A functional analysis of DoD implementation of seat management

Rasmussen, David N.

Monterey, California. Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

A FUNCTIONAL ANALYSIS OF DOD IMPLEMENTATION OF SEAT MANAGEMENT

by

David N. Rasmussen
and
Keith L. Ruegger

September 1999

Thesis Advisor: William J. Haga
Associate Advisor: Matthew S. Feely

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	September 1999	Master's Thesis

4. TITLE AND SUBTITLE :
A FUNCTIONAL ANALYSIS OF DOD IMPLEMENTATION OF SEAT MANAGEMENT

5. FUNDING NUMBERS

6. AUTHOR(S)
Rasmussen, David N. and Ruegger, Keith L.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words)*

This study explores the use of seat management as a method of overcoming the difficulty of procuring, managing and maintaining information technology. Seat management, also known as desktop outsourcing, involves the acquisition and management of all hardware and software, desktop and network management, operations management, support services and technology refreshment into one concise contract managed by a vendor who specializes in IT.

The findings of this functional analysis, focusing on seat management, total cost of ownership and asset management, are reported. These findings show that seat management is not a panacea. But, when used in conjunction with sound management practices it can provide benefits to an organization.

14. SUBJECT TERMS
Seat Management, Desktop Outsourcing, Total Cost of Ownership

15. NUMBER OF PAGES
105

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

Approved for public release; distribution is unlimited

A FUNCTIONAL ANALYSIS OF DOD IMPLEMENTATION OF SEAT MANAGEMENT

David N. Rasmussen
Lieutenant, United States Navy
B.A., University of New Mexico, 1992

Keith L. Ruegger
Lieutenant, United States Navy
B.S., United States Naval Academy, 1991

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
September 1999

ABSTRACT

This study explores the use of seat management as a method of overcoming the difficulty of procuring, managing and maintaining information technology. Seat management, also known as desktop outsourcing, involves the acquisition and management of all hardware and software, desktop and network management, operations management, support services and technology refreshment into one concise contract managed by a vendor who specializes in IT.

The findings of this functional analysis, focusing on seat management, total cost of ownership and asset management, are reported. These findings show that seat management is not a panacea. But, when used in conjunction with sound management practices it can provide benefits to an organization.

TABLE OF CONTENTS

LIST OF FIGURES

I. INTRODUCTION

A. PURPOSE

Seat management, or desktop outsourcing, represents a new approach to managing information technology. The concept calls for organizations to use a contractor for the procurement and management of the organization's desktop environment. Seat management is modeled like the telephone industry, with the idea that the computer is a utility, where customers are concerned with results rather than the process. Although the seat management concept is designed to reduce the complexity and cost of information technology management, information technology (IT) professionals are confused about the real benefits and true costs of seat management.

This thesis considers seat management as a possible solution to the growing problem of managing the desktop computing environment. This was to be accomplished through a cost and benefits analysis of an existing seat management program at a Department of Defense (DoD) organization. However, we were not able to locate an existing seat management program that included the necessary data to conduct the analysis. One outsourcing vendor stated, "Essentially it (pre-contract cost) is a mystery within the Federal Government. They (the government) really don't have a good feel for the actual costs before implementing seat management contracts." (Telephone interview,1999)

Facing an insufficient source of data, we turned our focus towards a general study of seat management. We set out to explore the conceptual value for DoD organizations and to identify the procedures necessary to implement a seat management contract. This study concentrates on major seat management program transitional challenges, functionality, and costs. In addition, this research illustrates other important factors regarding seat management, thereby informing and benefiting future information technology managers of seat management programs.

Our data suggest that organizations often lack the information needed to conduct cost-benefit analysis prior to implementing a seat management contract. Data collection requires detailed study of costs within the organization. Total cost of ownership (TCO) studies are an expensive and administratively burdensome process in which results can be vague.

> We did a tremendous amount of market research, spoke with a number of "outsourcers" and "outsourcees" in the commercial sector, examined all the available industry data (Gartner Group, et. al.), and collected our own internal data. Being able to actually put our finger on total cost of ownership (TCO) and other "soft" costs was an exercise in futility. (Hargarty, 1999)

Without an effective TCO, an organization has no real idea where its money is being spent, or how to cut costs. In addition, there is no opportunity to suggest a defendable estimate of the benefits of seat management for an organization in terms of cost reductions.

B. RESEARCH QUESTIONS

1. Primary Research Question

What is seat management? What are the advantages and disadvantages of seat management?

2. Secondary Research Questions

- What are the requirements for implementing seat management?
- What criteria need to be examined prior to implementing a seat management program?
- What are the specific costs of implementing a seat management contract? Is there a baseline contract with add-on features at varying costs?
- Does the benefit derived from seat management outweigh the total cost of ownership?
- What impact will the implementation of seat management have on current personnel and administration?
- What are the benefits of upgrading the existing network architecture with seat management?
- Will implementing seat management program improve the use of available IT resources to allow companies to focus on their mission?

THIS PAGE INTENTIONALLY LEFT BLANK

II. SEAT MANAGEMENT CONCEPT

A. SEAT MANAGEMENT

1. What is Seat Management?

Seat management, a term coined in 1996 by a top level official at the General Services Administration, provides organizations with desktop computing as a performance-based, non-owned service that encompasses all aspects of the desktop environment and its associated network infrastructure. It provides managed life-cycle support services through a contract. This concept is a flexible way to acquire both systems capabilities and performance for general purpose, scientific, and even mixed environments through an integrated service level agreement from a single service provider. Seat management encompasses the management, operation, and maintenance of the desktop, portable desktop, servers, communications, printers, peripherals and their associated network infrastructure and components. Seat management services available include: (AFFIRM, 1998)

- Asset Management
- Deployment/Disposal of Equipment
- Technology Refresh
- Infrastructure Management (Including Desktop, Servers, Printers & Communication Devices)
- User Support (Help Desk & Maintenance)
- Transition/Migration of Telecommunications Services
- Engineering & Analytical Support
- Operations & Maintenance Support
- Customer Services Support
- Program Management Support

Seat management provides these computing capabilities as an information technology service that can be paid for on a per seat basis. The costs of seat management can vary. The Gartner Group estimates yearly per-seat rates, based on a five day/forty hour work week, as high as $9,784. (Baldwin, 1998) However, the costs can escalate to over $11,000 a seat per year, assuming a 40 hour work week and that the agency needs the services available on a 24 hour basis, seven days a week. (Baldwin, 1998) Contracts are tailored to satisfy individual client requirements, and include continual upgrades of technology in response to client requirements and technological advances.

Seat management enables agencies to not only lease the equipment they use, but the associated services and support as well. It enables the vendor with the most competitive bid to provide the IT solutions for an organization.

2. Typical Services of Seat Management

a. Asset Management

Asset management is an evolving system of managerial goals, strategies and tactics to help organizations inventory current hardware, software, networking and other IT assets. Asset management includes the major areas of requisition, procurement, deployment, maintenance, and retirement strategies. In assigning these activities to an outside firm, the client can potentially realize cost savings in staff and overhead, without sacrificing efficiency and timeliness.

b. Deployment/Disposal of Equipment

There are two approaches to obtaining and disposing of IT equipment under a seat management contract. First, the outsourcing firm can buy the existing information systems and network assets from the client, refurbish the equipment, and lease it back to the client for a fixed monthly fee. The first approach allows the client to apply saved resources to a core competency. The alternate equipment arrangement is for the client to sell its existing equipment and migrate to the applications of the outsourcer.

c. Technology Refresh

As described by the terms of the seat management contract, upgrades to hardware and software are maintained for a selected time period. Although the rate of technology advances in the market place are approximately 12 to 18 months, most organizations will find that the seat management contract is more economical with a refresh rate of 2 to 3 years. (GSA, 1998))

d. Infrastructure Management

Infrastructure management entails the coordination of many discrete activities, starting with the development of a customized project plan based on the client's organizational needs, including desktop, servers, printers and communication devices. The outsourcing firm negotiates with multiple suppliers and carriers to upgrade or expand the network without sacrificing performance requirements of the client.

e. User Support (Help Desk & Maintenance)

In assuming responsibility for daily network operations, a key service performed by the outsourcing firm is trouble ticket processing and repair. Help desk support covers all popular desktop applications, network operating systems, client/server software, and system management tools. Help desk responsibilies can be remote and automated, while the client's help desk is kept informed of the problem's status so that the operator can assist local users. Hardware problems can be replaced by on-site technicians, while software problems may be analyzed and corrected remotely. Prices will vary based on response time and where the support is physically located.

f. Transition/Migration of Telecommunications Services

Telecommunication services must integrate new and legacy network management environments, while creating a unified, end-to-end point of control into the worldwide network infrastructure. This means that the client will have an improved service quality, more efficient resources deployment and faster problem solving. Effective transition/migration ensures flexible growth, enabling the addition of new service elements, without disrupting the existing operations.

g. Engineering & Analytical Support

The outsourcing firm provides additional support in the development of customized analytical applications specific to the client's organizational needs.

h. Operations & Maintenance Support

Relying on the outsourcing firm for operations and maintenance services minimizes a company's dependence on in-house personnel for specific knowledge about system design, troubleshooting procedures, and the proper use of test equipment. While eliminating the need for ongoing technical training, this arrangement also relieves the client from the difficulties associated with technical personnel turnover.

i. Customer Services Support

Customer service should be a priority in all seat management contracts. The guiding vision of the vendor should be to serve the client and all its needs.

j. Program Management Support

A qualified vendor can provide eleven services that assist the client with planning and management support. Specifically, the outsourcing firm can keep the client informed of proposed standards, emerging products and services, regulatory and tariff trends, and the competitive aspects of industry deregulation. With experience drawn from a broad customer base, as well as its daily interaction with hardware venders and carriers, the outsourcing vendor has much to contribute to clients in the way of service and support.

B. GSA'S VIEW OF SEAT MANAGEMENT

Seat management, as implemented by the General Services Administration (GSA), evolved from the observation that many Government

organizations are chasing the desktop information technology cycle unsuccessfuly. (AFFIRM, 1998) The technology cycle has become so much faster than the project acquisition and development cycle, that it is difficult to remain technologically current. There are many reasons this technological chase has not been resolved:

- The pace of technology changes so rapidly that by the time a specific technology has been accessed, acquired, deployed, and implemented, it may no longer be current or commercially supported.
- The demand for staff skilled in information technology and evolving management tools far exceeds the available supply.
- The network and systems management tools and support processes used to manage and control technology are becoming more and more sophisticated and are very complex to implement correctly.
- It is becoming more difficult to predict and manage IT ownership cost from year to year. (AFFIRM, 1998)

GSA's Seat Management Services concept was begun after conducting an unrelated site visit to an Information Technology outsourcing facility. GSA's Seat Management concept, modeled after commercial practices, has been refined over time to meet the needs of the Federal Government. The main objective of GSA's Seat Management Services concept is to mirror commercial practice of providing managed life cycle support of the desktop within Government. It provides Federal agencies with the capability to control the technology cycle and manage the desktop environment. Specifically, its technical concept is based on the following principles:

- There is a range of technology that is commercially available and supported by general industry at any point in time. As a rule the labor resource skill sets will move as technology moves. The further away a particular system is from the commercially available range of technology, the more expensive support services become.

- Life cycle management encompasses a variety of functions from design to maintenance. Moving to an integrated delivery environment, provided by a single contractor, reduces the number of external interfaces and the associated risk and cost.

- A higher priced, higher quality product, when factored into life cycle management functions, may result in a lower overall cost of service.

- A distributed computing environment with centralized control and a standardized IT environment fosters efficiencies through economies of scale.

- Performance-based service allows a greater leveraging of resources than the traditional labor hour approach. (AFFIRM, 1998)

C. GOALS OF SEAT MANAGEMENT

Seat management will help agencies keep abreast of the latest technology, obtain consolidated support services, reduce the need for in-house expertise, reduce the cost of IT ownership, establish a common operating environment and match tools and software to mission requirements. (Bass, 1997)

There are both strategic and tactical reasons to implement a seat management program. The focus of seat management should be information technology infrastructure and services outsourcing. The real issue is whether an agency should outsource its IT infrastructure, not whether they should use seat management. (Guerra, 1998)

Through outsourcing, agencies can save on in-house developmental, service and support costs. Thus, while the overall price for IT products may increase after outsourcing, cost savings to government agencies would accrue after accounting for reductions of other expenditures.

Through seat management, an agency could obtain more efficient, effective, interoperable IT products and services that support the agency's mission. An agency could secure state-of-the-art expertise from the private sector at a reduced overall TCO.

D. EXAMPLE OF SEAT MANAGEMENT IN THE BUREAU OF ALCOHOL TOBACCO AND FIREARMS

In 1997, the Bureau of Alcohol Tobacco and Firearms (ATF) awarded a purchase agreement for seat management services worth up to $30 million to Unisys Corp.'s Federal Systems Division. The contract provides the ATF with equipment and services including PC's, notebooks, printers, servers, network management training and a help desk. In addition, ATF receives maintenance support from General Services Administration (GSA) schedule contracts. ATF leases the hardware and software, which is provided by such companies as Dell Computer, Micron Electronics and Cisco Systems. The ATF contract covers 220 sites nationwide and will continue through 1999. The decision that influenced the ATF to implement a seat management approach as a way to upgrade their desktop systems was that the move would replace outdated 286 machines with Pentium machines. Whitley, the deputy assistant commissioner at GSA's Office

of Information Technology Integration, said that she believes more agencies will buy IT through seat management contracts in the coming years. Whitley does not view programs such as the one at ATF as competitors with GSA's program, but it shows that other agencies are agreeing with GSA. Whitley goes on to say, "They are using seat management to support their own operations, and we are offering our services as an option to those that don't want to invest resources on doing seat management procurements by themselves." (Bass, 1997)

E. TOTAL COST OF OWNERSHIP AND SEAT MANAGEMENT

To implement a seat management contract, an organization must know how much money is spent on new information technology. In additon, an organization must know where the money is being spent to manage its existing IT environment. Where does an organization begin to look for these costs? And, more importantly, how does an organization reduct costs while improving its competitive position? Calculating the TCO is one way to understand and control computing costs while preserving productivity. By accounting for all costs associated with a PC across its entire life span, TCO analysis seeks to make technology procurement, management, and use more efficient.

THIS PAGE INTENTIONALLY LEFT BLANK

III. TOTAL COST OF OWNERSHIP

A. INTRODUCTION

The open architecture of the personal computer (PC), combined with a competitive market for hardware and software, makes it affordable to put a computer on every desktop in an organization. (Gartner Group, 1998) This technology evolution has been rapid, but only in the past seven years have networks been widely deployed in industry and government. (Gartner Group, 1998) The challenge now is to understand the benefits and costs of these distributed computing environments (DCE).

In a survey conducted by Compaq of hundreds of financial executives and IT managers responsible for IT decisions revealed that only one out of every twenty-five financial decision-makers realized that costs incurred after initial deployment comprise the largest component of IT cost. (Compaq, 1999) Costs incurred after the initial deployment can comprise up to eighty percent of IT cost, yet many decision-makers focus on IT capital costs rather than the post-deployment cost. (Compaq, 1999)

Over the past decade, the costs of owning and supporting an information system (IS) have tripled, and costs are expected to double again in the next five years. (Gartner Group, 1998) This trend suggests that IT costs are becoming a significant component of the total operating budget for any organization. As a result, managers must be able to measure and control IT costs to meet growing

budget constraints. Since the technology of DCEs is relatively new, industry is just now gathering enough history to be able to measure, track, and improve upon the TCO of these systems. (Gartner Group, 1998) Understanding where IT costs are incurred is a first step in developing the necessary awareness of TCO including its importance and the potential benefits.

B. TCO DEFINED

TCO is the total cost of the PC investment over the lifetime it is deployed. TCO includes many items such as:

- Initial purchase price
- The cost effectiveness of purchasing equipment at the right time
- Time lost by users when the server is not operating or the PC fails
- The cost of employing on-site engineers to fix machines
- The cost of colleagues trying to correct an intermittent problem and actually causing further problems
- The cost of auditing all equipment; which user has what and where is it?
- The cost of constant hardware evaluation when new technology is developed. (Fujitsu, 1999)

C. WHY MEASURE TCO?

Why measure TCO? A TCO model helps track how much money is being spent managing an existing IT environment, including service, support, training, upgrades, procurement, policies and change management. TCO analysis can

(direct) and unbudgeted (indirect) costs incurred in owning and using an IT component throughout its lifecycle. (Interpose, Inc./IDC, 1997)

D. TCO MODELS

TCO is computed by combining a PC's direct costs (hardware purchase or lease, software licensing, support and management) with its indirect costs (peer support, downtime and other unbudgeted costs). The direct costs are easily determined by looking at an IT department's capital budget. However, the indirect costs are harder to quantify.

There are eight different analyst firms that provide TCO models, each of which takes a slightly different view of the areas where costs accumulate. (CMP Media, 1997) Because different research groups calculate indirect cost differently, the TCO per PC per year varies significantly. For example, Gartner Group estimates an annual TCO of $9,784 for a typical Windows 95 desktop PC, Forrester Group estimates PC TCO at $2,680, and Zona Research's estimate is $2,859. (Baldwin, 1998) In a second example, Gartner Group estimates a TCO of $11,000 per PC running Windows 3.1, while the International Data Corporation TCO model estimates a cost of $5,100 per year for the a PC running Windows 3.1 in the same environment. (Harris, 1998)

Gartner Group, Forrester and other analyst groups conduct independent studies of TCO with numerous clients. These studies provide industry averages for improving various components of IT costs within the enterprise. Although TCO results vary, it is important to understand that these studies and averages

only provide a starting point for understanding IT costs. Basing IT decisions solely on studies conducted using TCO models and the results they project "can set the wrong expectations for your particular enterprise." (Compaq, 1999) IT professionals must adopt or customize a TCO model that fits their unique IT environment. This will enable IT professionals to identify their own particular costs and understand how to begin controlling them or the results that may be derived.

E. FACTORS DRIVING TCO

From 1995 to 1999, leading industry analysts have studied the overall cost of owning and managing desktop PCs. By studying the daily operations of PCs through corporate account visits, they have isolated some key factors that drive up the costs of ownership.

One factor is asset management. Most organizations order PCs that are pre-configured in a known, approved configuration. For example, a new PC may be configured with Windows 95 operating system and Microsoft Office 97 Professional software suite. Over time, however, software applications change, device drivers get updated, and it becomes difficult to know what software components are installed on each machine. This adds to each PC's support cost. (Microsoft, 1997)

The most significant factor of the day-to-day cost of owning PCs is related to labor cost, as help desk workers, technicians, and even end users themselves spend time supporting individual desktops. For example, some users

spend time supporting individual desktops. For example, some users inadvertently delete system files as their hard disk fills up, or change system configuration settings which may cause problems. Or, newly installed applications may cause conflicts with existing applications. These problems require direct intervention with the PC, which increases labor costs. (Microsoft, 1997)

In 1997, Gartner Group's and Forrester's research into the total cost of owning PCs yields very similar findings. Figure 3.1 shows a break down of PC TCO for any given year. The highest cost area is "End User Operations"; "end users' wasted time due to system failures as well as unproductive activities

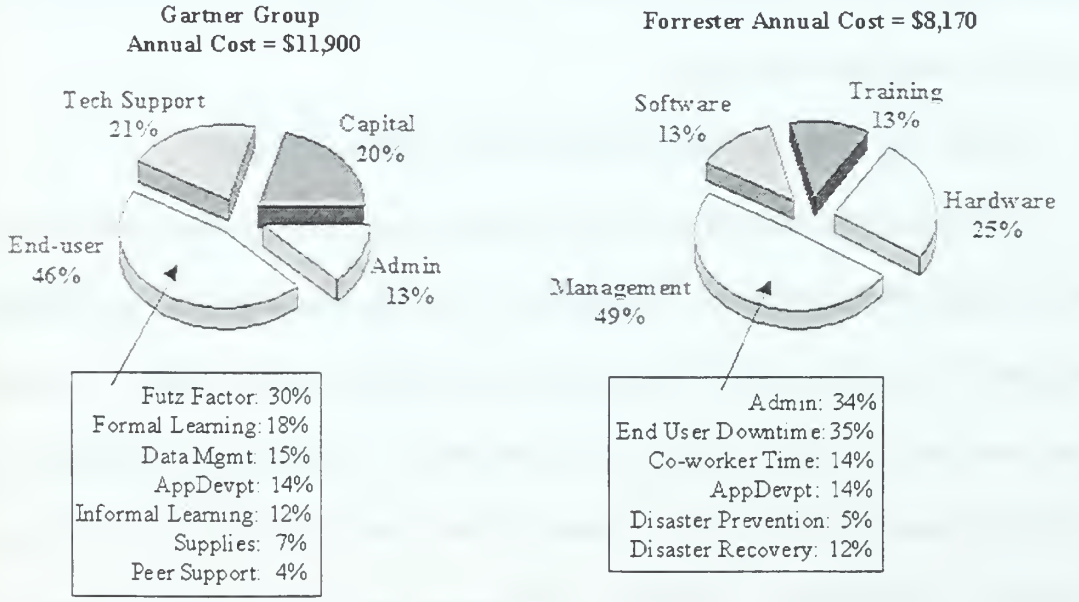

Figure 3.1. Industry Analyst Cost Models, circa June 1997.

attributed to the flexibility and extensibility of today's PC environment." (Microsoft, 1997) Though their methods and numbers differ, "TCO research groups all agree on one important conclusion: The soft, or indirect, costs of operating a PC far outweigh its hard, or capital, costs." (Baldwin, 1998)

Because PCs are complex and difficult to maintain, "researchers consistently estimate that 60 to 70 percent of a PC's TCO is directly related to the time and effort it takes to support it." (Baldwin, 1998) As illustrated in Gartner Group's model, the first three cost factors, technical support, capital costs, and administration, are hard, budgeted costs. However, most organizations do not typically account for end user costs in their budgeting process. To use a TCO analysis effectively, factors that influence both IT budgets and unbudgeted end user costs must be addressed.

F. ROLE OF TCO IN EVALUATING SEAT MANAGEMENT

TCO analysis should be the first step of an organization considering a seat management program. Data from a TCO study will help an organization determine its current level of service and associated costs. Paolillo, a Gartner Group executive, stated, "In order to make good IT decisions and maintain your competitiveness, you have to be aware of the total environment in which your information technology is performing. Measurement is the key component in a manager's toolset for driving continuous improvement." (Lott, 1999)

There is no uniformly accepted TCO model. The most important aspect of a TCO model is how well it applies to a specific situation or environment. (Harris, 1998) A TCO analysis may or may not support the decision to implement a seat management program, but the analysis is still a valuable tool and can assist an organization in making internal improvements.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. TCO MODELS

A. INTRODUCTION

TCO is a term that has captured the attention of many senior level managers. These managers understand the benefit of using TCO analysis to support their information technology acquisition decision-making policies, but due to the complexities and cost of the analysis, it is often not performed. In fact, as Aberdeen Group (1999) notes after studying the practical application of TCO analysis,

> If an IS manager is asked, 'Is TCO important to you when you are choosing an application server?' the majority of the respondents will answer yes. However, if an IS manager is asked, 'Did you do a TCO analysis to choose your application server?' all will answer no. As Interpose, Inc. (1997) explains, "The objective of any TCO analysis is to maintain or maximize individual productivity while lowering cost. (Interpose, 1997)

Although it is difficult to perform such an analysis, it is still important to do as much of a TCO analysis as possible to help determine all the costs associated with an IT investment. To perform a TCO analysis, one must have a good TCO model. (Gartner Group, 1998)

B. MEASURING TCO

At its very basic level, a TCO model is used to help organizations determine and understand the direct (budgeted) and indirect (unbudgeted) costs associated with owning, using, and managing a particular IT investment throughout its lifecycle. A combination of a TCO model and management

philosophy provides an organization with greater understanding of all the costs associated with their distributed computing infrastructure and can be used as a decision support tool. Most TCO models divide costs into categories that allow costs between organizations to be simulated and analyzed in a detailed, reliable, and consistent manner. This can help determine how to manage the investments currently owned and how to reap greater value from new IT investments.

In the following sections, TCO models from three leading market research firms, Gartner Group, Microsoft-Interpose, and Harris Corporation, are discussed.

C. GARTNER GROUP TCO MODEL ORGANIZATION

The Gartner Group TCO Model uses two major categories to organize costs, direct (budgeted) costs and indirect (unbudgeted) costs. These costs are briefly described below, but appear as printed by Gartner Group, in Appendix A.

- **Direct (Budgeted) Costs**

  Direct costs include the capital, fees, and labor costs spent by the IS department and include the costs of hardware and software expenses, IS operations labor, service desk labor, IS finance and administration labor, outsourced management and support fees.

- **Indirect (Unbudgeted) Costs**

  Indirect costs measure the efficiency of IS in delivering expected services to the end users. These costs often are hidden in most organizations and are not measured or tracked.

1. Gartner Group TCO Model Cost Categories

The following major cost categories are used in the Gartner Group TCO Model:

Direct Costs—measures the direct expenditures on IS by an organization (capital, labor, and fees).

- *Hardware and Software*—the capital expenditures and lease fees for servers, client computers (desktop and mobile computers), peripherals, and network components. IS hardware and software expenses are included.

- *Management*—the direct network, system, and storage management labor staffing, activity hours and activity costs and professional outsourcing fees.

- *Support*—the help desk labor hours and costs, help desk performance metrics, training labor and fees, procurement, travel, maintenance/support contracts, and overhead labor.

- *Development*—the application design, development, test, and documentation including new application including new application development, customization, and maintenance.

- *Communications Fees*—the inter-computer communication expenses for lease lines, server access remote access, and allocated WAN expenses.

Indirect Costs—measures the efficiency of IS capital expenditures and labor as they impact the end users, measured as lost productivity due to end user operations and downtime.

- *End User Operations*—the cost of end users supporting themselves and each other (peer and self-support) instead of relying on formal IS support channels. The cost include peer and self support, end user formal training, casual learning non-formal training), self-development/scripting of applications, local file maintenance, and optionally includes the futz[1] factor.

---

[1] The annual labor expense for end user use of corporate computing assets for their own personal use during productive work hours.

- *Downtime*—the lost productivity due to planned (scheduled) and unplanned network, system, and application unavailability, measured in terms of lost wages. (Gartner Group, 1999)

The Gartner Group has been using TCO analysis for over a decade to measure the total cost of owning a variety of different platforms. Detailed explanations of the specific components of each of the direct and indirect categories are provided in Appendix B.

D. MICROSOFT AND INTERPOSE MODEL

Microsoft and Interpose TCO Model provides a methodology, known as the TCO Lifecycle, to understand and benchmark industry average costs for a given collection of assets. (Microsoft, 1997) The goal was to make TCO measurable and useful in creating IT improvement plans within an organization. The Microsoft/Interpose TCO model breaks the IS cost classifications into direct and indirect expenses. Defining their TCO model further, the direct and indirect cost classifications are broken down into cost categories and sub-categories that the developers felt were necessary in analyzing, improving, and managing costs.

The Microsoft/Interpose TCO model uses the same detailed cost categories described in the Gartner Group TCO model (Appendix B). However, the cost categories and sub-categories are combined with a methodology in which to understand industry average costs for a given collection of assets. The methodology collects actual cost information from an organization and compares it to the industry averages. The model and methodology can be used for

analyzing the costs and benefits of planned improvement projects to determine their financial viability. The Microsoft/Interpose TCO model contains industry average, benchmark data that were collected from 120 companies by IDC Inc. (Microsoft, 1997)

Most TCO Models estimate an organization's average costs for a particular environment by providing industry average costs per client, and relying on a heterogeneous set of assets, and fixed ratios of clients to servers and other complexities. (Gartner Group, 1999) In these models the cost per client is multiplied by the number of clients to obtain an average TCO estimate. According to Microsoft/Interpose, these models are often too simplistic to generate an accurate average TCO figure that can be used for comparisons to actual TCO.

Microsoft/Interpose believe the simulation technique used in their TCO Model is more advanced than other models because it provides different benchmark costs for each type of asset (server vs. client vs. printer, etc.), asset classification (i.e., laptop vs. desktop, file/print vs. application server), and operating system (Windows 3 vs. Windows 95). (Microsoft, 1997) This TCO Model accounts for each asset individually, representing a method of calculating TCO Benchmark costs based on the precise mix of assets, ratios of servers to clients, users to printers, and network topology.

Microsoft/Interpose claim that direct cost information can be discovered through a little research and an organizational framework, provided by their TCO

Model, on where to locate and record relevant costs. Their TCO Model and associated TCO Lifecycle cost management methodology provides this framework to investigate total direct costs and document them in one place. In addition, their model is designed to assist in organizing the end user research and quantifying the indirect costs.

A part of the Microsoft/Interpose TCO Model analysis is a concept known as TCO Model Scope. It is important to understand what factors are included in the collection of the average cost data, used to create the TCO Benchmark reports, and what factors should be included in actual cost data collection for TCO Baseline analysis. The Microsoft/Interpose TCO Model allows an organization to reconcile the actual cost data collected against the model standards for in-scope and out-of-scope analysis. The developlers believe that this verification will insure that only data relevant to the analysis are collected, and that comparisons of TCO Benchmarks to Baselines are comparing like data sets and costs. A detailed list of the in-scope and out-of scope general costs are provided in Appendix C.

E. HARRIS CORPORATION STANDARD CLIENT MODEL

Although Harris Corporation has worked with the Gartner Group trying to standardize TCO models, Harris Corporation chose to "calculate TCO numbers based on quantifiable operation costs and not the hard to quantify soft costs associated with end user productivity." (Harris, 1998) Miller says "Even when we

ignored the projected gains in productivity, the hard cost numbers were more than enough to sell our proposals to the business managers." (Harris, 1998)

Figure 4.1 outlines the differences between the Microsoft/Interpose TCO model and the model that Harris developed for its Standard Client Program. It is important to remember that there is no one correct TCO model. The most important aspect of a model is how well it applies to the environment of an organization. (Harris, 1998)

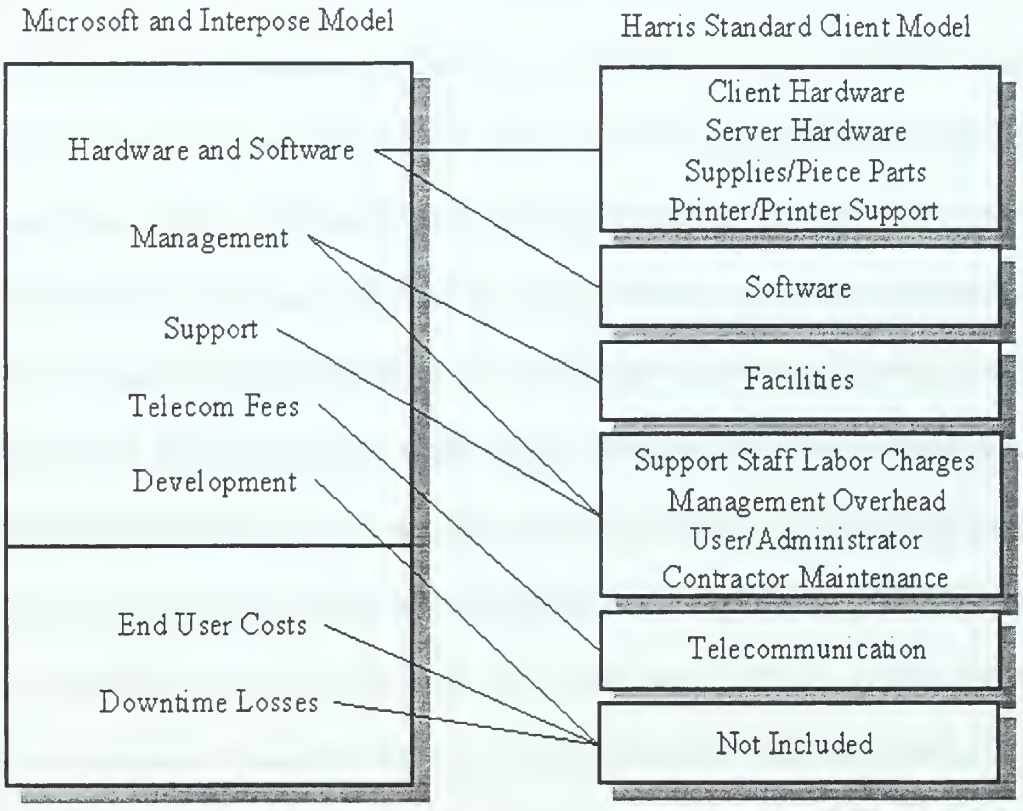

Figure 4.1. Harris Standard Client Model vs. Microsoft/Interpose Model.

The Harris Corporation identified the costs necessary to include and exclude by analyzing various business units within its organization. This proved

effective in capturing operational costs and categorizing them into PC support components. The data collected by Harris yeilded a TCO model of $3,300 to $4,000 per PC per year for most divisions. (Harris, 1998) Harris's initial goal was to lower the average annual TCO per PC by $1,000, while at the same time ensure that consistent service and support were maintained.

In 1998, the average TCO per year for a PC at Harris had dropped from $3,300 to $2,900 and continues to improve. Multipling the existing 15,000 PC's by the obtainable $1,000 savings goal yeilds Harris a $15 million savings per year, and that only includes the quantifiable operating costs that Harris has elected to calculate. In addition, Harris predicts that end user time savings will range from 15 minutes to 3 hours per week, which they translated to an additional savings of $5 million to $55 million per year. Miller estimates that the costs for the Standard Client Program are under $3 million per year and will drop to near-zero after the program is complete. TCO savings will continue at approximately $15 million per year, based on the current number of desktops. (Harris, 1998) Although $1,000 savings per year was the initial target, the ultimate goal is to drive towards a TCO per PC per year of $2,000; $1,000 per year in hardware and software costs and $1,000 per year in support costs, while maintaining current service and support levels. (Harris, 1998)

F. SUMMARY

Organizations are unlikely to agree on a standard TCO model anytime soon. The Microsoft/Interpose TCO Model uses the same detailed cost

categories described in the Gartner Group TCO Model. However, the Microsoft/Interpose TCO Model may account for assets and costs differently than what is indicated in the Gartner Group TCO Model, such as different depreciation schedules and other accounting policies. (Microsoft, 1997) Factors such as varying depreciation schedules could result in a significant difference in TCO.

Harris Corporation's Standard Client Model is designed using the same direct cost categories as the Gartner Group TCO Model, however, they chose not to measure the difficult to quantify soft costs. Examples of soft costs include: development, end-user costs, and down time losses.

All TCO models have detailed cost categories for allocation of labor, fees, and expenses. The detailed costs allow for an organization to measure expenditures, uncover trouble spots, and determine the impact of planned changes. These details in the model are balanced to provide the best level of precision against ease of use and understanding of results. Although there are various TCO models, as long as the same model is used in comparing different alternatives, and all relevant costs are accounted for in the model, it should help in making unbiased comparisons.

THIS PAGE INTENTIONALLY LEFT BLANK

V. SEAT MANAGEMENT ANALYSIS

A. INTRODUCTION

Successful outsourcing enables organizations to focus on their core mission. For the Federal government, Information Technology is, in many cases, an important part of an agency's operation, but it is seldom their core expertise. To redirect the focus back to core mission, Federal agencies are analyzing the impact that IT has on their daily operation and mission, and if their in-house capability will provide the results necessary for success.

Outsourcing of the PC desktop to companies experienced in the support and refresh of desktop technology should yield many advantages to agencies that use the seat management vehicle. Not only should agencies reduce their operating expenses, but improved asset management, timely access to technology and predictable IT costs will result in improved end-user satisfaction and increased productivity. The companies that provide seat management have invested in the tools and capital infrastructure that allows them to manage multiple customers and maximize economies of scale.

Seat management is not a panacea. It is a management tool and should be approached in that manner. This chapter will discuss the advantages and disadvantages of implementing a seat management program in a government agency.

B. ADVANTAGES OF SEAT MANAGEMENT

1. Focus on Core Mission

The Association for Federal Information Resources Management (AFFIRM) conducted a survey of Federal Government IT officials. Of those IT officials, 41 percent felt that being free to focus resources on their core mission would be the number one reason for implementing seat management. The remainder of the respondents felt that improved service delivery, elimination of management headaches and cost reduction would be their number one reason. By eliminating non-essential activities, an organization can release key personnel to concentrate on a core competency, but the organization must have a clear idea of their mission.

2. Budget Realities/Cost Reduction

Smaller budgets and reducing costs are clearly a significant concern for Federal agencies. Federal agencies typically expect that the private sector can perform IT functions for lower costs. An agency's budget constraint is the principle factor used to decide which functions to perform in-house versus which to outsource.

Federal and private sources have determined that outsourcing is an excellent method to produce savings. "The Heritage Foundation has estimated potential savings at 10 to 20 percent." (GSA, 1998; Dobkin, 1995) "The Congressional Budget Office estimated in 1995 that between 20 to 40 percent cost savings could be achieved through outsourcing." (GSA, 1998; Gabig, 1996)

The potential savings make it hard not to consider seat management as a means of providing IT services.

3. Access to Skilled Personnel

Agencies need to consider access to skilled personnel. Federal IT organizations are experiencing a shortage of skilled and experienced personnel. (GAO, 1997; Scannell, 1999) The technicians and programmers skilled in the most current technology and languages are difficult to keep employed in the Federal government, often hired by commercial firms at salaries significantly higher than the government can offer.

4. Improved IT Responsiveness

Seat management is a means of improving IT responsiveness and business/customer service. Federal agencies are taking a closer look at their core competencies and functions, finding that outsourcing some functions allows for greater flexibility to redirect resources to mission critical activities.

Seat management also enables an agency to improve the quality of information systems services by obtaining those services from an organization whose primary mission is IT. These organizations devote more effort perfecting all aspects of IT management than government agencies. There is a move within the industry to obtain certification using Carnegie Mellon University's Software Engineering Institute (SEI) Capability Maturity Model (CMM). (CMU, 1999) The SEI CMM rating validates that an agency or company has put repeatable software development and program management processes in place

in its projects/programs and in various levels of its organization. Federal agencies do not have the resources or funds to obtain the knowledge and skill required, implement the repeatable processes, and go through the certification process. (Schneidewind, 1998) However, the capabilities can be obtained from vendors whose core competency is to provide high quality software development. (Schneidewind, 1998) Agencies are finding that outsourcing gives them access to higher CMM Level capabilities which they otherwise could not afford to develop within their organization. (CMU, 1999)

5. Help with Legacy Systems

Federal agencies have large systems written in outdated computer languages such as COBOL. These programs contain undocumented code as a result of years of modifications without adequate documentation. The programming challenges resulting from these undocumented programs are complicated by the lack of programmers skilled in the earlier languages. Although the number of legacy system programmers is limited, private industry has better access to these programmers. In addition, private contractors have developed tools and management processes to handle this type of re-programming and re-engineering effort. Outsourcing provides Federal agencies access to the specialized tools, management processes, and personnel private industry has available.

6. New Architectures

There is sentiment among government IT managers suggesting that the Federal procurement process can be long and complex, often not supporting the rate of change in IT. (Wimbash, 1999) "Contractor organizations *are seen to have* (emphasis added) more leverage to acquire and maintain new computing/telecommunications resources at a significantly reduced cost than the Federal agency can have directly." (GSA, 1998) Additionally, contractors are able to implement the new technology better and more quickly because their primary mission is IT, with a focus on continuous technology refreshment.

C. DISADVANTAGES/CONCERNS OF SEAT MANAGEMENT

The Federal government has been resistant to the idea of outsourcing IT, citing concerns for security, control, corporate knowledge, and reversibility once a function has been outsourced. While these are legitimate issues that must be addressed, a well-organized approach may overcome these concerns and ultimately enhance the IT decision maker's position.

1. Security

Concerns regarding the security and confidentiality of data and other information are important. Commercial organizations with security concerns such as banks, brokerage houses, insurance companies and organizations with sensitive research and development activities have designed processes that allows their most sensitive information to be processed in an outsourced environment. (OFPP, 1992) Contractors have operated in secure environments

in the government for years. To enforce a secure IT environment, the language in the contracts must require contractors to take the necessary precautions by establishing and promulgating security procedures.

2. Control

Critics of seat management argue that an outside vendor can not match the responsiveness and service levels of in-house IT personnel. Two reasons are cited. First, Federal executives have direct authority over Federal employees, but do not have direct control over contractor employees. Second, critics believe Federal executives are not well practiced in managing services provided by personnel other than their immediate Federal employees.

However, the difficulties of the new management requirements can be corrected. First, Federal executives can be trained to work with contractors, ensuring communications improve and service requirements are well understood by both parties. Second, Federal executives can develop and initiate a comprehensive performance-based metrics program which will assist both the Federal executives and the contractors to produce acceptable and cost-effective service.

3. Corporate Knowledge

Another concern of seat management is that the vendors' lack of corporate knowledge will prevent them from performing as well as personnel within the organization who are familiar with the agency, its customers, its reporting requirements and ways of doing business.

If corporate knowledge is a specific concern, then the organization that is considering seat management can base the evaluation and selection of a potential vendor on their past record. Close communication and cooperation between the organization and the vendor can facilitate the transfer of corporate knowledge to the vendor.

4. Reversibility

An organization may also be concerned with reverting outsourced IT functions back to the organization. This concern is based on the assumption that the organization will lose all of its critical skills and resources (e.g., personnel, hardware, and software), and be locked into the proprietary skills and resources of the vendor.

One method of avoiding this particular scenario is to ensure that provisions are written into the contract to maintain vital government employees. This would ensure that the vendor retain specifically named individuals who would remain involved at all levels. Another solution would be to require the vendor to provide education and training back to the organization. In addition, seat management contracts may be written to ensure that the organization maintains interoperability of equipment/software and the retention of all necessary property should the IT functions be returned to the organization.

5. Human Resource Concerns

The final concern of seat management is the morale and welfare of employees. Keeping the Human Resource (HR) staff involved in the

consideration and decision to implement seat management is a key element to success. It is not only crucial that the HR staff is involved from the beginning, but law also requires it. OMB Circular A-76 states that proper communication with employees and unions should take place through the entire process. The involvement of the HR staff ensures that the decision makers have all the information with respect to the number of personnel affected, costs of transition, retraining requirements and opportunities, termination costs and a host of other concerns.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Seat management, a concept that has only been in existence for two years, has the potential to improve how government agencies procure, manage and work with desktop IT. Unfortunately, without a great success story to use as a frame of reference, Federal agencies may be reluctant to implement seat management. As more organizations accept the concept and opportunities expand, however, Federal agencies will accept seat management as another tool to improve services and reduce costs. Yet, outsourcing of any type is only a management tool, not a substitute for good management.

B. RECOMMENDATIONS

With the advent of collaborative computing, e-commerce and advances in Internet/Intranet technology, it is imperative that the Federal work force has the appropriate technology and adequate support. (Krivonak, 1998) IT is a utility, not a core competency of government, that enables the employee to do his or her job more effectively.

Prior to implementing seat management, an organization should take some preliminary steps. First, an organization must implement an effective asset management database. IT asset management tools can indicate the actual cost of IT holdings and prepare for an organization wide TCO analysis. Second,

management must calculate an organization's TCO. Knowing what costs are incurred after the initial deployment of IT allows management to understand more clearly the potential cost savings attributable to employing seat management.

Krivonak (1998) suggests that agencies considering seat management should assess the risk of implementing this approach to managing their end-user computing by asking themselves the following questions:

- Are they successfully managing their network environment today?
- Can they find, pay, train and keep critical IT network management skills?
- Are service levels and end user satisfaction rising and is satisfaction at the 90% level?
- Is "in-house" TCO decreasing?
- Are they in control of their assets and are their costs predictable?

If the answer to any of these questions is "no", then the agency should consider implementing seat management.

C. ANSWERS TO RESEARCH QUESTIONS

1. What is Seat Management? What are the Advantages and Disadvantages of Seat Management?

Seat management is essentially outsourcing at the desktop level. It enables an organization to acquire both systems capabilities and performance for general purpose, scientific, and even mixed environments through an integrated service level contract from a service provider.

The advantages of seat management depend upon the organization and its reasons for outsourcing. A brief list of advantages may include:

- The ability to focus resources on core competencies
- Personnel cost savings
- Improved quality and increased flexibility of IT systems
- Increased access to advanced technology
- Technology cost savings
- Reduction in technological obsolescence risk

The DoD, in an environment of reduced budgets and reduced labor resources, is positioned to benefit especially from the following advantages available from seat management:

- Reduced costs of IT services
- Access to skilled personnel
- Improved IT responsiveness, including help-desk resources
- Engineering and analytical support with legacy systems

Disadvantages/Concerns of seat management may include:

- Controlling success metrics of vendor response time and service levels
- Issues of security and confidentiality of data
- Loss of in-house, or corporate knowledge
- High cost of reverting back to in-house operations
- Transition, retraining, obligations, and termination costs of civilian personnel

2. What are the Requirements for Implementing Seat Management?

Research (Gartner Group, 1998; Harris Corp., 1998) indicates that prior to considering a seat management contract, an organization must have a plan, if not an active program, for asset management. In addition, it is necessary to have an accurate representation of Total Cost of Ownership. Knowing how and where money is spent is probably the most crucial step in considering a seat management contract. With asset management and TCO understood, a DoD organization has the alternative of implementing a contract through the General Services Administration, or contracting through a number of private vendors.

3. What Criteria Need to be Examined Prior to Implementing a Seat Management Program?

Some businesses have found that conducting a comprehensive needs assessment is helpful prior to implementing a seat management program. (Klepper, 1996) The first step for DoD organizations considering seat management should be to obtain a copy of General Services Administration's white paper "Outsourcing Information Technology" which specifies the federal policies and guidance. (GSA, 1998) In addition, the U. S. Congress has passed legislation that requires federal agencies to consider the following criteria to ensure that the delivery of services is effective and efficient:

- What is the overall mission of the organization?
- What are the goals of the organization?

- What are the requirements necessary to achieve those goals?
- What functions of the organization can be maintained by in-house staff and what functions can be outsourced?

4. What are the Specific Costs of Implementing a Seat Management Contract? Is There a Baseline Contract with Add-On Features at Varying Costs?

Generally, vendors will have a basic service level contract that is broken into two components. The hardware/software is classified as the product class, while support services are classified as either core services or complimentary services. The product class and the core service class are combined and compose the basic contract. The product class represents the range of technology supported by the general industry. However, an organization may not want or need various services offered by the product or core class, so vendors will allow for certain services to be modified by the organization. Although the information such vendors provide is useful for establishing the general price of the contract, the final price will depend on the actual negotiations related to the specific requirements of the organization.

5. Is Seat Management More Cost Effective than Retaining Desktop Services within the Organization?

We were unable to determine whether seat management is more cost effective than retaining services within an organization. The government agencies that have implemented seat management did not conduct extensive TCO studies prior to outsourcing. To answer question number five, a

comparison must be made between the costs associated with seat management and the costs of maintaining services within the organization. This question is recommend for further study.

6. What Effect will the Implementation of Seat Management Have on Current Personnel and Administration?

OMB Circular A-76 mandates that government agencies "exert maximum efforts" to find available positions for employees adversely affected by the decision to outsource. An organization considering seat management must get its human resources staff involved as part of the outsourcing team from the very beginning. This ensures that discussions concerning outsourcing are communicated with the employees and unions. (GSA, 1999) An organization can implement a seat management contract in which a minimal number of personnel are affected. If the organization is dependent on the government staff who are displaced, there can be significant costs associated with the termination, transition and re-training of civilian personnel. Seat management has the potential to minimize these costs, but cost may not be the only issue. The psychological effect of displacement and retirement possibilities must also be considered. NASA's Jet Propulsion Laboratory negotiated and designed their seat management contract so that 60 computer systems support specialists were hired by the outsourcing vendor. (Bass, 1998)

7. What are the Benefits of Upgrading the Existing Network Architecture with Seat Management?

The benefits will vary with the organization. For example, the Bureau of Alcohol, Tobacco and Firearms was able to upgrade all 286 computers with Pentium machines through the implementation of a seat management contract. This means that all Bureau personnel are operating new computers with the same software. In addition, as technology advances, upgrades can be made to the existing hardware and software. Contracts with an 18-month refresh rate will cost more per computer than one with a 3 to 5 year refresh rate. The organization has the power to decide how and when their IT capabilities are upgraded.

8. Will Implementing a Seat Management Program Improve the Use of Available IT Resources to Allow Companies to Focus on Their Mission?

While seat management has definite advantages for some organizations, our research implies that implementing a seat management contract may not be the only way for an organization to reduce IT costs. Establishing and maintaining an effective asset management program, in conjunction with calculating and analyzing Total Cost of Ownership can enable the organization to focus on their mission. By analyzing their TCO, the Harris Corporation was able to reduce IT costs per computer, per year, by up to 45 percent of their original costs without having to outsource. (Harris, 1998)

For a list of frequently asked questions regarding seat management refer to Appendix D.

D. RECOMMENDATIONS FOR FURTHER STUDY

1. Cost/Benefit Analysis of Seat Management

Conduct a cost/benefit analysis of an agency that has implemented a seat management program. The student must have access to past and present data to determine whether cost savings were realized. A question to be answered is whether the implementation of seat management helped the agency's focus on core mission.

2. Seat Management Metrics

Research the use of performance metrics used in a seat management program. Determine how metrics are used and the extent of their effectiveness. Develop a set of lessons learned based on an analysis of a specific case.

3. IT Manager Responsibilities

Research the role of an IT Manager while implementing a seat management program. Determine what the IT Manager's role should be, identify challenges that the IT Manager faces during and after implementation, and develop recommendations for improving the critical relationship between the IT Manager and the vendor.

APPENDIX A. GARTNER GROUP TCO MODEL - DESCRIPTION OF DIRECT (BUDGETED) COSTS AND INDIRECT (UNBUDGETED) COSTS

- Direct (Budgeted) Costs

  Direct costs are the capital, fees, and labor costs spent by the corporate IS department, business unit and department IS groups in delivering Information Technology services and solutions to the organization and users. Costs include hardware and software expenses, IS operations labor, service desk labor, IS finance and administration labor, outsourced management and support fees. The direct cost models typical costs and captures actual costs for all direct expenses related to the clients (mobile and desktop), servers, peripherals, and network in the distributed computing environment and serving the distributed computing users. (Gartner Group, 1999)

- Indirect (Unbudgeted) Costs

  Indirect costs measure the efficiency of IS in delivering expected services to the end users. If the IS management and solutions are efficient, end users are less likely to be burdened with self and peer support, as well as downtime. If the IS management and solutions are inefficient, end users typically must spend more time supporting themselves and each other (self and peer support), and are impacted by more downtime. These costs often are hidden in most organizations and are not measured or tracked. Because of this, many organizations undertake direct cost reduction programs, but can unknowingly transfer the burden or support and unreliability to the end users. Gartner Group research shows that inefficient or overly aggressive spending cuts can lead to a $4 in lost productivity for every $1 saved. One can view Indirect costs as a second order effect that the IS spending, or lack thereof, has on the organization. It cannot be measured directly, and there is not always a direct causal relationship, but efficient IS spending can have a direct positive impact on end user productivity while inefficient spending or cuts can cost an organization more in lost productivity than what was saved in spending cuts. (Gartner Group, 1999)

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. DETAILED DESCRIPTIONS OF DIRECT AND INDIRECT COST COMPONENTS*

Hardware and Software Costs

Hardware and Software Costs are the annual capital expenditures associated with PC and network hardware and software. Included are the acquisition fees (depreciated over three years using straight-line depreciation), upgrade, update, and disposal fees for the assets. Assets include PCs, laptops, servers, peripherals, hubs, bridges, routers, switches, printers, scanners, and network wiring.

Cost Sub-Category	Definition
Hardware Costs	**Annual expenditures on new and upgraded client, server, and network hardware.**
Acquisition and Disposal	The annual capital expenditures associated with the acquisition and disposal of computers, peripherals (printers and scanners), and network hardware (hubs, bridges, routers, and switches). The acquisition fees for clients and servers include initial computer, memory, storage, and applications. As well, a fee is included for asset disposal fees Acquisition costs are amortized over a three year based on the original purchase price. For a benchmark analysis, all of the assets are assumed to be replaced on a three-year basis, meaning that each asset has an acquisition cost equivalent to 1/3 of the original acquisition cost.

* Reprinted, as originally published, with permission of Gartner Group Inc.

Cost Sub-Category	Definition
	When calculating the baseline (actual costs), the analysis should include a single year's worth of depreciation expenses for all assets that are currently not fully depreciated. The depreciation fees are recorded using a three-year straight line depreciation. New assets (purchased within the analysis year) should utilize a full year of depreciation expense regardless of when the asset was brought into service. Assets that are currently fully depreciated should be included in the analysis of total assets for total cost analysis, but, for the baseline, analysis will not have any costs indicated in acquisition costs because they are fully depreciated. Thus, if assets are in service longer than three years, the organization will have acquisition costs lower than the industry average benchmark figures (although other costs such as upgrades and repairs may be higher). Lease fees are not included in the acquisition expenses and are handled in another category (lease fees) below.
Memory	The annual capital expenditures for upgrades to computer memory. The memory upgrades are expensed.
Storage	The annual capital expenditures for upgrades to computer hard disks and other on-line network storage devices. The storage expenses are expensed.
Peripheral Upgrades	The annual capital expenditures for computer peripheral device updates and upgrades including adding a CD-ROM drive to a computer, multi-media accessories, and printer memory. The peripheral upgrades are expensed.

Cost Sub-Category	Definition
Connectivity Hardware Upgrades	The annual capital expenditures for upgrading and updating network hardware including such items as network cabling network cards, and adding ports to routers. The connectivity hardware upgrades are expensed.
Other Hardware	The annual capital expenditures for spares. This fee is expensed.

Cost Sub-Category	Definition
Software Costs	**Annual capital expenditures on new and upgraded client and server software. Software is expensed in the year the analysis is being performed.** **Maintenance contracts are not included.**
Operating System	The annual capital expenditures on new and upgraded operating system licenses for the desktop and servers.
Application Software	The annual capital expenditures for new and upgraded off-the-shelf applications including word processors, databases, spreadsheets, financial, accounting, manufacturing, CAD/CAM, presentation, contact management, vertical applications, and other business software. Included are expenses for development tools. Software fees are expensed.
Utility Software	The annual capital expenditures on new and upgraded software used to help manage the desktops or network including network and systems management software, security, virus protection, backup and restore, disk optimization, performance tuning, screen savers, and other helpful tools. Also included in utility software are

Cost Sub-Category	Definition
	programming languages, program components, modeling software, test tools, configuration control programs, and documentation tools.
Connectivity and Communication Software	The annual capital expenditures on new and upgraded software used to connect users and to enable sharing of information across the network, beyond what is included in the operating system. Such software includes messaging software and remote connectivity software.

Cost Sub-Category	Definition
Monthly Costs	**Monthly capital and lease expenditures**
Monthly Costs	Monthly capital and lease expenses for hardware, software, and supplies
Leased asset fees	The annualized lease fees for all assets including hardware such as servers, clients, printers, hubs, bridges, routers, and switches, as well as leased software.
Other monthly costs	The annualized capital fees for computer supplies such as diskettes, CD-ROMs, backup tapes, toner cartridges and other expendables.

Management

Management is the IS direct labor expenses and outsourced fees of managing the network, computer systems, applications, and storage infrastructure, as well as managing the users ability to access these resources. The successful management of the infrastructure forms the basis for a solid business-computing platform. Management expenses are derived from the labor expenses of network and desktop administrators, as well as network management outsourcing fees. Expenses are the annual labor fees (headcount performing the task * rate) for the analysis year.

Cost Sub-Category	Definition
Network Management	**The annual labor expenses for maintaining and optimizing availability of key network resources to users. These resources include access to the systems, network, communications, information management and sharing, as well as printing. Tasks in this category include advanced support services, optimization, and administration.**
Troubleshooting and repair (Tier III support)	The annual labor expenses for technicians and administrators in identifying and resolving failure, fault, and accessibility support issues with the network, computers, operating systems and applications. Includes break-fix labor expenses.
Traffic management and planning	The annual labor expenses for pro-actively monitoring, interpreting, planning and balancing the load placed on the network infrastructure.
Performance tuning	The annual labor expenses for pro-actively monitoring, interpreting, planning and balancing the

Cost Sub-Category	Definition
	performance of networked systems and applications.
User administration (adds, moves, and changes to users)	The annual labor expenses for controlling user accessibility and restriction to network and application resources. Tasks include adding new users and resources, moving users to new groups, or changing user profiles.
Operating system support	The annual labor expended in managing the operating system including settings, drivers, and licensing.
Maintenance labor	The annual labor expended for routine tasks that are performed on a scheduled or interval basis to maintain accessibility and performance. This can include tasks such as routine cycling of applications, maintaining expired passwords, and deletion of e-mail logs. File and disk maintenance is not included.
Tier II support labor	The annual labor expenses for resolving issues with systems, networks, and applications that could not be resolved by help desk tier I personnel, and are not yet ready to be escalated to Tier III support personnel. The Tier II resources are utilized when calls cannot be resolved through standard solutions, require a greater in-depth knowledge of the systems, or require dispatch to the desktop or problem causing asset.

Cost Sub-Category	Definition
Systems Management	**The annual labor expenses for managing the physical computer systems, applications, and network. Tasks include evaluation, deployment, and on-going management.**
Systems research and planning	The annual labor expenses for identifying infrastructure needs, reviewing configurations, setting standards, researching options, as well as identifying and documenting planned changes. Expenditures are for servers, clients, networks, and off-the-shelf applications.
Evaluation and purchase	The annual labor expenses for testing servers, clients, networks, applications, and systems prior to rollout, and the direct IS labor associated in supporting procurement efforts, including the support of legal and purchasing departments.
Software licensing and distribution	The annual labor expenses for deploying new software, updating and upgrading existing applications and operating systems, monitoring usage and the metering of available licenses
Asset management	The annual labor expenses for inventories, asset identification and tracking, asset database management, change recording, and reconciliation, as well as managing automated asset management systems.
Application management	The annual labor expenses for on-going management of applications including configuration control, access management, and launch.
Security and virus protection	The annual labor expenses for detecting or preventing security violations or virus infection, and the recovery from such violations or intrusions.

Cost Sub-Category	Definition
Hardware Configuration/Re-configuration (adds, moves, changes to assets)	The annual labor expenses for re-configuring existing solutions within the network including adding sub-components, upgrades, physical moves or configuration changes. Items include system upgrades, performance enhancements, topology changes, switched network changes, asset location, and other physical or logical changes and setups to the hardware and settings. Software upgrades to applications and operating systems are not accounted for here, instead they are recorded in Software licensing and distribution.
Hardware Installation	The annual labor expenses for installing and deploying new hardware including servers, clients, peripherals, communication devices, and networks. As part of the installation, it is assumed that the replaced assets are disposed of using labor accounted for in this category.

Cost Sub-Category	Definition
Storage Management	**The annual labor expenses for managing the desktop and network data and storage including file system organization, database management, local hard disks, server hard disks, centralized on-line storage devices, optical storage, hierarchical storage management systems, archiving and backup/restore systems. Only client/server storage management costs should be considered.**
Disk and file management	The annual labor expenses for optimizing hard disk storage and file

Cost Sub-Category	Definition
	systems. Expenses include management of directory trees, disk de-fragmentation, and disk maintenance.
Storage capacity planning	The annual labor expenses for monitoring, managing, and optimizing on-line and off-line storage.
Data access management	The annual labor expenses for providing user availability to information including in-scope database management, file access, and remote server access.
Backup and archiving	The annual labor expenses for the backup of network and desktop data, restoring lost files or disks, and the archiving of data to tape.
Disaster planning and recovery	The annual labor expenses for building disaster preparedness plans including backup and restore procedures, tape management plans, hot-site planning and preparation, record keeping, and team organization
Repository management	The allocated annual labor expenses for managing the central disk or tape repository.
Outsourced Management Fees	The annual fees associated with outsourcing any of the Management labor costs. The outsourced categories typically include planning, installation (migration rollouts), Tier II support, inventory, asset management, repository management.

Support

Support costs are the direct labor expenses (IS, end-user, and procurement) and fees associated with supporting the network infrastructure and users. Labor and fees include help desk support (tier I), maintenance and support contracts, training, travel,

purchasing, vendor management, and management overhead. Support costs are annual labor expenses and fees for the year the analysis was performed.

Cost Sub-Category	Definition
Operations Labor	**The annual expenses for the overhead labor associated with running a computer and network infrastructure.**
Administration	The annual labor expenses for clerks and assistants that support administrative staff, support staff, IS department and general managers, as well as IS executives.
Management	The annual labor expenses for IS department, general, and executive management.
Casual Learning (IT)	The annual labor expenses by IS professionals outside of formal training programs to learn computer, network, and storage systems, as well as IS and end-user applications.
Vendor Management	The annual labor expenses for working with and managing hardware and software vendors.
Mis-diagnosis	The annual IS labor expenses for IS resources spending support time on issues that were user error, not real faults.
Training Course Development	The annual labor expenses for designing, developing, and testing IS and end user courseware.
IS Training (delivery and time)	The annual labor expenses for delivering IS courses, as well as the IS time spent attending courses.
End User Training (delivery)	The annual labor expenses for the delivery of training courses to end users on infrastructure systems and applications.
End User Training	The annual labor expenses for the time spent by end-users in infrastructure

Cost Sub-Category	Definition
	systems and application training.
Travel Time	The annual labor expenses by IS professionals in travel time to support remote/branch offices, attend training sessions, attend trade shows, and visit vendors.
Purchasing	The annual labor expenses by purchasing and legal in planning, supporting, and implementing computer systems, network, and applications purchases including the negotiation of contracts, site licenses, and individual acquisitions.
Other Operations Labor Costs	Annual labor expenses for miscellaneous overhead items such as user group or IS newsletter production.

Cost Sub-Category	Definition
Operations Fees	**The annual fees for operations such as maintenance and support contracts, travel, and training.**
Maintenance contracts	The annual fees for outsourced maintenance (break-fix) contracts. When calculating actual costs, organizations that pay for these fees on a one time basis for multiple years should only account for the allocation of costs in the analysis year.
Support contracts	The annual fees for outsourced Tier I help desk support services.
Training Course/Certification Fees	The annual fees for training class and supply fees, certifications, testing fees, and courseware.
Travel	The annual fees for airfare and other transportation related to in-scope IS business travel.
Purchasing	The annual allocated charge-back fees paid to purchasing or legal departments for in-scope IS purchases.
Other Operations Fees	Annual fees for overhead items such as user group or IS newsletter production.

Cost Sub-Category	Definition
Help Desk (Tier I support) Labor Costs	**The annual labor expenses for Tier I help desk support calls.** **For benchmark analysis, the cost information is based on the activity based cost of supporting the client/server environment (calls per year for all assets * avg. call duration * burdened labor rate).** **For baseline analysis, the cost information is activity based, but may be collected based on headcount (usually when the Tier I for client/server infrastructure is easily separated from out-of-scope systems), or on call analysis (when support resources hold multiple support roles)**

Development

Development costs are the annual IS labor expenses and fees for the design, development, test, documentation, and maintenance of non-business applications for the computing system infrastructure. In-scope applications include systems management programming, and development/customization of communication and productivity software. Activities and fees in this category are associated with new applications, integration, customization, and maintenance.

Business applications, those programs that generate, track, field, or manage business revenue and/or are considered mission critical, are considered out of scope in the standard costs, and should be considered out of scope in actual costs analysis.

Cost Sub-Category	Definition
Development Labor	**The annual labor for the design, development, documentation, test, and maintenance of non-business applications.**
Design and development	The annual labor for requirement definition, architecture development, planning, prototyping, and coding of non-business applications.
Testing	The annual labor for developing or planning test tools, developing test plans, managing test lab creation and maintenance, testing, and documenting issues.
Documentation	The annual labor for configuration control and technical writer documentation of non-business applications.

Cost Sub-Category	Definition
Development Fees	**The annual fees paid to outside service providers and consultants for the design, development, documentation, test, and maintenance of non-business applications.**
Design and development	The annual fees for requirement definition, architecture development, planning, prototyping, and coding of non-business applications.
Testing	The annual fees for developing or planning test tools, developing test plans, managing test lab creation and maintenance, testing, and documenting issues.
Documentation	The annual fees for configuration control and technical writer documentation of non-business applications.

Communication Fees

The communications fees are the annual expenses paid for lease lines, on-line access fees, remote access services, and WEB hosting fees. Fees are assessed for client/server functions only. Data center fees for communications should be allocated accordingly.

Cost Sub-Category	Definition
Communication Fees	**The total of annual expenses for lease line fees, on-line access fees, remote access services, and WEB hosting fees.**

End User IS Costs

In many organizations, certain IS tasks are performed by end users. This indirect expense is often hidden and is an indirect expense to IS. The responsibility and hours in performing these tasks is sometimes borne by end users by design, where certain end users are designated with IS functions to better support business units and remote offices. At other times the expenses are the result of budget cuts to IS resulting in transitions of labor costs from traditional IS personnel to the end users. In either case, a study of the total cost of ownership must include the IS labor expenses that are being performed by end users. Such costs typically include tier II support, maintenance, troubleshooting and repair, installation, training, backup, and certain development functions (non-business or mission critical).

When investigating the End User IS expenses for a TCO Baseline (actual cost) data collection, end user surveys are used. In these surveys, end users are asked to provide information on where they obtain IS services, and how much they perform themselves or for others. As well, IS management is queried to determine how much "official" support is provided by end users to support business units, mobile workers, and remote/branch offices, common areas where end user IS expenditures are high.

Cost Sub-Category	Definition
Peer and Self Support	The annual labor expenses of end users supporting themselves and each other in lieu of obtaining support from the help desk or IS personnel. Typical tasks performed by the end users include troubleshooting and repair, support, maintenance, installation, training, and backup management (remote offices). Self support is performed by the users themselves. Peer support is the reliance on a knowledgeable resource, typically the unofficial "expert" in providing support answers and in resolving technical issues.
Casual Learning (end user)	The annual labor expenses of end users training themselves in lieu of traditional and formal training programs.
"Futz" Factor	The annual labor expenses of end users performing unnecessary changes to their computer, network settings, or applications including playing with screen settings, file organization, folders, sounds, printer settings, and other unproductive configuration/re-configuration. Futz does not include playing of games or surfing the internet. This time is not

	included in the average or actual cost studies.
End user scripting and development	The annual labor expense of end users performing development and customization of non business/mission critical applications (infrastructure software)

Downtime

Downtime expenses are the annual lost productivity costs to end users of downtime, the unavailability of computing services and resources including desktop computers, servers, printers, network, applications, and communications. Downtime can be due to a user waiting for productivity impacting help desk problem to be resolved, or from an infrastructure issue due to planned maintenance or unplanned failures.

Productivity losses are considered in the total cost of ownership model to measure and track downtime impacts on the end user community, providing a measuring stick for reliability and fault tolerance. Business losses are important to consider but not measured in this model because business impacts and applications are out of scope.

Cost Sub-Category	Definition
Planned downtime lost productivity	The annual productivity loss impact to end users from planned system maintenance. This cost can be high for organizations who are 24x7 and who have systems that require productivity impacting enhancements to the servers, architecture, and desktops, or who have maintenance issues with the central resources and applications. For actual cost analysis, the planned network outages are estimated by IS professionals.
Unplanned downtime lost productivity	The annual productivity loss impact to end users from unplanned outages of the network resources, including shared servers, printers, applications,

	communication resources, and connectivity. For actual cost analysis, the unplanned network outages are estimated by IS professionals.
Lost productivity due to help desk resolution time	The annual productivity loss impact to end users from the wait time involved in getting support issues handled, from the call placement to problem resolution and restored productivity. When researching actual costs, it is important that only productivity impacting problems are recorded, and problems spanning non-working hours consider only those hours that effect productivity. Consideration on scaling may be considered for professionals who often work unpaid hours to make up for unproductive hours due to desktop or network problems. For actual cost analysis, it is important to separate desktop resolution downtime from network downtime to avoid double counting of productivity losses.

APPENDIX C. MICROSOFT AND INTERPOSE TCO MODEL SCOPE

The Microsoft and Interpose TCO Model includes the following costs in TCO analysis. These costs are considered "in-scope".

- Client/server computing systems and the resources that manage and support them.
- Network communication devices such as hubs, bridges, routers, and switches and the resources that manage and support them.
- Depreciated hardware acquisition expenses (three-year straight-line depreciation is assumed).
- Expensed new software and upgrades, including operating systems, off-the-shelf applications, application development tools, utilities, communication and connectivity applications.
- Travel fees associated with IS management and support.
- Client/server maintenance and support contracts.
- Supplies such as tapes, diskettes, and toner cartridges.
- Training course development, delivery time, and course time and fees for IS personnel and for end-user computer and general application skills training (not business applications training).
- Communications cost including lease line fees and RAS connections that are assessed to the client/server systems.
- Development resources (design, development, test, and documentation) dedicated to developing IS and applications infrastructure, and customizing off the shelf applications for general productivity applications.
- Costs for end user support that is borne by non-IS personnel (self support, peer support, remote office personnel who part of full time support users or the network).
- Lost productivity from serious problem resolution time and network resource downtime.
- Allocated data center fees and headcount relating to client/server systems.
- Burdened labor rates are used.

The Microsoft and Interpose Model currently excludes the following costs from TCO analysis. These costs are considered "out-of-scope".

- Mainframe systems and applications including related capital, management, and support costs.
- Data center resources not associated with the client/server systems.
- Development resources allocated to design, development, test, and documentation of business applications, those applications that are related to generating revenue or managing raw materials, products, and customers.
- Paper for printers.
- Business losses due to downtime.
- User productivity changes based on systems and applications.

APPENDIX D. GSA SEAT MANAGEMENT FREQUENTLY ASKED QUESTIONS, V.1.0*

What is seat management?

GSA's Seat Management is a flexible way to acquire both system capabilities and performance for general purpose, scientific and even mixed environments through an integrated service level agreement from a single service provider. Seat management encompasses the management, operation and maintenance of the desktop, portable desktop, servers, communications, printers, peripherals and their associated network infrastructure and components.

Seat management Services include all essential components and resources to service and maintain the desktop-computing environment by integrating commercial-off-the-shelf (COTS) hardware and software with operations and maintenance support defined in terms of performance based service. Technology refreshments are addressed in the Seat Solution and can be customized to meet your agencies particular technology upgrade requirements. All resources are Y2K compliant.

What are the similarities and differences between GSA's Seat Management and the Outsourcing Desktop Initiative for NASA's (ODIN) Contract Vehicles?

GSA's Seat Management and ODIN are similar in that both contracts are modeled on performance based service using commercial best practices to support the distributed computing environment.

---

* Reprinted from General Services Administration's seat management frequently asked questions v. 1.0.

GSA Seat Management Request For Proposal (RFP) was modeled after commercial practices and is inherently designed with the necessary flexibility to service virtually any type of distributed computing environment. ODIN on the other hand was designed first, to service NASA space flight center distributed computing environments and includes or bundles into its standard service delivery other office needs identified by NASA users, such as telephones, pagers, and copying machines.

Both contracts depend on the customer to define its requirements, however the typical NASA Space Centers requirements are built into the master contract and require NASA Space Centers (or other agencies that look like NASA) to under go minimal requirements definitions. Due to the construction of the ODIN contract, it only offers a limited set of solutions to other Federal agencies. GSA's Seat Management contracts do not inherently represent or address a typical government users requirements because there is no such thing, GSA's Seat Management Contracts are intentionally constructed to allow government agencies to customize an environment that meets its particular needs. GSA's Seat Management contracts can tailor a solution to fit any customer operational requirement. GSA's Seat Management is flexible at the task order level, at the pricing level and also on technical specifications. ODIN has standard, fixed technical specifications and pricing with limited task order options. The Government-wide Acquisition Contract (GWAC) segment of ODIN, is no different than the NASA segment in all aspects, to include pricing and technical areas.

The seat management Contracts allow the client organization to develop competitive evaluation criteria customized to each task order whereas ODIN has a task evaluation criteria that is fixed under a master task order.

What are the similarities and differences between GSA's Seat Management Contract and GSA's Federal Supply Service (FSS) Schedules?

In the loosest sense both GSA Seat Management Contracts and FSS Schedules can be used to construct a seat management service. However, for FSS Schedules the underlying resource is labor categories and products whereas GSA's Seat Management's underlying resource to derive the price/cost justification is a ceiling price for performance based service delivery. In order to deliver the levels of performance-based service as defined in the Seat Management Contracts using the FSS Schedules, the customer or contractor would have to reverse engineer the service to come up with the most appropriate set of labor categories, labor hours, and products. At face value one might not see this as a problem, but it can become risky rather quickly when the environment changes one comes up short in terms of labor hours, incorrect labor categories, and/or product. FSS Schedules are more appropriate when a customer requires labor hour support for its internal help desk operation or network operating center. However, when the customer is looking for full life cycle management of its distributed computing environment, GSA's Seat Management Contract is the more appropriate vehicle.

How flexible is the Seat Management Contract?

GSA's Seat Management Contracts offer maximum flexibility, and can service virtually any office situation. GSA's Seat Management can address all infrastructure levels of the distributed computing environment from the desktop to the wide area network. To maximize management and operational efficiencies, it

is strongly recommended that the entire infrastructure within an organizational or facility domain be serviced under seat management. This will minimize the points of demarcation, thus minimizing potential points of service failure for which the contractor is not responsible. Each infrastructure level has two components, the first is the hardware/software service classified as Product Class and the second is the support services classified as either Core Services or Complimentary Services. The Product Class and Core Services are tightly coupled.

The Product Class encompasses different levels of technology that represent the range of technology supported by general industry. For example, the baseline services for the General Purpose Desktop infrastructure level includes generic configurations with Pentium, Pentium Pro, and Pentium II chip technology. Other chip technology that is functional comparable with the Intel chip technology is also accommodated. With the technology refreshment provision, the range of technology shifts to incorporate new technology as it becomes commercially available.

The Core Service is divided into the Infrastructure Management, User Support and Asset Management. These are mandatory functions and are dependent upon one another to ensure efficiencies and potentially reduce costs. To accommodate different service needs of a particular organization or even individuals within an organization, there are multiple levels of service. For example, the "time to repair" service measurement (one of many measurements) may have a 1 hour, 4 hour, 8 hour, and next day metric.

The contract also offers complimentary services, such as COTS Software Training, which are not mandatory, but can be coupled with the Core Services when training requirements are fully identified or contracted for independently as training needs arise.

With this flexibility, desktop configurations and service delivery can take on any definition that the using organization requires. Bear in mind that the greater degree to which desktops conform to an organizational standard, the more efficient the support can be provided. In addition, if make and model of desktop is specified, the contractor has less flexibility in terms of buying power.

Do I buy the assets through seat management?

No, seat management is a utility where integrated desktop services are provided on a day-to-day basis for a price per seat per month. The service includes the assets for which an agency may define the level of technology it needs. Assets are provided and owned by the Contractor.

In the event that I determine that seat management is not for me, what happens to the hardware when it is Contractor owned?

As part of the Task Order Request (TOR) requirements, the customer should specify whether it has any intention of taking ownership when the Task Order (TO) ends. If the customer does not identify a need to buy-out or regain ownership of the assets in place (either when the contract expires or a TO is terminated) then by default the Contractor is responsible for removing and disposing of all assets. The time frame for removal will be negotiated and agreed upon by both the Contractor and the Government. The Contractor will be afforded the opportunity to schedule the wholesale removal of any assets.

If the customer wants to minimize wholesale infrastructure replacement at TO end, then the option for taking ownership of assets should be built into the TO. The customer should specify the intervals where the option will be entertained. The option can parallel each year of support or more realistically those years of support where there is scheduled technology refreshment (e.g., every two years or three years). As part of the TOR completion, each Contractor bidding, would also bid the buy out price based on the proposed asset solution consisting of the baseline technology and projected technology for the out years. The buyout price would remain an optional Contract Line Item Number (CLIN) until such time that it is exercised. Assets introduced, as a result of TO modifications would require modification to the corresponding buyout CLIN(s). As a general guideline, the ownership price for desktop assets that are three years old might be as little as the cost to process paperwork for the title transfer.

Is seat management just hardware or can I also use it as a way to introduce new software to my enterprise?

GSA's Seat Management is much more than just a COTS hardware and support service. It also includes software. Under seat management, the support infrastructure can be used to electronically distribute software, measure software utilization, and provide training to end-users when the customer chooses to migrate to a different software product.

How will I see increased efficiency using seat management?

By consolidating the numerous system management tasks associated with acquiring and supporting the desktop computing environment a synergistic effect

is created. This allows service providers more efficient service delivery through integrated processes, procedures and use of automated tool sets.

How can seat management support agency specific or unique software applications?

Under the basic tenants of the contract, Seat management provides the COTS hardware and software infrastructure to support the distributed computing environment, including agency specific or unique applications, and manages and maintains the COTS environment. In most cases, the agency would retain help desk support for and design and development of the applications. In time the Seat management contractor could provide support of the applications short of software engineering. Contractor support for such things as developing hardware requirements, deploying hardware upgrades, help desk support and automated software distribution can be performed in Task Orders.

In order to provide support of unique customer software, a period of transition would be required to incrementally shift responsibility to the customer while minimizing risk to the organization. The length of the transition period is dependent on a number of factors including degree of software documentation and new requirements. Seat management with its labor hour support component can be used to support agency specific or unique software applications until the knowledge transfer is complete and service levels can be negotiated and incorporated.

Can Seat management meet security requirements?

With the flexibility of GSA's Seat Management, the Contractor will be able to support Government sensitive/unclassified information at the network and

desktop level. Additionally, the Contractor can provide higher levels of security as required in individual Task Orders.

Are there minimum and maximum lengths of time for a task order?

There is no mandatory minimum or maximum length of time for a task order. Each Task Order will experience transition, correction and steady state periods. The duration of each period will vary by organization. A minimum of three years is recommended so that the organization can adjust to the change. During the transition period, the Contractor is phasing in the service to meet your requirements, the correction period allows you time to make any adjustments necessary and then you enter the stable period where a status quo exists. Anything less than three years may not provide enough incentive for competitive pricing. The efficiencies associated with Seat management will come in the out years as capacity and technology is continuously balanced with utilization. Each Task Order may be developed to cover up to 10 years based on when it is issued.

How does the availability of funds dilemma affect multi-year seat tasking? How do I protect my budget?

The Task Order may be constructed with each additional year or group of years of support as an option until it is exercised. In the event that the full funding amount is not available then each year or group of years may be funded incrementally. All support may be subject to the availability of funds.

In the early years of a Task Order, budgeting issues may surface. Until such time as the Task Order service achieves a steady state, with the service and associated price aligned with customer expectations, the price may fluctuate.

There are several methods or mechanisms available to Federal agencies to address or plan for recurring IT requirements and expenses such as an Information Technology Revolving Fund.

Can Agencies pilot a segment of the enterprise?

Transitioning from your current environment to seat management is an evolutionary process, which relies upon close collaboration between agencies and contractors. Seat management contractors use sophisticated methodologies and processes to affect smooth transitions of service. Piloting a portion of your enterprise is a recommended approach. In this way, a mutual level of understanding and trust can develop between the contractor and the agency. This will facilitate a graceful transition to enterprise-wide seat management implementations.

How will Seat management be able to offer help desk support without physically being located at our facility?

A customer support center will be established with technicians dedicated to serving the needs of the customer. The technicians will use automated tool sets installed on the user's equipment to troubleshoot and resolve problems as required.

Can Seat management handle a lot of small, dispersed field officers?

The Seat management vendors were required to demonstrate support capability across a broad range of enterprise solutions. This effectively resulted in teams with broad geographic coverage with team members who routinely support large and small engagements all over the US (as well as many OCONUS sites.)

What if my organization grows?

Seat management services engagements are defined as solution set (and pricing) for the enterprise. To the extent that the growth is in keeping with the original solution, additional seats may be added incrementally at the appropriate price per seat.

Does this mean my employees lose their jobs?

Seat management is intended to increase and stabilize the level of service provided in an efficient, cost-effective manner. Organizations that are heavily dependent on contractor support should not see Government staffing changes. Organizations that are heavily dependent on Government staff to manage and operate the distributed computing environment will enjoy the benefits of redirecting resources to concentrate on their core mission.

What are the cost drivers in a seat management environment?

The major cost driver in a typical seat management contract is with Service Level Agreements (SLA). This is when the user buys levels of service that vary by department and by the critical nature of a particular job. If an agency wants 99.8 percent network availability and a two hour response and repair time on hardware and software problems, they will pay more per seat per month than a contract that allows for 98.0 percent availability and an 8 hour response time for repairs.

How long before I can expect to see improvements in my IT operation and reduction of my TCO?

Improvements will vary depending on the size of the enterprise and the period needed for transition. Conservatively, estimate 12 – 24 months before

results can be substantiated. Total Cost of Ownership reductions can be misleading. In many instances, the customer may be under capitalized in terms of technology and industry standard tool sets. In this case, TCO may increase but so should productivity or performance. TCO reduction may be appropriate when the customer is currently operating in its desired technology and service state and acquires the similar state under seat management.

In order to measure a reduction in TCO one must know what its current TCO is and understand the similarities and differences with the Seat management service environment. Federal Technology Service has access to qualified TCO contractors that are also familiar with the GSA Seat Management Services contracts. These Contractors can assist customers with their TCO studies and Seat Management Services requirements analysis.

I want to process and maintain my own contracts and not give the control to GSA.

GSA's intent is to allow other Federal Agencies wishing to use the Seat Management Contract to be in full control of the source selection process and decisions. The Federal Technology Service (FTS) has offered its diverse customer support organizations for those agencies who would rather not use their own, or will work with an agency's contracting authority advising them as necessary. FTS can provide expertise about the Task Order process, Seat management scope and implementation.

I do not want all my hardware to come from one vendor.

The Seat Management Contract contains generic product groups categorized into three classes based on technologies that are "exiting",

"standard" and "entering" the market. Solutions will be based on customer requirements and ill consist of selections from a mix of other equipment manufacturers (OEMs) that yields the best value for meeting system performance requirements and providing efficient and effective operations and maintenance service. In no way is a customer locked into a specific brand. However, hardware with similar functionality at each level of the infrastructure may be from one OEM products with a multitude of configurations within a given organization. This level of fragmentation typically has a high cost associated with it.

If I currently have a Seat Management Services vendor performing significant portions of this work well under other contracts, why would I want to take a risk and compete the task among all contractors?

It is most likely that a client organization has a Seat management contractor performing some but no all aspects of the GSA Seat Management model. For example, just help desk services. The GSA Seat Management teams have been through a comprehensive test to ensure that they have extensive experience delivering all or most seat management components in an integrated fashion. There were few if any single contractors that could pass the test without inclusion of the experiences its strong team members have acquired and maintain. If your current contractor has a special skill or knowledge base that is essential to your organization, it should be strongly considered in the evaluation criteria.

It is also likely that the client organization is acquiring contractor support through a labor hour contract vehicle. The pricing offered in GSA's Seat Management Contracts represent integrated service delivery from a single point-of-contact which we believe reduces the contractors risk therefore reduces the cost to the government.

There is no guarantee that the customer will be able to select its preferred contractor. All Contract holders must be afforded fair opportunity to bid to each Task Order. A best value Task Order award approach with high marks given for past performance should result in an optimum solution at a competitive price.

I am happy with my current contractor, can they become part of this seat management solution?

Possibly, the continued use of successful incumbent contractors is encouraged and is a way to reduce transition risk. Incumbent contractors may approach GSA's Seat Management Contractors or vice versa about possible teaming arrangements. However, the opportunities available will be based on the seat management business model and not necessarily the status quo.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

AberdeenGroup, Inc. "Total Cost of Ownership: Monkey See, Monkey Do." [http://www.aberdeen.com/cgi-bin/rf.cgi]. March 7, 1999.

AFFIRM. "Seat Management: A Federal IRM Perspective," A Resource Paper Sponsored by the Association for Federal Information Resources Management, July 1998.

Baldwin, Steve; "Taming TCO: Smart Strategies, Smarter PC's Help Cut Total Cost of Ownership, *Extra*, [http://www.nasa-odin.com/content/article_taming_tco.htm], March 1998.

Bass, Brad; "Choosing a Seat Management Vehicle," *Federal Computer Week: Focus on Seat Management.* [http://www.fcw.con/pubs/fcw/1998/0824/seatmgmt/feat4.htm], August 24, 1998.

Bass, Brad; "Seat Management fuels leasing trend," *Federal Computer Week*, July 07, 1997.

Carnegie Mellon University (CMU), "Management Practices: Capability Maturity Models." [http://www.sei.cmu.edu/managing/managing.html], 1999.

CMP Media Inc. "Analyzing the Analysts" [http://www.yankeegroup.com/article/article.html]. 1997.

Compaq. "Why Consider TCO?" [www.compaq.com/tco/consider.html]. May 12, 1999.

DePompa-Reimers, Barbara;."Rethinking federal desktop computing," *Federal Computer Week*, March 23, 1998.

Dobkin, James A., "Federal Privatization and Outsourcing of Information Technology Functions: A Practitioner's Perspective", Federal Contract Report, November 18, 1995.

Fujitsu-computers. "The Theory: What is Total Cost of Ownership" [www.fujitsu-computers.com/coo/fj_tco_1.html]. 1999.

Gabig, Jerome S., Jr., "Privatization: A Coming Wave for Federal Information Technology Requirements, National Contract Management Journal, Volume 27, Issue 1, 1996, referencing "Public and Private Roles in Maintaining Military Equipment at the Depot Level", Congressional Budget Office, July 1995.

Gartner Group, Inc and Microsoft Corporation. White Paper: Total Cost of Ownership and Seat Management for Federal Agencies. 1998.

Gartner Group, Inc., "Total Cost of Ownership: Chart of Accounts—The GartnerGroup TCO Model v4.0." [http://www.microsoft.com/technet/tco/chart/chart1.html]. April 23, 1999.

General Services Administration, White Paper: Outsourcing Information Technology, [http://www.itmweb.com/essay528.html]. February 1998.

General Accounting Officer (GAO), "Defense Outsourcing: Challenges facing DoD as it attempts to save Billions in infrastructure costs", GAO/T-NSIAD-97-110. March, 1997.

Guerra, Robert; "Gaining perspective on seat management," *Federal Computer Week*, August 10, 1998

Hagarty, Mark; Email received from, Program Director Outsourcing Desktop Initiative for NASA (ODIN) Goddard Space Flight Center, 18 February 1999.

Harris Corporation. "At Harris Corporation, Total Cost of Ownership is More Than Just a Buzzword. [http://www.eu.microsoft.com/technet/topics/tco/harris/harris.html]. February 16, 1998.

Interpose, Inc./IDC. "What is Total Cost of Ownership (TCO)?" C/S Solution Advisor TCO Management Source, 1997.

Klepper, Robert; and Wendall Jones, Outsourcing Information Technology Systems and Services. [http//www.businessforum.com/woj01.html]. October 12, 1998.

Krivonak, Gabriele; "Benefits of Seat Management Contracting" [http://policyworks.gov/org/main/mg/intergov/letter/GKrivonak.html]. February, 1998.

Lott, David; "The Rewards of Measuring IT: An Interview with Regina Paolilli, Executive Vice President and General Manager Technology Management Group," [http://gartner6.gartnerweb.com/bp/static/rewardsmeasurement.html]. 12 July 1999.

Microsoft Corporation. "Reducing Total Cost of Ownership" Document. June, 1997.

Microsoft Corporation. "The Microsoft-Interpose Total Cost of Ownership (TCO) Model." [http://technet.microsoft.com/cdonline/content/complete/analpln/tco/technote/37.html].

Office of Federal Procurement Policy (OFPP), "OFPP Circular 92-1 Inherently Governmental Functions", September 1992.

Okay, John L., "The Road Behind: A History of Desktop Computing in the Federal Government," Senior Vice President, Federal Services, Inc. 1997.

Scannell, Tim, "Tough Times for IT Recruitment: Vendors, VAR's Struggle to Attract and Retain Qualified Personnel," *Service and Integration*, 1999.

Schniedewind, Norman; Class Notes from Software Design, Naval Postgraduate School Systems Management Department, Monterey, 1998.

Telephone conversation between Mr. Jay Jones, OAO Corporation and LT David Rasmussen, 16 March 1999.

Wimbash, William L. III; White paper written on the USMC/MCCDC IT COTS War Game Insights. March, 1999.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center 2
   8725 John J. Kingman Rd., STE 0944
   Ft. Belvoir, Virginia 22060-6218

2. Dudley Knox Library 2
   Naval Postgraduate School
   411 Dyer Rd.
   Monterey, California 93943-5000

3. Dr. William Haga, Code SM/HG 1
   Naval Postgraduate School
   Department of Systems Management
   411 Dyer Rd.
   Monterey, California 93943-5100

4. LCDR Matt Feely , Code IS/MF 1
   Naval Postgraduate School
   Information Systems Academic Group
   411 Dyer Rd.
   Monterey, California 93943-5100

5. Major Dale Houck 1
   Chief Information Officer
   MARCORSYSCOM
   2033 Barnett Ave., Suite 315
   Quantico, Virginia 22134-5010

6. LT Christine W. Mankowski 1
   Head, IRMD
   Naval Hospital
   Camp Legune, North Carolina, 28547-0100

7. David Rasmussen 1
328 Ardennes Circle
Seaside, California 93955

8. Keith Ruegger..... 1
11598 SE 172nd Loop
Summerfield, Florida 34491

9. Dan Boger, Code IS 1
Naval Postgraduate School
Chairman, Information Systems Academic Group
411 Dyer Rd.
Monterey, California 93943-5100