

**AN APPLICATION OF ACTIVITY BASED COST MANAGEMENT IN A
MILITARY DISPENSARY**

MBA THESIS

HAKAN BAYRAMLIK

ANKARA, September 2000

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A THESIS

Submitted to the Department of Management
And Graduate School of Business Administration of
Bilkent University
In Partial Fulfillment of the Requirements
For the Degree of
Master of Business Administration

HAKAN BAYRAMLIK

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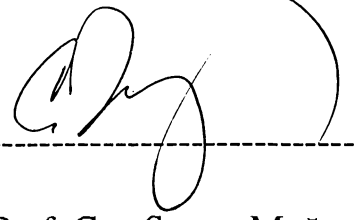
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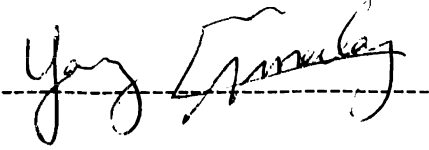
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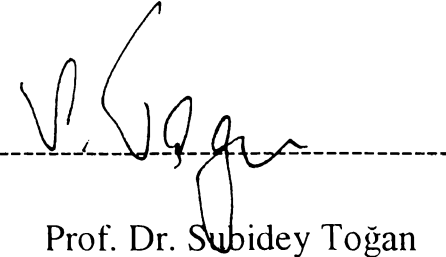
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ABSTRACT

AN APPLICATION OF ACTIVITY BASED COST MANAGEMENT IN A MILITARY DISPENSARY

BY

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M.B.A.

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SEPTEMBER, 2000

This study stresses the importance of knowing the true cost of a process, product or service; offers a basic overview of activity-based costing and activity-based cost management; evaluates the benefits offered by activity-based costing; offers a comparison of ABC to traditional cost system, and an analysis on how ABC does compute more accurately.

The focus is on the use of activity-based costing and activity-based cost management in a military dispensary to increase management's ability to track indirect costs and thereby to provide more accurate data for evaluating results. The overhead is allocated on a more accurate basis among the clinics of the military dispensary. Indirect costs are made direct by using activity based costing system. The true costs of 10 clinics of the dispensary are revealed throughout this study and, a comparison with private clinics', and a relative savings table of military clinics are presented. Limitations are defined and recommendations are made for future investigations and implementations.

Key words: Activity based costing, Activity based cost management, cost driver, cost object.

ÖZET

FAALİYETE DAYALI MALİYET YÖNETİMİNİN BİR ASKERİ DISPANSERDE

UYGULANMASI

HAKAN BAYRAMLIK

YÜKSEK LİSANS TEZİ, İŞLETME FAKÜLTESİ

TEZ DANIŞMANI: DOÇ. DR. CAN ŞİNGA MUĞAN

EYLÜL, 2000

Bu çalışma, bir işlem, ürün veya hizmetin gerçek maliyetinin bilinmesinin önemini vurgular; faaliyete dayalı maliyetleme ve faaliyete dayalı maliyet yönetimi hakkında temel görüşleri belirtir; faaliyete dayalı maliyetlemenin faydalarını değerlendirir; faaliyete dayalı maliyetleme ile geleneksel maliyetleme sistemlerini karşılaştırır ve faaliyete dayalı maliyetlemenin nasıl daha doğru bir hesaplama yaptığını analiz eder.

Vurgu, askeri bir dispanserin faaliyete dayalı maliyetleme ve faaliyete dayalı maliyet yönetimini kullanıp, endirek maliyetlerini tespit ederek, sonuçları daha iyi değerlendirmeleri için daha doğru bilgi edinerek yönetim kabiliyetlerini arttırmaları üzerinedir. Genel yönetim giderleri daha doğru bir bazda askeri dispanserin klinikleri arasında dağıtılmıştır. Faaliyete dayalı maliyetleme sistemi kullanılarak endirek maliyetler direk maliyetler haline dönüştürülmüştür. Bu çalışmada dispanserin 10 kliniğinin gerçek maliyetlerinin dökümü yapılmış ve özel dispanser maliyetleriyle karşılaştırılarak göreceli tasarruf tablosu elde edilmiştir. Çalışmanın sınırlamaları ve daha sonraki araştırmalar ve uygulamalar için tavsiyelerde bulunulmuştur.

Anahtar kelimeler: Faaliyete dayalı maliyetleme, Faaliyete dayalı maliyet yönetimi, maliyet taşıyıcısı, maliyet nesnesi.

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I would like to thank to associate professor Can Şimga Muğan for her supervision, kind interest, patience, and constructive comments throughout the study. I am also grateful to the examining committee members for their valuable contributions.

TO MY FAMILY

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CHAPTER I

INTRODUCTION

Mission-driven organizations with mission-driven budgets must concentrate on outcomes rather than simply inputs in order to create organizations that work better and cost less. Existing accounting systems focus on inputs and do not give army managers the information they need to manage complex processes and activities. The present system emphasizes budget execution, rather than mission accomplishment or goal attainment.

Turkish Department of Defense's management system-the Planning, Programming, and Budgeting System- is now outdated. While it does provide detailed information about congressional appropriations associated with broad military missions, it does not provide the kind of resource justification information that is easily understood and usable at lower levels.

In order to become more results oriented, government fund accounting systems need to be supplemented with systems that focus on providing managers with information to measure, manage, and improve activities and processes which focus on organizational outputs. Government organizations require accounting systems capable of determining resource consumption by business process and activity, targeting opportunities for cost reduction, and providing alternative, non-budgetary information. Activity-based costing (ABC) was designed to give managers this information and allow them to determine the costs more accurately associated with delivering a product or service (Callahan and Marion, 1996, p21).

ABC has been identified as the most suitable method for modern manufacturing environments. This costing system allocates overhead costs based on the actual consumption of the resources by each activity and provides direction for improving the operational performance of systems. ABC systems trace more exactly the real costs to the products than any other volume-based cost systems. Therefore, more accurate overhead cost allocations lead to fewer distortions. Activity-based costing looks at cost from a strategic point of view to answer the question, "How much do things cost?" It's a way to maintain and process financial and operating data on resources, activities, the things that drive cost, cost objects and activity performance measures. It also assigns cost to activities and cost objects. Activity-based cost management (ABCM) takes an operational point of view to answer the question, "What makes cost occur?" It studies the things that drive cost and the activities that go into processes and it helps measure performance. ABCM is aimed specifically at meeting the need of good management information, which can describe and monitor the business processes' performance in terms of:

- reflecting the customer's perspective;
- identifying the profitability of both products and customers;
- providing visibility of business processes;
- explaining or demonstrating cause and effect;
- reflecting reality;
- being predictive;
- embodying strategy.

Its objective is to provide the information needed to improve business processes, and then sustain the improvement, by enabling management to focus on doing the right things, and by providing an approach to doing them right (Player, 1997, p23).

Within the private sector, applications of ABC have been implemented mainly in manufacturing organizations. But increasingly the benefits of ABC have been realized in service organizations as well. ABC also appears well suited for expansion into government organizations (Callahan and Marion, 1996, p21).

Within the Department of Defense, as in industry, the most frequently cited potential use for ABC information is to help installations determine the true costs of their goods and services. The Defense Finance and Accounting Service does not provide those costs. The consequence is that in a typical Army installation, the Directors have no supporting financial information that shows the true costs of basic services they provide such as water, electricity, or building maintenance. If they want such data, they must devote scarce maintenance and repair funds to an extensive manual effort to gather basic financial data.

ABC provides a more accurate view of work center contributions to processes, and provides enhanced capabilities for management to make cost based decisions. Military labor and depreciation, excluded in the standard accounting systems, were included in ABC information. Because military labor costs are paid from a centralized account at Department of the Army level and not shown in installation accounting systems, their invisible costs have, in many cases, been ignored at installations.

ABC project goals are to identify cost objects, determine product or service cost with a valid portrayal of overhead, find activity cost and causes of cost, assess value added for given activity, build initial ABC model, and make ABC self sustaining.

ABC supports such initiatives at Army installations as: strategic planning, benchmarking, performance measurement, value added analysis, reengineering,

downsizing, and outsourcing. Some support functions are done more efficiently in-house, but managers don't have the cost and process information they need to identify their most efficient organization. ABC reports 'how' money is spent instead of 'how much'. Activity-based costing gives managers a tool to streamline processes, reduce costs, and remain competitive in outsourcing decisions (Jones, 1998, p11).

ABC will identify what we are doing that we don't have to, what we aren't doing that we should, and what someone else can do for us better, cheaper, and more effectively. The costs of entire business processes can be determined and used as the bases for changing, or reengineering, throughout an entire installation. How can ABC data help? There are multiple ways.

Vann (<http://www.abctech.com>.) indicates that, first, ABC offers a way to begin to show managers the impact of budget cuts on activities and missions performed before the cuts are made. The existing system focuses on accounting for organizations that are funded and on the general functions they perform. For example, for an installation Director of Logistics, the Army accounting system accounts for the cost of the Office of the Director—as if it were an output. What does that office do? What would happen if that office absorbed a cut? What would it do to the full cost of the outputs of the Director of Logistics? At present, there is no linkage, and a subjective evaluation at best is all that could be offered.

With ABC, the contributions to the outputs of the Directorate (repaired tactical equipment, supplies provided, transportation provided, etc.) of the Director's office, and all other overhead offices, as well as the activities they perform in helping produce the Directorate's outputs, are known. With current software, what-if scenarios can be run to determine the cost implications of changes in activities, organizations, or resource inputs.

Secondly, the kind of information provided by ABC can contribute to a major improvement in budgeting. The example of military labor offers a good example of how this can happen. Military labor costs are paid from a centralized account retained at Department of the Army level. Installations do not budget or account for military labor, and the cost of military personnel is not shown in installation financial systems, even though it is a legitimate cost to the Army and should be charged to some customers.

The objective of the thesis is to identify the military dispensary's clinics' costs and make managers begin to see the value of understanding the contributing activities and their associated costs by arming them with activity knowledge to take a strong and accurate look at the drivers of activities and the performance measures that can be placed on those activities. Thus, shifting the focus from managing by intuition to managing with information.

The organization is as follows:

Chapter 2 stresses the importance of knowing the true cost of a process, product or service; offers a basic overview of activity-based costing and activity-based cost management which is build upon a model and a framework; evaluates the benefits offered by activity-based costing; offers a comparison of ABC to traditional cost system, and an analysis on how ABC does compute more accurately. The data gathering and cost allocation of the application is presented in Chapter 3. Chapter 4 concerns with the comparison of the traditional cost system and ABC system approaches, where the allocation of the overhead is done according to both of the approaches to show the use and the benefits of the ABC. The conclusions and recommendations are presented in Chapter 5.

CHAPTER II

LITERATURE REVIEW

ACTIVITY BASED COSTING AND ACTIVITY BASED COST MANAGEMENT

The nature of current manufacturing environments are more capital intensive compared to the labor intensive traditional manufacturing situation. Therefore, traditional costing systems focusing more on labor productivity may not be applicable for the present day manufacturing or service organizations. Also, traditional costing systems allocate the overhead costs based on direct labor hours, which may not be applicable in advanced manufacturing environments, as the role of direct labor has diminished. Traditional costing systems distort the cost information by allocating overhead costs based on an inappropriate basis. Therefore, there is a need for a new cost system such as activity-based costing in advanced manufacturing with the objective to provide more accurate and useful information for decision making on operational policies (Gunasekaran and others, 1999, p286).

Improvement focuses on the work (the activities) of the organization. However, traditional costing does not report useful information about those activities that have the most potential for improvement. The ABC system focuses on activities rather than products which helps to prevent the distortion in product costs that can arise from the use of the traditional costing system and provides more accurate information (Cooper and Kaplan, 1991, p130).

Traditional cost systems adhere to the assumption that product causes cost. Each time a unit of the product is manufactured, it is assumed that cost is incurred. This assumption does make sense for a certain type of cost. For example, the cost of activities performed directly on the product unit such as direct labor fits this assumption. However, it does not work with activities that are not performed directly on the product units. For example, some activities are performed on batches of product like machine set-up. Other activities are performed by product type. When engineering specifications of a product change, all future product units will be affected, not just a single unit. Again this does not fit into the volume-based cost allocations and assumptions of the traditional costing system (Green and Flentov, 1991, pJ5-1).

ABC rejects the premise that products and services directly consume resources. Rather, ABC is based on the contention that products and services consume activities and activities consume resources. ABC identifies the activities of an organization and calculates the cost of each activity and then the cost of the product based on the consumption of activities. Therefore, accuracy of product cost depends on the cost of activity and the volume of cost driver (Dowless, 1997, p86)

ABC systems trace costs from resources (people, machines, and facilities), to activities and processes, and then to specific products, services, and customers. The cost of all resources used to make a product and serve a customer (including resources at a great distance from the factory floor) is included in the strategic costs of products and customers. Strategic costing can be done for products, services, customers, or organizational units, allowing managers to understand profitability at various levels of disaggregation and organizational hierarchy. An activity-based cost system provides managers with an economic map of their enterprise; it identifies

where money is being made and lost. The ABC system exists to help managers understand the sustainable economics of their business (Cooper and Kaplan, 1998, p109).

Activities are the process or procedures that cause work to be performed in an organization. They are aggregations of tasks whether performed by people or machines to satisfy the needs of customers whether they are internal or external. If some resources are shared by several activities, then some measure of apportionment will be necessary (Keegan and Eiler, 1994, p26).

A very important principle of the correct design of an ABC system is that activities and resources are assigned, not to products, but to cost objects, based on use. This is because, in many organizations, activities are not used to produce products. In service organizations, for instance, activities are focused largely on service to customers and on sustaining the business. The actual cost of resources consumed in producing products can be less than 10 per cent of total indirect costs (Sharman, 1998, p15).

As Cooper and Kaplan worked with more organizations, they saw activity based costing applied in general settings and with more complex models. For example, their relationship with a Swedish consulting company, SAM, led to the well-known case study of Kanthal where activity-based costing was applied to customers. This revealed how many organizational costs can be traced directly to customers, not to products (Kaplan, 1998, p105).

Cost object can be any customer, product, service, contract, project or any other work unit for which a separate cost measurement is desired. The cost object resides at the bottom of the cost assignment view of an ABC system. Most

companies have two hierarchies of cost objects, one for products and one for customers (Gunasekaran, 1999, p118).

Costs incurred to perform unit-level, batch-level and product-level activities all vary in response to changes in some measure of the activity called the cost driver. The costs of unit-level activities, batch-level activities, and product-level activities can all be changed by changing the amount of the activity's cost driver. It is this information that makes ABC a powerful tool for pricing (Lere, 2000, p23).

A cost driver is any factor that might cause a change in the total cost of an activity. Cost drivers by their very nature indicate where action or change is required for further improvement. Therefore effective management of cost drivers is an essential element of an organization's quest for continuous improvement. Any activity has multiple cost drivers. Understanding the significance of cost drivers individually and in combination with each other is crucial to understanding what causes cost to occur and how to reduce that cost (Player, 1997, p22).

For example, hospitals using traditional costing systems often allocate overhead expenses using square footage as a cost driver. However in many instances as square footage has remained relatively constant, overhead costs have continued to soar; therefore square footage was clearly not the sole cost factor driving these escalating overhead costs. ABC system through activity analysis and cost drivers ascertain the true reason behind escalating overhead costs (e.g. higher technology and equipment costs). As is often the case in manufacturing and service organizations, cycle time is an important cost driver. ABC system allocates overhead using such cost drivers as cycle time, equipment costs, equipment usage, or equipment utility consumption, thus providing more accurate product costs (Ramsey, 1994, p385).

Once product costs have been identified, managers begin to see the value of understanding the contributing activities and their associated costs. Furthermore, armed with activity knowledge, cost accountants and operational managers can take a strong and accurate look at the drivers of activities and the performance measures that can be placed on those activities. Thus, the primary use of ABC shifts from that of an accounting tool to that of a management decision support system for optimizing operations (Nair, <http://www.abctech.com>).

Under the old way, management accountants would give a lot of reactive, static reports of what had already happened. The new trend is for the financial staff to be proactive partners, with more up-to-date information and projections to better assist management (Grupe, 1998, p4).

The starting point for developing an activity based cost management (ABCM) framework is an activity based costing model which must depict the actual physical structure of resources, and activities, and cost objects. Design is every thing in an ABC system because each organization consumes different levels of resources in performing different activities and has different levels of output or different cost objects. Even within the same industry, different organizations must be very careful to depict their operations as a reasonable facsimile of their specific structure (Sharman, 1998, p15).

The model takes the costs from within a ledger system and allocates them to activities on the basis of the resources that they consume. The costs of the activities are then distributed to the objects to be costed, such as products and customers, on the basis of cost driver volumes. The principles are shown in Figure 1.

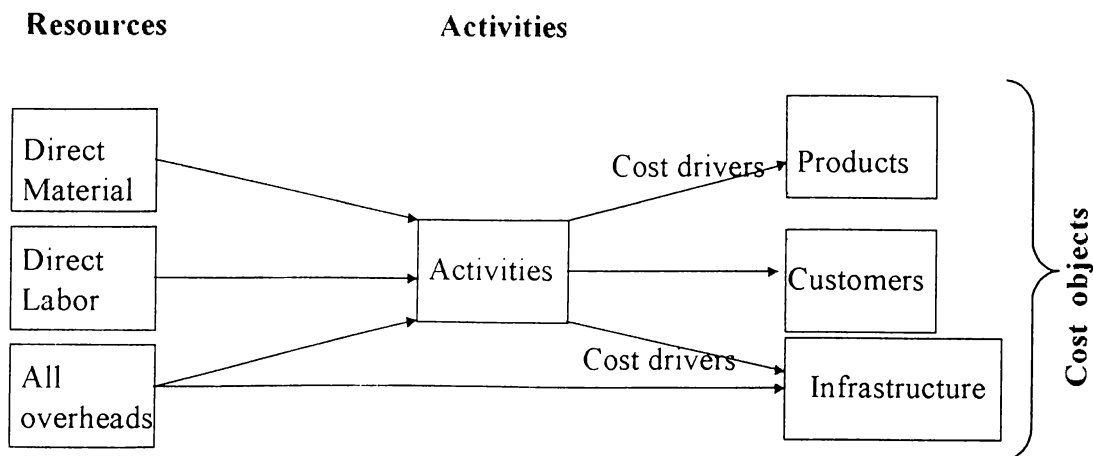


Figure 1. Principles of an activity-based costing model (Clarke and Bellis-Jones, 1996, p45).

The design process begins with defining the objectives of an ABC system and ends with the implementation.

According to Cooper and Kaplan (1991, p133), there should be a minimum of four team members.

- The team leader should be an engineer who is working in a strategic planning group.
- A company cost accountant who has had significant experience in production as well as working knowledge of a firm's existing accounting system.
- A production supervisor.
- An industrial engineer with many years of experience.

Clarke and Bellis-Jones (1996, p46) points out the stages of developing an activity based costing model as follows:

1. *Planning and communication.* The model requires the collection of a large quantity of data from within the business. It is essential that all staff are kept fully informed and that the project is planned thoroughly. And it is important to select the

specific purpose and then design a system that serves that specific purpose or objective. The following is a list of objectives (Gunasekaran, 1999, p120).

- To provide information about manufacturing activities with the objective to motivate and support waste elimination programs.
- To provide information about non-manufacturing (non-value adding) activities that support cost reduction in these areas.
- To provide design engineers with cost information that guides selection of low cost and high quality product design.
- To provide information to guide market focus.
- To provide information to formulate pricing strategies.
- To provide product costs and to facilitate studies of relative product profitability.
- To design an ABC system that cost determines the cost of parts and subassemblies which go into products and guides make-or-buy decisions.

2. *Activity and cost driver definition.* The definitions for activities and the choice of cost drivers will determine the information that will feature within the ABCM framework. The definitions should be agreed by as many managers as possible before proceeding with the collection of data.

3. *Activity and cost driver data collection.* This involves the collection of quantities that represent how much of each key resource in the ledger is consumed by each activity; and volumes that represent how much of each cost driver is associated with each of the objects to be costed.

4. *The modeling of costs.* The data should be modeled on a computer using spread sheets or specialist activity-based costing software.

5. *Implementation.* The factors favoring ABC implementation are:

-Measurement costs. The introduction of more advanced information technology has become cheaper and easier to carry out the necessary calculations to arrive at the desired product costs.

-Increasing costs of error. As a result of the recessions, which the world encountered in the last two decades, it has become increasingly important to have a profound knowledge of the right production costs.

Cokins (1999, p38) says that less detail and estimated figures produce an accurate costing picture. With ABC, the assigned costs that result from an estimating error (that is, estimating percentage of labor time per work activity) don't necessarily compound. When a potential error in ABC's activity costs combines with a potential error in the activity driver rates and assignments, the total error can actually become smaller when the errors offset each other. Cost allocating is a zero-sum error game. If an indirect cost allocation is incorrect, then some cost objects will be set too high while the remainder will be set too low, and the net sum error is zero. However, when each of the activity costs are reaggregated into their specific products or services to customers, the probability is slim to none that an individual product will receive activity costs from only the activities that were set too high.

Allied Signal and Coca-Cola, which have developed world-class ABC modeling teams, learned this lesson by putting their ABC systems through several redesigns. They found that simpler designs generally produced higher levels of accuracy.

-Other elements favoring the use of ABC system include the need for changing overhead structures, new production processes and new marketing strategies.

The factors not favoring ABC implementation are:

- The decision on the implementation of an ABC system should well be considered because the change not only needs resources in the form of man hours and capital (in buying the necessary equipment), but also the involvement of employees.
- Lost production
- Congestion on the factory floor
- Lack of involvement (Gunasekaran, 1999, p289).

Understanding activity costs and what drives them is the starting-point for providing management information for many different purposes. This is the basis for the ABCM framework which is shown in Figure 2.

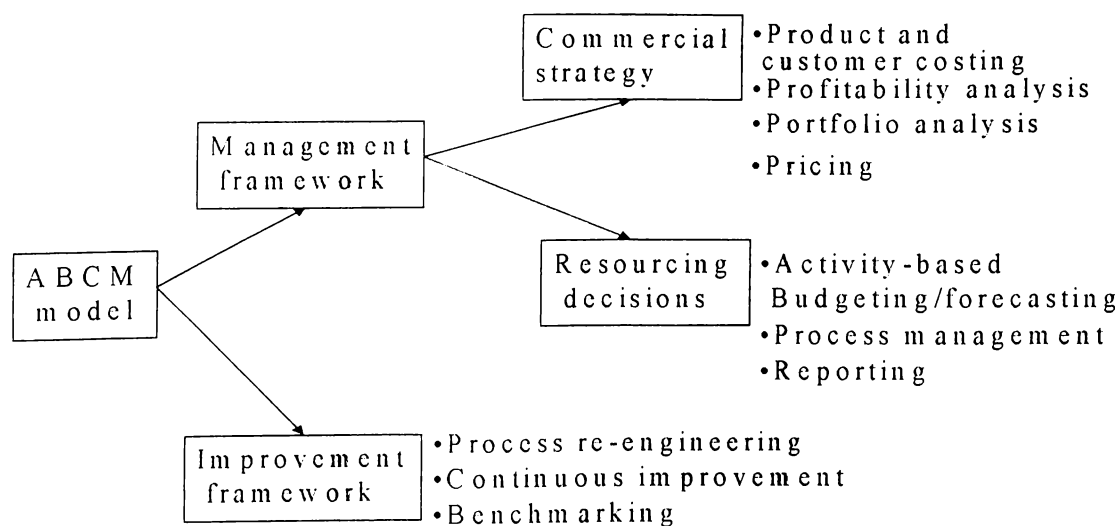


Figure 2. Activity-based cost management framework (Clarke and Bellis-Jones, 1996, p46).

ABCM framework involves managers using day-to-day, on-going decision support information when deciding a direction for change and when making the decisions necessary to achieve change. As a consequence, managers become capable of improved commercial management and resource management. These capabilities are described below (Clarke and Bellis-Jones, 1996, p46):

Commercial Strategy:

- Product and customer costing

Just as activity-based techniques can deliver the cost of a product, they can also determine the cost of a customer. Cost modeling, cost forecasting, cost simulation are different expressions which mean broadly the same thing: an ability to build future orientated cost models of products, events and processes.

- Profitability analysis

After product cost analysis, customer profitability analysis provides one of the most frequently cited ABCM applications, partly, it could be assumed, because of the dramatic nature of the information that it tends to produce. Bellis-Jones (1989) first put forward the message that at least 20 percent, possibly 30 percent, of customers are actually eroding profits when the full costs of servicing them are accurately attributed.

When provided with the profit cliff results from the ABC approach, management can quickly focus as to how their cost structure and behavior connects to where their organization makes higher or lower profits. Equipped with this data, managers have only four available options:

- raise price particularly where there is little or no adverse volume reduction from lost sales
- rationalize the mix:
 1. drop some customers; and increase attention on the highly profitable ones
 2. drop some products or service line offerings; promote the profitable ones
 3. unbundle services, and re-price each unbundled service to achieve the desired state
- fix the process and remove waste

- offer the trading partners various options of service levels (similar to the package delivery service companies' one-day, two-day, or longer options). The key is that the incremental change in cost must be below the incremental change in price. The preferred choice should be in harmony with the organization's cost structure (Cokins, <http://www.abctech.com>).

- Portfolio analysis

Decisions as to what products to sell, to which market segments or customers, at what prices and in what volumes, are fundamental to the formulation of competitive strategy. ABC offers medium-term cost data in which cost variability is more realistically measured and which consequently provide bases for product/mix/market and outsourcing decisions. This is essentially the basis for activity-based budgeting (Partridge, 1998, p583).

- Pricing

There is considerable evidence to demonstrate that ABC unit costs can frequently reveal alarming profit variations between products as a result of prices developed from traditional costing systems. For example, Volkswagen Canada has applied ABC to its quotation pricing process (Gurowka, 1996, p17). A detailed activity costing sheet highlights areas that increase product costs and areas where costs need to be cut. The costing sheet has found uses, both for pricing current products, and also pricing future business.

Resourcing Decisions:

- Activity based budgeting/forecasting

Budgeting for overhead has long presented insoluble problems for management. Incremental budgeting, characterized as "last year plus 5 percent", remains a widely used mechanism. The ABC model, with its quantitative connection between outputs

and resource inputs, can meet a long-felt need. This application of ABC methodology is in essence an example of output analysis, when one of the output variants is selected as the operating plan for the coming budget year (Partridge, 1998, p583).

- Process management

ABC cost analysis can identify those activities, which add to or create product value and those which are unnecessary, wasteful or used in too great a quantity. The traditional approach of product design followed by process design can leave the process designers with a time-consuming and costly task. Concurrent engineering is now favorable, where product and process design are performed in parallel, in full knowledge of the activities and their costs that will be required (Partridge, 1998, p584).

- Reporting

This gives the ability to change levels of activity and therefore resources in response to volume and service level changes; to measure the effectiveness of cross-functional business processes; and to plan and budget on the basis of activity costs and cost drivers.

Improvement Framework:

- Process re-engineering

Business processes are sequentially related sets of activities. The recent drive to re-engineer business processes is often pursued with no regard to, or real understanding of, before-and after-process costs of the underlying product or the customer profitability realized from performing those processes. There is often no real framework to monitor the return on investment. Indeed, without ABC, there is often little to no measurement (Partridge, 1998, p585).

- Continuous improvement

Gurowka (1996, p17) describes Volkswagen's process improvement tool called KVP (*Kontinuierliche Verbesserungsprozess*), where the cost data provided by ABC ensure that the process improvement team concentrate on what is important and so prioritizes its targets.

- Benchmarking

Hence an early product of the ABC model was the generation of performance measures, it is a logical progression to use ABC metrics to conduct benchmarking studies (Partridge, 1998, p585).

Industries that have adopted ABCM most rapidly are those experiencing a rapid reduction in market pricing, which in turn requires a rapid reduction in cost. High-tech industries fall into this category, and Motorola is often cited as an exemplary company. Also, industries that have a wide variety of products need ABCM more than industries that produce much the same product. If high-variety companies don't understand their costs, they go out of business (Billington, 1999, p8).

The single most important lesson of ABC is that variety is the greatest driver of cost. The moral is to strive for customization by maximizing the use of common parts. Think about keeping the product design simple and interchangeable, then creating choice without requiring changes in the basic design. Japanese car manufacturing offers the classic example. Japanese companies try to figure what most customers want and make those features standard. (Billington, 1999, p8).

ABCM IN THE ARMY

The Land component of the Canadian Armed Forces recognized its need for a modern management tool, activity based cost management that would provide an executive information system to assist managers and leaders at all levels in fulfilling their role in accomplishing the Canadian Army's mission which is to generate multi-purpose combat capable forces.

A pilot project was conducted in 1995-96. The Army Comptroller established the following aim for the ABCM component: To provide an integrated cost and performance management system to users of business planning at all levels, for all capacities, and for all Land Forces geographical Areas, in order to meet the forecasting and reporting requirements of Strategic Operations and Resource Planning which meant that every component of the Army was going to be modeled and set up to use ABC.

The introduction of ABCM in 1995 shifted the focus from resource and expense management to results and activity management. This represented a major cultural shift for the Canadian Army. Historically, baseline budgeting, focused on expenses and resources, represented the way the Army managed its budget allocation.

The Army is divided into the five capacities, which are as follows: Operational Forces, Regular and Reserve, Support, Training, Command and Control.

After establishing the aim of the ABC project, groups of military experts for each of the capacities were formed and with the assistance of consultants, developed the ABC models. The next step was to visit the different sites across Canada to collect data from previous years. This further validated the appropriateness of the

models and all of the components, mainly the links and the drivers. Between October 1997 and June 1998, data was collected and models were populated and documented for all Regular Force Brigade Units, two Area support groups plus one major base, and one training center. This was accomplished by a team of six consultants and three full time staff members.

The most important aspect of the Army's approach was to have standard models for each capacity. The activities had to be detailed enough so that they could serve the lowest levels of management, while also being broad enough in order to be identical and appropriate across Canada for a given capacity.

The importance of maintaining standard models across a given capacity had emphasized, and a universal ABC model for a capacity enabled an organization in one part of the country to benchmark itself against another elsewhere (Richard, <http://www.abctech.com>).

Jones (1998, p13) indicates that installation directorates and managers must be willing and able to use the information obtained from the models to improve operations and to integrate the concept of activity-based management into daily business. Deliberate effort, continued emphasis and senior leader involvement is needed to ensure integration occurs.

Garrison commanders need to:

- Set expectations for reducing cost and hold managers accountable for identifying improvement goals, measuring performance, and reporting on progress.
- Commit to a continual educational process for all levels of the workforce, including senior leadership.
- Encourage a safe environment for taking risks. Recognize and reward those who are willing to make hard decisions, take action, and improve operations.

- Empower and involve employees in making process improvements.
- Clearly communicate organizational values, mission priorities, strategic goals, customer focus, and a general state of organizational health to all levels of the workforce.

Directorate managers need to:

- Focus on processes and activities to solve business problems, improve operations, and reduce cost.
- Communicate with customers to identify their needs and to evaluate the cost and value of services.
- Benchmark to establish meaningful performance measures.
- Compare with other installations and seek out best practices.
- Continue the educational process to use activity-based information by developing skills in process analysis, performance measurement, benchmarking, and customer requirements.
- Be willing to make tough decisions and reduce costs.

Every employee needs to:

- Examine activities they perform for streamlining opportunities.
- Identify non-value added activities, which can be eliminated.
- Challenge unnecessary regulatory requirements.
- Identify suggestions for improvement.

ABCM IN THE HEALTH CARE ORGANIZATIONS

Hospitals measure their costs by adding their expenses, including the expenses for the ancillary services, then divide by the patient days. It is called per diem expense. Using this average expense per day, they negotiate per diem payments from insurance companies. Hospitals also use this average expense to measure their profit or loss on diagnostic related group payments. Since patient variation is very high this does not reflect the true use of resources by a patient accurately.

No longer do health insurance companies pay the charges listed on the patient's bill. Most commercial insurance companies have negotiated per diem payments. Health insurance companies have divided medical services into 456 diagnostic related groups. They pay a predetermined lump sum payment for each diagnostic related group. Physicians have to negotiate fee contracts with medical insurance companies. Health insurance companies determine the fee amount that they will pay to physicians without any negotiation. In any prospective reimbursement system, revenue is fixed while costs are variable. This situation clearly underscores the need to ascertain and control costs to keep expenses from exceeding revenue. To manage costs effectively, the causes of costs, or cost drivers, must be established so that management can focus on controlling these key factors (Storfjell and Jessup, 1996, p14).

Conventional approaches usually fallback on a general apportionment of costs such as square footage, head count, etc.; then they are spread thinly and evenly across all areas, rather than being focused where the costs are truly incurred. On the other hand, ABCM concentrates on the activities and the drivers of cost, and so fits completely with the process-driven view of organizations (Aird, 1996, p16).

Traditionally, hospitals receive a fixed reimbursement fee for each day that a patient is in the hospital. If the patient is admitted to an intensive care unit, a higher fee is assessed and collected. Braintree Hospital, a 168-bed rehabilitation hospital located in Boston, Massachusetts, decided to more accurately assess these costs based on specific patient diagnoses, since nursing labor comprises a large proportion of the daily costs for patient care. The service in this example is rehabilitative care and the activity for analysis is the nursing component of that care. For any admission, patients in the early course of their disease receive more comprehensive care. As the patient nears discharge that comprehensive care gradually transitions to supportive care. Nurses were asked to complete a data sheet on each of the patients cared for during the day with respect to various nursing duties by utilizing a nursing service classification form. A comprehensive time series duty log was generated and used to assess the amount of nursing care required for specific diagnoses. In this example, the cost driver is the time expended in the various duties-such as feeding and mobilizing patients and distributing medications. The cost drivers are the events that contribute to and, ultimately, determine the total cost of the nursing care activity. The ABC principles allowed Braintree Hospital to unbundle nursing care from the fixed daily bed rate for patient care to more accurately charging for services based on resources consumed. The hospital used this data to negotiate contracts with managed care companies for reimbursement based on certain patient diagnoses.

In the rehabilitation hospital example, certain aspects of a patient's stay are difficult to unbundle, such as administrative or maintenance facility costs and, therefore, they need to continue to be allocated based on gross measures, such as length of stay. The key is to identify where large resources are being consumed and unbundle those activities (Gabram, 1997, p34).

CHAPTER III

APPLICATION

DATA GATHERING

This study is intended to reveal the cost structure of a military dispensary both from the traditional cost accounting and activity based cost accounting systems approaches, which cover the whole year of 1999.

Department of Defense's management system is called the Planning, Programming, and Budgeting System which provides detailed information about Congressional appropriations associated with broad military missions. But it does not provide the kind of resource justification information that is easily understood and usable at all levels. The result is that military installations or detachments does not account for their spending. Instead they report their needs for the upcoming missions or operations to their superiors. What is done instead of accounting is keeping the records of the any kind of the equipment and supplies which is provided by the superior Commandant's Audit Office. If the resources are available their needs are approved and supplied under the approach of budget execution. In order to extract a cost structure of a detachment one must undergo a kind of number crunching and should pay visit to all of the Audit Offices which supply any kind of help in terms of logistics and finance.

This military dispensary is located in a military installation- called M.S.B. Or-An lodgings-, which has 2.678 flats and approximately 13.000 inhabitants. Organizationally it is a detachment of the Air Force, which is under the command of

the Air Force Hospital. Logistically it is supported by the Air Force Hospital. But since this dispensary accepts any patients from any of the Forces-Army, Air Force, Navy; its heating is supplied by the installation which it is located in, and the cost is covered by the Department of Army Support Units Quartermasters Audit Office where I got the cost figures. Dispensary also uses the water of Or-An Lodgings Social Services Directorate, which is located nearby. Directorate records the daily electricity and water usage of its branches for saving purposes, which has eased my cost collection of water. Since the military personnel is paid from central system the cost of military personnel is not shown in dispensary's reports. I collected the personnel cost from the Air Force Hospital's Directorate of Finance on the basis of the personnel names. Dispensary's electricity is paid by Air Force Hospital's Directorate of Finance where I gather the cost. I have listed both the medical and quartermasters materials and equipment used in the dispensary. Then I visited Air Force Hospital's Medical Equipment and Supplies Audit Office and the Quartermasters Equipment and Supplies Audit Office in order to find the costs those 187 types equipment and supplies from the records. I also gathered the cost of 58 types of disposable equipment and supplies- which are used in four of the clinics- from Air Force Hospital's Medical Equipment and Supplies Audit Office. I gathered the equivalent rent data of a 420 meter square-building from the real estate agents of Turan Güneş Boulevard in which Turyap -one of the famous one- is one of them. I also got the distribution information of the patients among the clinics in the year 1999 from the dispensary. The costs are presented in Table 1 and the patients distribution among the clinics are presented in Table 2.

Table 1. Aggregate Costs of the Military Dispensary (in TL)

Heating	307.890.000
Electricity	1.096.112.650
Water	151.536.000
Personnel	48.460.450.000
Depreciation	10.135.020.000
Rent	3.763.214.000
Disposables	3.751.821.750
Total	67.666.044.400

Table 2. Distribution of the number of patients among the clinics

Ear-Nose and Throat	4.746
Cardiology	3.602
Pediatrics	8.111
First aid	7.200
Eye	3.286
Dental	3.330
Gynecology	2.513
Urology	3.004
Internal Medicine	6.163
Dermatology	635
Total	42.590
Laboratory	4.267
Radiology	1.478

COST ALLOCATION

Activity based costing involves a methodology to determine where resources are being consumed for products and services. ABC attempts to delineate aggregated overhead costs and assign them more accurately to the service, procedure, or diagnosis that is consuming the resources.

It is helpful to identify whether the costs are:

- direct (e.g., equipment and supplies, physician salaries, disposables);
- indirect, but can be determined and assigned through tools called cost drivers (e.g., contact time with the front desk, illuminating hours, X-rays ordered, lab tests ordered);
- allocated, because of the difficulty of determining actual use (e.g., administrative overhead).

The total cost of each clinic is: direct + indirect assigned through drivers + allocated costs.

There are 18 cost centers in the dispensary which are:

-Laboratory	-Radiology	-Radiology Specialist's Room
-Ear-Nose and Throat	-Cardiology	-Pediatrics
-First aid	-Eye	-Dental
-Gynecology	-Urology	-Internal Medicine
-Dermatology	-TV Room	-Front Desk
-Director's Room	-Rest rooms	-Aisle

I selected the activities as the diagnosis of a patient in any of the clinics. Cost drivers that I used for the assignment is the cycle time of a patient in any of the clinics which uses the equipment utility consumption during the diagnosis as I will

explain in the electricity and water assignment part. I directly assigned the following costs to the 18 cost centers, which is seen in the Table 3 as explained below:

- Heating; I examined the rooms in terms of how many of heating devices they have and then assigned the cost in terms of their kcal/hour disseminating capabilities.

- Electricity; I examined the rooms to determine how many of light bulbs they have. I interviewed with each of the physician in order to get the electricity usage times of the equipment and supplies in terms of kwatt/hour that they use during the diagnosis. Then I multiplied this figure with the patients number of each clinic. I aggregated the illuminating + equipment electricity usage (if there is) under the kwatt/hour usage of each of the cost centers. Then through an apportionment process of the bill, I assigned the total cost to the cost centers.

- Water; is calculated in the same manner as the electricity but in terms of meter cube usage of the equipment and supplies.

- Personnel; there are 20 personnel. I assigned the personnel to where they actually work in terms of physicians, nurses, laboratory, radiology, and secretarial personnel.

- Depreciation; I listed both the medical and quartermasters materials and equipment used in each of the rooms of the dispensary. Then I assigned the cost to those cost centers in terms of what they have in.

- Rent; it is apportioned according to their square footage usage.

- Disposable equipment and supplies; I got the list of the disposables used in 1999 from the dispensary and assigned the cost to the clinics and other cost centers like the laboratory and radiology room which use disposables.

		Laboratory	Radiology	Radiology Specialist	Ear-Nose and Throat	Cardiology	Pediatrics	First aid	Eye	Dental
Heating	307,890.000	31,680.000	15,840.000	15,840.000	15,840.000	15,840.000	15,840.000	14,850.000	14,850.000	14,850.000
Electricity	1,096,112.650	293,311.000	16,295.000	19,554.000	13,036.000	13,036.000	13,036.000	407,376.750	14,122.000	86,907.000
Water	151,536.000	13,588.000	17,061.000	1,011.000	2,717.000	6,039.000	13,588.000	15,098.000	5,133.000	14,645.000
Personnel	48,460,450.000	3,281,400.000		1,055,400.000	2,554,600.000	4,412,400.000	4,968,610.000	2,414,010.000	2,554,600.000	4,445,400.000
Depreciation	10,135,020.000	252,160.000	2,011,700.000	91,080.000	376,960.000	143,300.000	129,060.000	745,980.000	2,070,960.000	2,606,260.000
Rent	3,763,214.000	191,828.000	191,828.000	95,914.000	95,914.000	95,914.000	95,914.000	287,742.000	143,871.000	143,871.000
Disposables	3,751,821.750	1,012,428.250	633,852.000					769,343.000		1,336,198.500
Total	67,666,044.400	5,076,395.250	2,886,576.000	1,278,799.000	3,059,067.000	4,686,529.000	5,236,048.000	4,654,399.750	4,803,536.000	8,648,131.500
	15,453,772.650									

		Gynecology	Urology	Internal Medicine	Dermatology	TV Room	Front Desk	Directorate	Rest rooms	Aisle
Heating	307,890.000	14,850.000	14,850.000	14,850.000	14,850.000	14,850.000	31,680.000	31,680.000	14,850.000	
Electricity	1,096,112.650	15,208.000	13,036.000	13,036.000	13,036.000	32,590.000	54,316.900	6,518.000	6,518.000	65,180.000
Water	151,536.000	8,455.000	10,116.000	4,076.000	1,660.000	4,378.000	1,660.000		32,311.000	
Personnel	48,460,450.000	4,968,610.000	2,554,600.000	4,968,610.000	2,554,600.000	1,030,200.000	2,060,400.000	4,637,010.000		
Depreciation	10,135,020.000	1,025,060.000	87,660.000	144,920.000	111,560.000	98,600.000	176,000.000	63,760.000		
Rent	3,763,214.000	143,871.000	143,871.000	143,871.000	143,871.000	191,828.000	310,310.000	191,828.000	191,828.000	959,140.000
Disposables	3,751,821.750									
Total	67,666,044.400	6,176,054.000	2,824,133.000	5,289,363.000	2,839,577.000	1,372,446.000	2,634,366.900	4,930,796.000	245,507.000	1,024,320.000

Table-3: Assignment of aggregate costs to the cost centers on cost drivers basis

Second step (indirect assignment through drivers) was to assign the supporting eight cost centers to the clinics. I identified the cost drivers as the number of the personnel using the service for the allocation of the TV room; request frequency of lab tests of the clinics for the allocation of the laboratory costs, and request frequency of X-rays of the clinics for the allocation of radiology room and the radiology specialist's room's costs. The objective is to distribute the costs of the supporting cost centers to the activity cost centers -which are the clinics of the dispensary in this case- through proper cost drivers to find the true costs on more accurate basis.

I assigned the TV room in Table 4 to the rest of the cost centers on the basis of their personnel numbers who use it in their free times for resting purposes. By this way one of the supporting cost center is distributed among the activity cost centers. TV room is distributed first, because the people in the other supporting cost center (Laboratory, Radiology, Front desk, Administration) use the room in which before their distribution, TV room's share must be splitted among them.

Since the supporting cost centers of Front Desk, Directorate, Rest rooms, and Aisle will no more get any share from the other supporting cost centers, which will be distributed afterwards, I collected them under the name of Administration cost. In fact this accumulation is the overhead. Since I could not define a proper cost driver I could not assign this accumulation through any measure. This will be allocated to the activity cost centers -clinics- later on, on the basis of patient numbers of the clinics.

If proper cost drivers can be identified most of the overhead can be allocated among the activity cost drivers. ABC is very powerful in terms of distributing the overhead, which in another terms making indirect expenses direct by using cost drivers.

		Laboratory	Radiology	Radiology Specialist	Ear-Nose and Throat	Cardiology	Pediatrics	First aid	Eye	Dental
Heating	307.890.000	31.680.000	15.840.000	15.840.000	15.840.000	15.840.000	15.840.000	14.850.000	14.850.000	14.850.000
Electricity	1.096.112.650	293.311.000	16.295.000	19.554.000	13.036.000	13.036.000	13.036.000	407.376.750	14.122.000	86.907.000
Water	151.536.000	13.588.000	17.061.000	1.011.000	2.717.000	6.039.000	13.588.000	15.098.000	5.133.000	14.645.000
Personnel	48.460.450.000	3.281.400.000		1.055.400.000	2.554.600.000	4.412.400.000	4.968.610.000	2.414.010.000	2.554.600.000	4.445.400.000
Depreciation	10.135.020.000	252.160.000	2.011.700.000	91.080.000	376.960.000	143.300.000	129.060.000	745.980.000	2.070.960.000	2.606.260.000
Rent	3.763.214.000	191.828.000	191.828.000	95.914.000	95.914.000	95.914.000	95.914.000	287.742.000	143.871.000	143.871.000
Disposables	3.751.821.750	1.012.428.250	633.852.000					769.343.000		1.336.198.500
TV Room	1.372.446.000	68.622.300	68.622.300	68.622.300	68.622.300	68.622.300	137.244.600	68.622.300	68.622.300	137.244.600
Total	67.666.044.400	5.145.017.550	2.955.198.300	1.347.421.300	3.127.689.300	4.755.151.300	5.373.292.600	4.723.022.050	4.872.158.300	8.785.376.100

		Gynecology	Urology	Internal Medicine	Dermatology	Front Desk	Directorate	Rest rooms	Aisle
Heating	307.890.000	14.850.000	14.850.000	14.850.000	14.850.000	31.680.000	31.680.000	14.850.000	
Electricity	1.096.112.650	15.208.000	13.036.000	13.036.000	13.036.000	54.316.900	6.518.000	6.518.000	65.180.000
Water	151.536.000	8.455.000	10.116.000	4.076.000	1.660.000	1.660.000		32.311.000	
Personnel	48.460.450.000	4.968.610.000	2.554.600.000	4.968.610.000	2.554.600.000	2.060.400.000	4.637.010.000		
Depreciation	10.135.020.000	1.025.060.000	87.660.000	144.920.000	111.560.000	176.000.000	63.760.000		
Rent	3.763.214.000	143.871.000	143.871.000	143.871.000	143.871.000	310.310.000	191.828.000	191.828.000	959.140.000
Disposables	3.751.821.750								
TV Room	1.372.446.000	137.244.600	68.622.300	137.244.600	68.622.300	137.244.600	68.622.300		
Total	67.666.044.400	6.313.298.600	2.892.755.300	5.426.607.600	2.908.199.300	2.771.611.500	4.999.418.300	245.507.000	1.024.320.000

Administration Cost	9.040.856.800
	/
Number of patients	42.590
	=
Administration cost per patient	212.277

Table-4: TV Room Assignment and Administration Cost per Patient

The next step was to assign the rest of the supporting cost centers to the activity cost centers. Table 5 indicates the total costs of the clinics. The supporting cost centers' costs are assigned to the activity cost centers through cost drivers and the overhead is allocated on the basis of patient numbers of the clinics to get the true costs of the clinics. I assigned the laboratory cost to the clinics which request lab tests from this supporting cost center like Cardiology, Pediatrics, Gynecology, Urology and Internal Medicine on the basis of their lab tests request frequency. At the same table, I assigned the Radiology and the Radiology Specialist costs to the clinics which request X-rays from this supporting cost center like Internal Medicine, Pediatrics, and the First Aid on the basis of their X-rays request frequency. Then I divided the total clinic costs by their patient numbers in order to get per patient clinic costs. At last, I got the true costs of the activity cost centers which is assigned in more accurate terms to the clinics in order to reveal the total cost of a patient served in the dispensary which is shown in Table 5.

	Costs	Ear-Nose and Throat	Cardiology	Pediatrics	First aid	Eye	Dental	Gynecology	Urology	Internal Medicine	Dermatology
Heating	151.470.000	15.840.000	15.840.000	15.840.000	14.850.000	14.850.000	14.850.000	14.850.000	14.850.000	14.850.000	14.850.000
Electricity	601.829.750	13.036.000	13.036.000	13.036.000	407.376.750	14.122.000	86.907.000	15.208.000	13.036.000	13.036.000	13.036.000
Water	81.527.000	2.717.000	6.039.000	13.588.000	15.098.000	5.133.000	14.645.000	8.455.000	10.116.000	4.076.000	1.660.000
Personnel	36.396.040.000	2.554.600.000	4.412.400.000	4.968.610.000	2.414.010.000	2.554.600.000	4.445.400.000	4.968.610.000	2.554.600.000	4.968.610.000	2.554.600.000
Depreciation	7.441.720.000	376.960.000	143.300.000	129.060.000	745.980.000	2.070.960.000	2.606.260.000	1.025.060.000	87.660.000	144.920.000	111.560.000
Rent	1.438.710.000	95.914.000	95.914.000	95.914.000	287.742.000	143.871.000	143.871.000	143.871.000	143.871.000	143.871.000	143.871.000
Disposables	2.105.541.500				769.343.000		1.336.198.500				
TV Room	960.712.200	68.622.300	68.622.300	137.244.600	68.622.300	68.622.300	137.244.600	137.244.600	68.622.300	137.244.600	68.622.300
Laboratory	5.145.017.550		102.900.351	740.882.527				267.540.913	740.882.527	3.292.811.232	
Radiology	2.955.198.300			1.329.839.235	147.759.915					1.477.599.150	
Radiology Specialist	1.347.421.300			606.339.585	67.371.065					673.710.650	
Total	58.625.187.600	3.127.689.300	4.858.051.651	8.050.353.947	4.938.153.030	4.872.158.300	8.785.376.100	6.580.839.513	3.633.637.827	10.870.728.632	2.908.199.300
Administration Cost	9.040.856.800	1.007.464.343	764.620.009	1.721.774.818	1.528.390.912	697.540.630	706.880.797	533.450.884	637.678.653	1.308.260.166	134.795.587
Grand total	67.666.044.400	4.135.153.643	5.622.671.660	9.772.128.765	6.466.543.942	5.569.698.930	9.492.256.897	7.114.290.396	4.271.316.480	12.178.988.798	3.042.994.887
Number of patients		4.746	3.602	8.111	7.200	3.286	3.330	2.513	3.004	6.163	635
ABC cost per patient		871.292	1.560.986	1.204.800	898.131	1.694.978	2.850.528	2.830.995	1.421.876	1.976.146	4.792.118

	Costs	Number of patients	Traditional cost per patient
Heating	307.890.000	42.590	7.229
Electricity	1.096.112.650	42.590	25.736
Water	151.536.000	42.590	3.558
Personnel	48.460.450.000	42.590	1.137.836
Depreciation	10.135.020.000	42.590	237.967
Rent	3.763.214.000	42.590	88.359
Disposables	3.751.821.750	42.590	88.092
Total	67.666.044.400	42.590	1.588.778

Table-5: ABC costs per clinic patient and Comparison of ABC costs with the Traditional Costs

CHAPTER IV

RESULTS

Table 5 presents both the traditional cost accounting and activity based cost accounting systems approaches which cover the whole year of 1999. Although the traditional system approach indicates that per patient cost is 1.588.778 TL., ABC, as a management tool which can be used to analyze more effective ways to price a given product or service, shows that the costs are different for each of the clinic.

ABC also allocates the overhead to the cost centers on more accurate basis. On Table 6 we can see that traditional costing system accounts for the overhead as 15.453.772.650 TL., although ABC allocates the overhead to the cost centers on more accurate basis as it can, and lowers the figure to 9.040.856.800 TL. ABC first assigns the costs to the cost centers, which lowers the traditional allocation of direct labor and material figures, as well as the overhead. The costs which lower the traditional allocation of direct labor and material costs are accumulated in the supporting cost centers; and through the cost drivers, these costs are then reassigned to the clinics under the name of the allocated item as shown in Table 6. Allocated item uses cost drivers for further allocation of the overhead, to make indirect expenses direct. If more accurate cost drivers can be identified, then the overhead can much more be lowered.

	Costs	Ear-Nose and Throat	Cardiology	Pediatrics	First aid	Eye	Dental	Gynecology	Urology	Internal Medicine	Dermatology
Direct Labor	36.396.040.000	2.554.600.000	4.412.400.000	4.968.610.000	2.414.010.000	2.554.600.000	4.445.400.000	4.968.610.000	2.554.600.000	4.968.610.000	2.554.600.000
Direct Material	2.105.541.500				769.343.000		1.336.198.500				
Allocated	20.123.606.100	573.089.300	445.651.651	3.081.743.947	1.754.800.030	2.317.558.300	3.003.777.600	1.612.229.513	1.079.037.827	5.902.118.632	353.599.300
Overhead	9.040.856.800	1.007.464.343	764.620.009	1.721.774.818	1.528.390.912	697.540.630	706.880.797	533.450.884	637.678.653	1.308.260.166	134.795.587
Total	67.666.044.400	4.135.153.643	5.622.671.660	9.772.128.765	6.466.543.942	5.509.698.930	9.492.256.897	7.114.290.396	4.271.316.480	12.178.988.798	3.042.994.887

ABC Allocation of costs

	Costs	Number of patients	Traditional cost per patient
Direct Labor	48.460.450.000	42.590	1.137.836
Direct Material	3.751.821.750	42.590	88.092
Overhead	15.453.772.650	42.590	362.850
Total	67.666.044.400	42.590	1.588.778

Traditional Allocation of costs

Table-6: Comparison of overheads of the Traditional and ABC systems

In Table 5 cost items are listed to show in where the costs occur. The costs of the ABC cost Per clinic patient is presented. One can easily track the distribution of any of the cost item to facilitate which clinic is consuming the cost items-resources-, in which amount. But since the cost items are presented in unbundled form it may be difficult to understand the ratios of direct material, direct labor, allocated costs, and the overhead per patient. Table 6 indicates the allocation of the overhead according to both; the traditional and ABC approaches. The aggregate figures are presented to show the difference in aggregate costs of the overhead. To ease the understanding of direct material, direct labor, allocated costs, and the overhead per patient, and to show that ABC can allocate some of the overhead among the activity cost centers, and to provide a concise look at the cost figures Table 7 is formed.

Table-7: Total Costs of the Clinics per Patient

Clinics	Direct Labor	Direct Material	Allocated	Overhead	Total
Ear-Nose and Throat	538.264		120.752	212.277	871.292
Cardiology	1.224.986		123.723	212.277	1.560.986
Pediatrics	612.577		379.946	212.277	1.204.800
First aid	335.279	106.853	243.722	212.277	898.131
Eye	777.419		705.283	212.277	1.694.978
Dental	1.334.955	401.261	902.035	212.277	2.850.528
Gynecology	1.977.163		641.556	212.277	2.830.995
Urology	850.399		359.200	212.277	1.421.876
Internal Medicine	806.200		957.670	212.277	1.976.146
Dermatology	4.022.992		556.849	212.277	4.792.118

The next step was to compare the true costs of the military dispensary with private sectors' in order to evaluate whether military dispensary remains competitive in outsourcing decisions or not, and to identify where money is being made and lost which is shown in Table 8.

Table-8: Comparison of the Costs of Military and Private Clinics and the Relative Savings of the Military Clinics

Clinics	Military Dispensary	Özel Güneş Tıp Merkezi	Özel Büyük Poliklinik	Özel Ortadoğu Polikliniği
Ear-Nose and Throat	871.292	4.000.000	3.500.000	4.000.000
Cardiology	1.560.986	4.000.000	3.500.000	4.000.000
Pediatrics	1.204.800	4.000.000	3.500.000	4.000.000
First aid	898.131	1.000.000	3.500.000	2.000.000
Eye	1.694.978	4.500.000	3.500.000	4.000.000
Dental	2.850.528	10.000.000	5.500.000	13.000.000
Gynecology	2.830.995	6.000.000	3.500.000	4.000.000
Urology	1.421.876	4.000.000	3.500.000	4.000.000
Internal Medicine	1.976.146	4.000.000	3.500.000	4.000.000
Dermatology	4.792.118	4.000.000	3.500.000	4.000.000

Clinics	Military Dispensary (A)	Private Averages (B)	B-A
Ear-Nose and Throat	871.292	3.833.333	2.962.041
Cardiology	1.560.986	3.833.333	2.272.347
Pediatrics	1.204.800	3.833.333	2.628.534
First aid	898.131	2.166.667	1.268.536
Eye	1.694.978	4.000.000	2.305.022
Dental	2.850.528	9.500.000	6.649.472
Gynecology	2.830.995	4.500.000	1.669.005
Urology	1.421.876	3.833.333	2.411.457
Internal Medicine	1.976.146	3.833.333	1.857.187
Dermatology	4.792.118	3.833.333	-958.785

Relative Savings	
Dental	6.649.472
Ear-Nose and Throat	2.962.041
Pediatrics	2.628.534
Urology	2.411.457
Eye	2.305.022
Cardiology	2.272.347
Internal Medicine	1.857.187
Gynecology	1.669.005
First aid	1.268.536
Dermatology	-958.785

Although the dental clinic seems to be the most effective one, the private averages are comprised of several treatments because of the nature of the dental diseases. But for the rest of the clinics; patients mix, diagnosis techniques, and treatments are almost equivalent; that is why the relative savings of the dental clinic is subject to change according to the patient mix of the chosen private clinics' costs.

Dermatology is the least effective one relative to the cost figures. The tables must be investigated together as to conclude a decision about what should be done with the clinic. If we look at table 7, we see the per patient cost components. What drives our curiosity is that direct labor is almost 85% of the costs, and there is no any abnormality with the costs of direct material, allocated costs, or the overhead. In order to make a crosscheck and to see the unbundled cost items we can examine table 5. Dermatology cost items figures are although relatively low compared to the other clinics, we see that its patients are very low in number, which changes the picture and drives the costs up. If there would be any change in any of the cost components of this study, because of the interdependencies of the work, there will be lots of changes in the figures, that is why this study is valid for the year 1999, but by understanding the contributing activities and their associated costs shown in the tables, projections can be made for the following periods with the needed modifications and statistical study concerning the events related with the distribution of the patients, personnel, equipment and materials of the dispensary.

As a consequence, the relativity of this study should be given a great concern before rewarding profitable clinics, and less profitable ones must be analyzed for ways to increase revenue and/or methods to decrease costs.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

In this study an attempt has been made to motivate the need for a new cost accounting system with the purpose of identifying a military dispensary's clinics' costs and making dispensary managers begin to see the value of understanding the contributing activities and their associated costs by arming them with activity knowledge, to take a strong and accurate look at the drivers of activities and the performance measures, that can be placed on those activities. Thus, shifting the focus from resource and expense management to results and activity management; and shifting from managing by intuition to managing with information.

The aggregate cost data is gathered from several of the commandants in which the military dispensary is under the command and logistical support of. The cost items are assigned to the 18 cost centers. The supporting cost centers are then reassigned to the clinics through identified cost drivers. The supporting cost centers which can not be allocated to the clinics due to the lack of proper cost drivers are accumulated under the name of administration (overhead) then allocated to the 10 of the clinics of the dispensary to get the true costs of the clinics and patients. For comparison purposes traditional cost system is also presented in the tables to show how each of the clinic's cost figures and their share of the overhead is different than from that of the traditional. Since ABC makes indirect expenses direct, the overhead decreases and allocated portion increases through identified cost drivers and the true costs are gathered:

- to identify money makers/money losers
- to find an economic break even point
- to compare different options
- to discover opportunities for cost improvement
- to prepare and actualize a business plan
- to improve strategic decision making

In the results a relative savings table is presented in where the dermatology clinic seems to be the least effective one. The table is relative because it is sensitive to the chosen private clinic's costs and to the military clinics' costs. This study is valid for the year 1999. If new equipment and materials are about to be purchased, than the depreciation item and the depreciation allocation of the clinics would be subject to change, according to where those equipment and the materials would be used; or if we change the rooms of the clinics, than the heating, electricity, rent, and water costs should be reassigned. The relativity of this study borders the limitations. For the dermatology clinic the first thing to be considered may be the outsourcing, or transfer of the dermatology patients to another military clinic which has an effective working dermatology clinic. For the transfer case the transfer rate should be considered. For the outsourcing case, since the military will open a bid for their patients, the relative private clinic's bidding prices would be lower than the relative savings table's which must be reconsidered, because the difference between the military and the private clinics will be narrowed and the number of relative effective military clinics would be less in number, which will motivate the outsourcing option.

My recommendation is that, ways to determine the object costs (e.g. ABC) should be taught to one of the dispensary's personnel whom will report the relative changes or will make further studies on the case for identifying the best mix, which

will help the managers of the business plan. Also they can apply some statistical studies for future projections in order to take more accurate measures beforehand. For instances throughout the interview with the dispensary personnel they told me that number and nature of the patients, and even the diseases seen in the installation repeat themselves. But the decisions should be taken by keeping in mind, the relativeness of the current study and after having some statistical information, which regards the dispensary's results that will guide the management.

Army also should implement ways to determine the object costs into their many of the departments which will change the way the army works. This can also make the managers capable of improved commercial management and resource management in the capabilities which are :

- Product and customer costing
- Profitability analysis
- Portfolio analysis
- Pricing
- Activity-based budgeting/forecasting
- Reporting
- Process re-engineering
- Continuous improvement
- Benchmarking

which will shift the focus from resource and expense management to results and activity management; and shift from managing by intuition to managing with information to concentrate on outcomes rather than simply inputs in order to create organizations which work better and cost less.

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