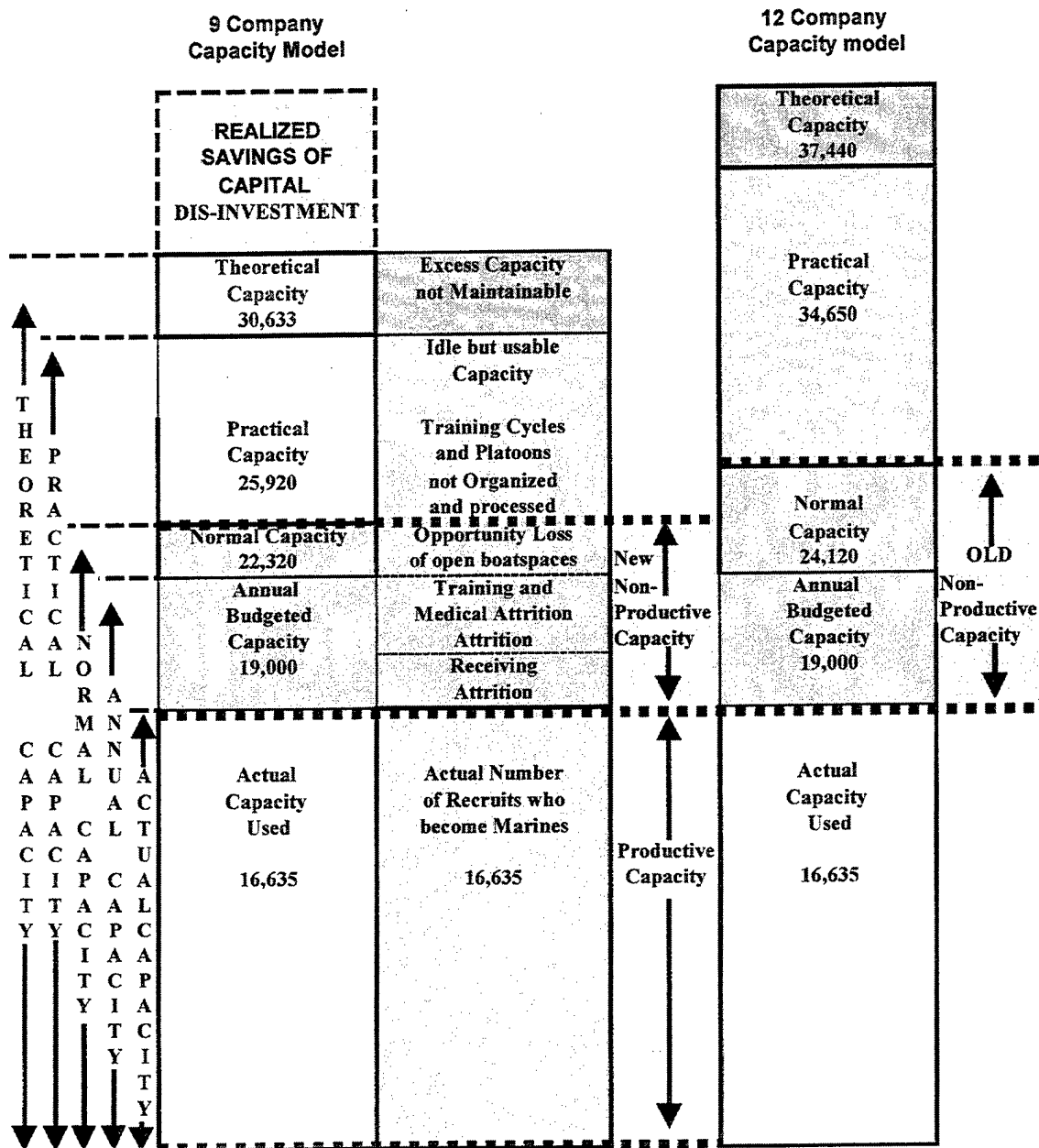


Figure 5.3. Capacity Measurement and Utilization

The number of monthly training cycles are shown in Figure 5.4 for a 9, 10, and 12 company structure. Figure 5.5 illustrates the normal capacity for the current 12 company structure as well as the normal capacity for a 9 and 10 company structure vs. the proposed shipping plan for FY 2001. Planned operations would exceed the proposed shipping ceilings of the 9 company model during July, August, and October. However, excess capacity exists in June and September, which off-sets these amounts. The 10 company model presents a capacity capability that can handle the incoming supply of recruits as well as the 12 company model.

B. CORE COMPETENCIES

The core competencies of an organization are those processes which provide a competitive advantage and that the organization does better than anyone else. Core competencies are the intangible qualities of a synergistic competitive advantage that may be due to superior management or design, possession of a skill base and experience not available to others, or simply having an ability which cannot be easily duplicated by another organization. In examining the activities that occur aboard the depot, the question asked was, "What is it that occurs aboard the depot that MCRD, San Diego does better than anyone else could do, or that only the depot could do and that could not be duplicated?" Upon careful examination, four core competencies have been identified.

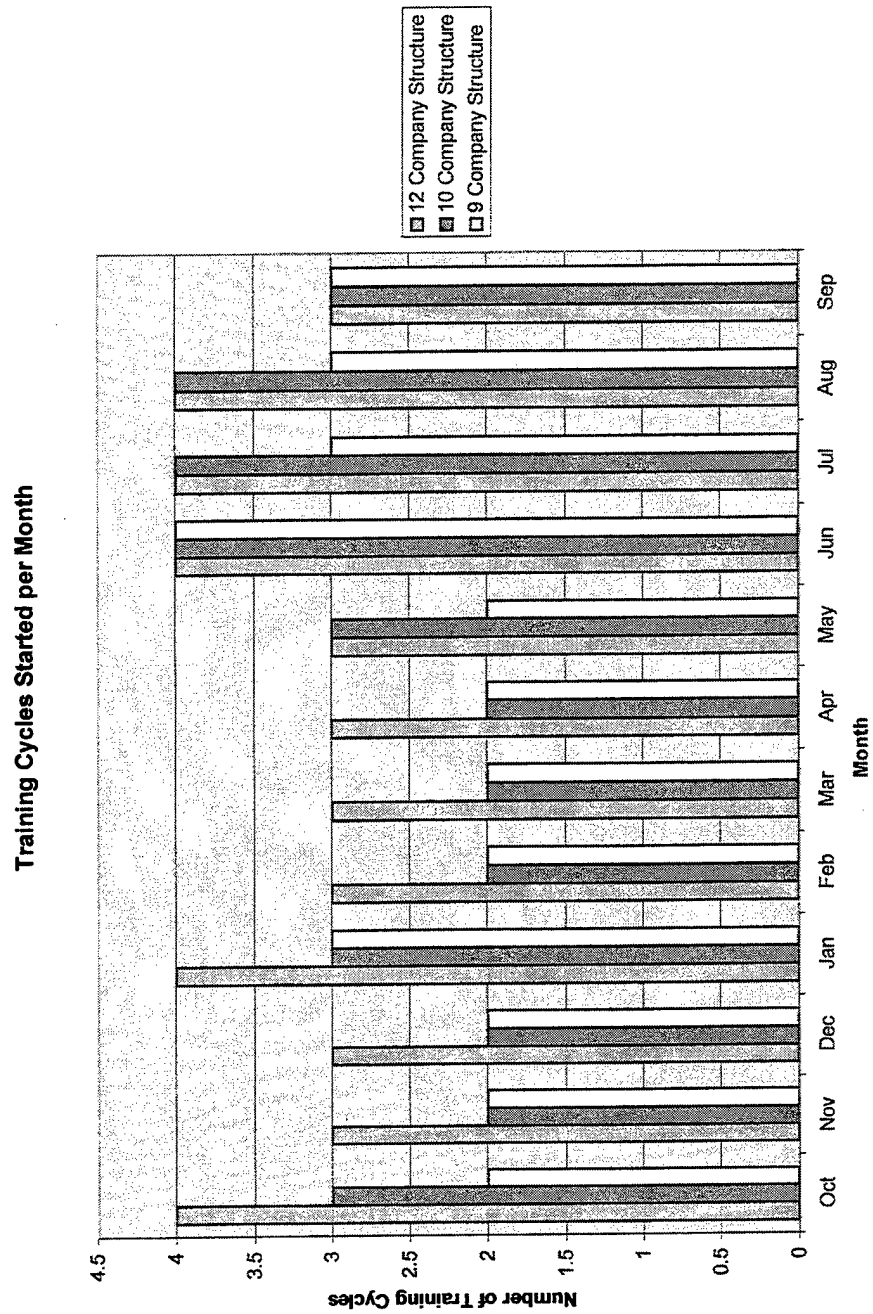


Figure 5.4. Alternative Shipping Chart

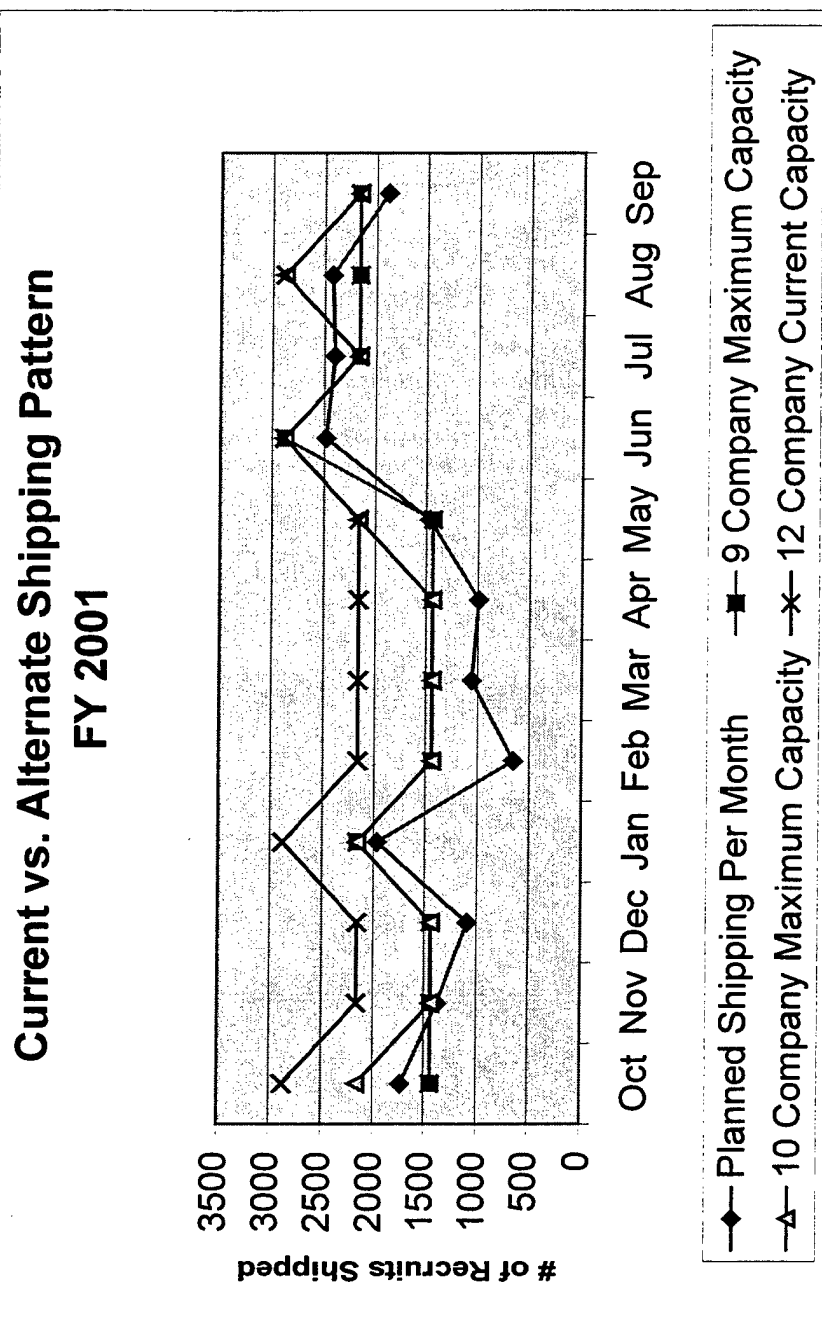


Figure 5.5. Shipping Schedule Flowchart

1. Training Marines

One of the two specified missions of the depot as set forth in the mission statement, this core competency, while arguably quite apparent, is worthy of further review. The reason why a closer look is necessary is because there is great variance between the services in their approaches to indoctrination to the military. In consideration of efforts to streamline DoD practices and create a joint environment, it is not implausible that a future proposal might recommend consolidated entry-level training for all services. This concept, if ever proposed, would be detrimental to the Marine Corps.

In providing the core competency of training Marines, the Marine Corps has taken a unique approach towards its indoctrination process. First and foremost, every Marine is trained to be a rifleman. Regardless of future specialty assignment, the future administrative clerk will receive the same entry-level training as the future infantryman. These basic field and combat skills are at the heart of the Marine Corps' expeditionary nature. Indeed, the understanding that all activities eventually support the Marine on the ground with the rifle is an important concept that permeates throughout the training programs of both enlisted and officer trainees. The Marine Corps has also chosen to set higher standards for the future Marines it trains, a simple example being the run portion of the Physical Fitness Test. While the future Marines at MCRD, San Diego will complete a 3 mile timed run, their peers in the Army will be running 2 miles, the Navy will be completing a 1 ½ mile jaunt, and Air Force enlistees will actually have the option to ride a stationary bike.

Also part of the training program is a thorough indoctrination into the customs, traditions, and history of the Marine Corps. "Esprit de Corps" is something which the Marine Corps has successfully passed from one generation of Marines to the next. The pride and dedication it takes to be a Marine all begins at the depot.

Combined, the experience, knowledge, skill, and dedication found aboard the depot in its commitment to training Marines could not be duplicated outside the Marine Corps. The high standards that are set and upheld and the unique perspective that the Marines hold to training their own makes this a core competency.

2. Training Drill Instructors

At the heart of the daily grind in the life of every recruit you will find the Drill Instructor. Usually a Sergeant or Staff Sergeant, these Marines who have earned the title of Drill Instructor are the heart and soul of the training operations. While an enormous amount of support goes on behind the scenes in the planning, logistics, and execution of the training operations, for the recruit the day begins and ends with the Drill Instructor. The Drill Instructors for a platoon will have more interaction with their recruits than any other Marines during the training cycle. Due to the critical job that they perform and the great influence that they will have over a future recruits' development, Drill Instructors are carefully screened and trained.

Just as the Drill Instructors will demand and accept only the best performance from their recruits, so too does the Marine Corps demand excellence from its future Drill Instructors. In a program where quality and consistency are not just asked for or expected, but absolutely required, there exists little room for anything but exceptional

performance in the realm of the Drill Instructors. This mission essential activity must also be conducted aboard the depot, so that future Drill Instructors can gain an understanding of the operational climate. The consistent dedication and quality of work performed by this unique group of Marines is a testament both to their individual hard work and dogged determination as well as to the institution which has trained them so well to do their jobs. The training of the Drill Instructors is clearly another core competency of the depot.

3. Training Recruiters

The second mission of the depot as set forth in the mission statement is to exercise operational control of enlisted recruiting operations. As part of the support for this mission, the depot runs the Marine Corps' only recruiters training program. Long before the recruit steps on the yellow footprints at the start of his training process at the depot, he has already met a very important Marine to him, his recruiter. The recruiting force serves as the Marine Corps' ambassadors in every part of the country, canvassing the high schools, the malls, local hang outs, and wherever it is that they might find a few young men and women whom they think are capable of becoming Marines. In an age when unemployment is at record lows, college opportunities arguably at their highest, and when other services have struggled or failed to recruit enough enlistees, the Marines on the front line of this battle have been winning.

This activity is best described as a core competency of the Marine Corps, and one which has been decided to be located aboard MCRD, San Diego. Unlike the drill instructor school, which gains value from being physically located aboard their future

training site, there is no binding requirement that would prevent the drill instructor school from being operated at another location. That being said, it does not detract from the importance of the mission of this school.

The recruiters of the Marine Corps have proven to be more effective than the other services at filling their ranks and achieving their mission of shipping quotas for the depots. Like the Drill Instructors, they have the logistical and leadership support of higher headquarters and much of their work is done independently in remote recruiting offices in every corner of the country. Long before they hit the street to find new enlistees for the Marine Corps, they find themselves reporting to MCRD, San Diego for Recruiters School. It is here where they learn the tools of their trade and the skills that make them so successful at their jobs. The training of recruiters is a core competency of the Marine Corps carried out aboard the depot.

4. Providing Leadership and Guidance

Organizations can often be described by the characteristics and traits they have chosen to value, promote, and the philosophy they embody in the course of business. At the heart of the Marine Corps is a very fundamental understanding of what is expected from its leaders at all levels. Far beyond having “good leaders” or “competent management,” the Corps instills its concepts of leadership at the lowest levels of its organizations, beginning during the recruit training process itself.

Two guiding frameworks provide the foundation of what to expect, and what will be expected, both in the leaders the recruits will encounter and in the leadership positions they will hold themselves later as Marines. The Marine Corps’ Leadership Traits and

Leadership Principles promulgate an overarching philosophy of how things are done. The Leadership Principles are general rules that have guided the conduct and actions of successful leaders of the past, and are presented as follows:

Leadership Principles

1. Be technically and tactically proficient.
2. Know yourself and seek self-improvement.
3. Know your Marines and look out for their welfare.
4. Keep your Marines informed.
5. Set the example.
6. Insure that the task is understood, supervised and accomplished.
7. Train your Marines as a team.
8. Make sound and timely decisions.
9. Develop a sense of responsibility in your subordinates.
10. Employ your command in accordance with its capabilities.
11. Take responsibility for your actions.

The Leadership Traits are qualities of thought and action which are set forth to assist in the development of Marines.

Leadership Traits

1. Bearing.
2. Courage.
3. Decisiveness.
4. Dependability.

5. Endurance.
6. Enthusiasm.
7. Initiative.
8. Integrity.
9. Judgment.
10. Justice.
11. Knowledge.
12. Loyalty.
13. Tact.
14. Unselfishness.

Upon this basis, leadership is continually developed through the ranks, with a Professional Military Education system of development schools and courses targeted at specific ranks and timeframes for Marines which emphasize specific skills needed as they develop. Senior leaders as well, who now provide the overarching direction and guidance to the commands they lead, are themselves products of this same system. Having clearly defined core values, an understanding of how things are done, a dedicated Professional Military Education program, and leaders who support these efforts makes leadership a core competency which is embodied at the depot.

C. VALUE CHAIN ANALYSIS AND VALUE ADDED PROCESSES

The examination of value-added process and the value chain flow as it relates to the training mission provides a graphical representation of the relationships of the various

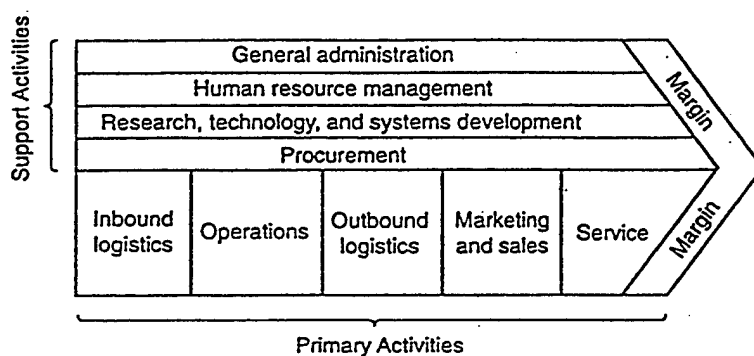
activities of the depot and how they support the training mission. For this analysis, a generic value chain model will be tailored to depot activities.

1. The Generic Value Chain Model

The standard value chain model sorts activities into two major categories, primary and supporting activities. These activities are shown in a generic value chain model in Figure 5.6.

a. Primary Activities

Primary activities are those activities that are directly involved in transforming the inputs of the organization into the outputs produced by the organization. These activities have been further classified into five traditional line activities.



Adapted from Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York, 1985) Copyright 1985 by Michael E. Porter.

Figure 5.6. The Value Chain

(1) **Inbound Logistics.** This area captures activities related to receiving inputs into the organization.

(2) **Operations.** This area captures activities related to converting the inputs and producing the output of the organization.

(3) **Outbound Logistics.** This area captures the activities related to the shipping and processing of the outputs from the process.

(4) **Marketing and Sales.** This area captures the activities related to the promotion and sale of the organization's outputs.

(5) **Service.** This area captures the activities related to the after-sale service and support provided for the outputs.

b. Supporting Activities

Supporting activities provide support to the primary activities and the internal operations of the organization. These activities have been further classified into four areas.

(1) **Procurement.** This area captures all activities related to the purchasing of raw material, supplies, and consumable items.

(2) **Technology Development.** This area captures all activities devoted to developing the skill base and expertise needed to conduct operations.

(3) **Human Resource Management.** This area captures personnel activities such as hiring, promotion, and employee development.

(4) **Firm Infrastructure.** This area captures activities devoted to maintaining and supporting the internal operations of the organization.

2. The Depot Value Chain Model

The standard value chain model provides a framework which can be adapted to fit the needs of MCRD, San Diego. Activities are once again grouped into two major categories, primary and supporting. However, the primary activity of marketing and sales will be positioned differently due to the structure of the manpower system.

a. Primary Activities

The depot's primary activities are those activities that are directly involved in the transformation process of turning the recruits into Marines. These activities have been further classified into five activities, with its traditional line activity counterpart in parenthesis to the right.

(1) **Recruiting (Marketing and Sales).** With a fixed demand for trained Marines, the sales part of this value chain occurs on the front end of the process, as recruiters seek out potential trainees. This activity is first in this value chain.

(2) **Receiving Recruits (Inbound Logistics).** Inbound logistics for depot operations would be the receiving company operations under Support BN for the reception of incoming recruits and the initial processing, screening, and gear issue activities.

(3) **The Transformation Process (Operations).** This area captures activities that occur during the 12 week training program related to transforming the recruits into Marines.

(4) **Graduating Marines (Outbound Logistics)**. This area captures the activities related to the out-processing of the newly graduated Marines from the depot.

(5) **Internal Feedback (Service)**. In a traditional business organization, the primary activity of service deals with external support provide to the customers of the firm. The depot functions differently in this respect, as it is its' own biggest customer as most of the activities that are carried out are consumed by another area of the depot. Thus, service is an internalized function for this specific value chain.

b. Supporting Activities

Supporting activities of the depot provide support to the recruit-training mission and to the internal operations of the base. These activities have been further classified into four areas.

(1) **Community Relations**. This area captures all activities related to promoting good community relations.

(2) **Operations Support**. This area captures all activities devoted to supporting the training mission and the general operation of the depot.

(3) **Personnel Support**. This area captures personnel activities such as training and development and personnel administration support.

(4) **Infrastructure Support**. This area captures activities devoted to maintaining and supporting the brick and mortar infrastructure of the depot.

With these activities defined, the value chain for the making of a Marine is presented in Figure 5.7.

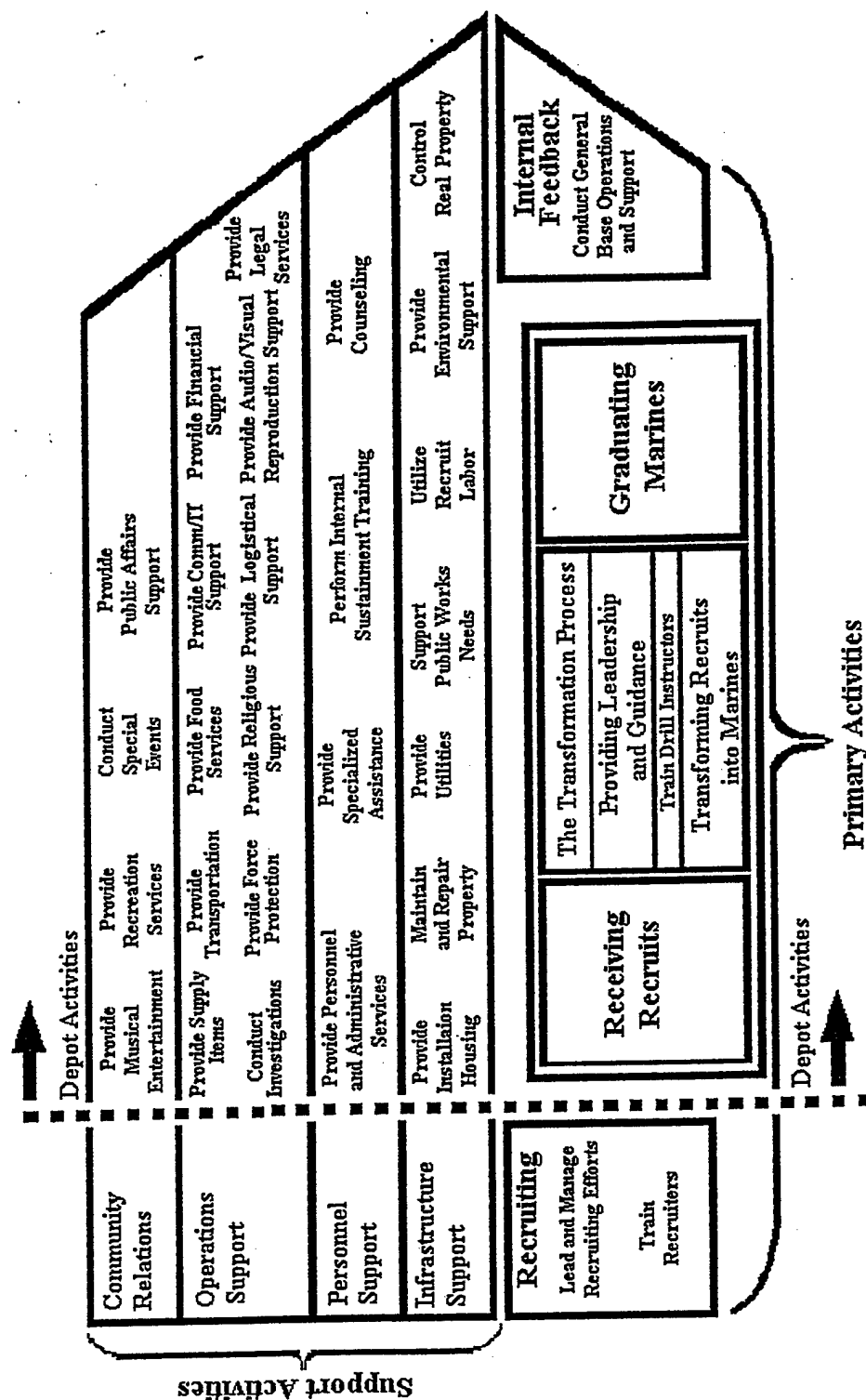


Figure 5.7. Value Chain Analysis for the Making of a Marine

The value chain model illustrates graphically the relationships of the various activities of the depot. It can be said that from a strategic level perspective the depot is an efficient organization. All identified activities from the ABC analysis have a primary or supporting role in the execution of the depot's missions.

To the question of whether there are any depot activities that are not value-added to the *training mission*, two areas are identified. Recruiting activities and community relation activities are two functions which do not have a direct impact upon the training mission and do not add value directly to the training program. Both are absolutely value-added to the Marine Corps, activities which for community relations are very important, and for recruiting are absolutely mission essential. However, it would be possible to support recruiting efforts from another geographic location without a direct impact upon the operations of the RTR. Similarly MCAS, Miramar could be designated as the regional coordinator for all community relation activities.

The depot, however, is not an installation with a single mission, it has two. Directing recruiting and recruit training under the cognizance of the same CG creates a synergistic environment in which these two activities which are inherently linked are also physically linked. Thus while recruiting efforts can be said to not add value directly to the recruit training efforts, this critical function is absolutely value-added and mission essential to the Marine Corps and is appropriately located at the depot.

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VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The activity-based costing methodology is a viable framework in which to capture an organization's costs and translate those costs into meaningful managerial data. The historical O&M budget which has been the standard tool used by military organizations to measure performance is no longer adequate. Applying the ABC methodology to MCRD, San Diego, produced a model with resource consumption in excess of \$230 million dollars. This amount is more the seven times the depot's O&M budget. The relevance of this information is that it shows how decisions based upon O&M data alone would only be considering a small percentage of the total resources and may not optimize resource usage across the many activities. Only with the full picture of resource consumption can the best decisions be made in allocating resources to meet the depot's objectives.

One of the difficulties that will continue to be encountered in discussions of resource consumption is the multiple appropriations and funding sources through which installations and depots receive their funding. It is difficult to document and quantify all of the resources coming into an organization, since some areas, such as manpower, have never been considered quantitatively. The inflexibility which comes with having many different sources of funding directed towards specific areas creates an environment with little incentive for cost improvements. While real efficiency improvement opportunities may exist, support at the highest levels of leadership is essential when an organization's

primary incentive for making these improvements may simply be because it is the right thing to do.

The single greatest challenge that all services may face as they improve installation and support operations is the balance of end-strength vs. fighting strength. Manpower is and will continue to be the largest expense of the Marine Corps. As business reform initiatives remove Marines from support billets, it may become possible and necessary to field a Marine Corps with a smaller end-strength that has an equal or greater amount of Marines in combat arms billets, as compared with today's force.

B. RECOMMENDATIONS

1. ABC Model Development

The ABC model developed in this study is a strategic level model of the depot, and it has presented a rich picture of depot level resource consumption, activities, and cost objects. With the depot currently implementing ABC and ABM procedures, there may be opportunities for expansion and improvement in the depot's operations model through comparisons with this model. It is recommended that MCRD, San Diego's ABC/ABM implementation team review this research for potential information, not addressed in their current models, which could be beneficial to the depot's overall ABC/ABM efforts.

2. Process Improvement Recommendations

Minimum resource analysis identified the absolute minimum amount of resources needed to achieve current output, given the parameters of acceptable training companies of 8 platoons with 720 Marines, a maximum of 41 weeks in production for a training

company, and the seasonal supply of recruits. The value of this analysis is that it identifies what is possible and the resources associated with these alternatives. The question of whether or not these are operationally sound recommendations can only be answered by the experts who manage these processes on a daily basis. However, given the large amount of resources in question and the arguments presented, it is recommended that the following opportunities be evaluated by the depot to see if the cost savings justify their adoption.

a. *Mess and Maintenance/Team Week*

In the absence of the requirement to staff the mess halls after FY00, the bulk of team week appears unnecessary. If mess and maintenance duty is not a value-adding activity to recruit training, and if other opportunities like the crucible exist in which to build teamwork skills, the removal of this week from the training program does not appear to have any significant negative impact upon training. The benefit of removing a non-value added week from the training program is a shifting of consumption of \$6.6 million in MPMC annually. This is equivalent to providing the Fleet Marine Force units with an additional 320 FTEs each year.

b. *Training Cycles*

Once current capacity is documented, it is appropriate to consider if that capacity is being used efficiently. One question to consider is whether more training cycles are being processed than are necessary. With Figure 5.5 showing that both 31 and 34 cycle training programs may meet the needs of the depot, it is recommended that this area be reviewed to ensure current cycle operations are optimized.

c. Standing Companies

The minimum resource analysis presented a nine company structure which can handle current operating levels and the seasonal flow of recruits, while not increasing the number of weeks of recruit handling by a training company. This minimum amount of companies may not provide an acceptable buffer zone for fluctuations in operations. However, it does raise the question of whether twelve companies are necessary. It is suggested that excess capacity may be higher than necessary and therefore it is recommended that the number of standing companies be reviewed. Reductions of manpower and support structures which do not negatively affect operations free scarce resources to be employed elsewhere. The transfer to Fleet operations resulting from a downsizing of even one company is 45 Marines, or \$1.83 million of MPMC annually.

C. ANSWERS TO RESEARCH QUESTIONS

1. Cost to Train a Marine

The activity-based costing model of Chapter III presented the cost to train a Marine during FY97-99 as \$13,296 CY99\$ per Marine. This cost is composed of variable costs of \$6,958 and total fixed and overhead costs of \$6,338.

a. Total Resource Consumption

Average annual resource consumption for the depot during FY97-99 is \$230,847,990, as shown Table 4.1 and 4.2. Of the total resources consumed, \$9,665,968 are not allocated to the full cost to train a Marine, as these costs are recruiting costs, which fall outside the scope of this research.

b. Attrition and Recycles

The average burden of attrition and recycles from MRP, PCP, BMP, and RSP is \$7,882,247 annually during FY97-99.

2. Capacity Analysis

Current capacity has been defined by four measures in Chapter V. That analysis is summarized as follows:

Theoretical Capacity:	37,440 recruits
Practical Capacity:	34,560 recruits
Normal Capacity:	24,120 recruits
Annual Budgeted Capacity (FY00):	19,500 recruits

Capacity Utilization

Practical:	48.01%
Normal:	68.97%
Annual Budgeted:	87.55%

3. Core Competencies

Four core competencies were identified in Chapter V.

Training Marines
Training Drill Instructors
Training Recruiters
Leadership and Guidance

4. Value Chain Analysis

The value chain for the making of a Marine is presented in Figure 5.7.

D. AREAS FOR FURTHER RESEARCH

1. Attrition and Recycles

Further research may be necessary to examine the effects of attrition and recycles of trainees on costs. From the current data alone, it cannot be determined if the current cost of attrition and recycles from the ABC model is an efficient level or if efforts can be made to improve in this area. This amount, \$7,882,247, is 8.5% of MPMC committed for recruit training salaries. While a certain amount of attrition and recycle costs may be unavoidable, this is an area that should be minimized.

2. Value Chain Analysis/Training Process Reengineering

The value chain analysis presented a top-level presentation of how depot operations could be described within this model. A more relevant use of this technique may be in the examination of the content of the recruit training program itself, which was beyond the scope of this research. Identification of the value-added and non-value added activities internal to the recruit training program could provide opportunities for process improvement and increases in the efficiency and effectiveness of the training.

3. Recruit Training Costs at MCRD, Parris Island

Now that recruit training costs have been quantified for MCRD, San Diego, a logical question might be "What is the cost to train a Marine at MCRD, Parris Island?" One of the benefits of the ABC methodology is the opportunity for benchmarking costs among similar organizations and processes. Research into the costs occurring aboard MCRD, Parris Island would be the next step in this process.

4. Recruiting Costs

A final question that may be of interest is what is the cost to recruit a Marine? This study has analyzed the costs inherent to the training depot. This, however, is part of the overall procurement costs for a trained Marine. Further research may be appropriate in this area if the full cost to field a trained Marine is deemed to be a worthwhile question to pursue.

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LIST OF TERMS AND ABBREVIATIONS

ABC	Activity Based Costing
ABB	Activity Based Budgeting
ABM	Activity Based Management
BMP	Basic Marine Platoon
BN	Battalion
CG	Commanding General
CY	Constant Year
CPEN	Camp Pendleton, California
DoD	Department of Defense
DoN	Department of the Navy
FTE	Full Time Equivalent
FY	Fiscal Year
G-1	Administrative Section, General Staff Level
G-3	Operations Section, General Staff Level
G-4	Logistics Section, General Staff Level
HQMC	Headquarters, Marine Corps
H&S BN	Headquarters and Service Battalion
MCAS	Marine Corps Air Station
MCCDC	Marine Corps Combat Development Center
MCRD	Marine Corps Recruit Depot

MCRD, SD	Marine Corps Recruit Depot, San Diego, CA
MEPS	Military Entrance Processing Station
MPMC	ManPower Marine Corps
MPN	ManPower Navy
MRE	Meal-Ready-to-Eat
MRP	Medical Rehabilitation Platoon
O&MMC	Operations and Maintenance Funding, Marine Corps
PAO	Public Affairs Office/Officer
PCP	Physical Conditioning Platoon
PMC	Ammunition
PMO	Provost Marshall's Office
RAP	Relocation Assistance Program
RSP	Recruit Separation Platoon
RTR	Recruit Training Regiment
SJA	Staff Judge Advocate
STC	Special Training Company
TAP	Transition Assistance Program
T&E	Training and Education
T/O	Table of Organization
WFTBN	Weapons and Field Training Battalion
WRR	Western Recruiting Region

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