Aberdeen*Group*

The Total Telecom Cost Management Solution Selection Report

Guidebook for Enterprises
Seeking to Improve Their Decision Making Process

September 2006

Executive Summary

Telecommunications, network services, infrastructure, and equipment expenses account for 3.6% of revenues at the average Fortune 500 Company. The total cost of ownership for services and network assets is a top-line item expense. Aberdeen Group's February 2006 *Total Telecom Cost Management Benchmark Report* and previous research has identified the solid returns that effective Total Telecom Cost Management (TTCM) provide through automating inefficient labor-intensive processes, improved visibility, accountability and reduced costs to manage telecom.

This strong ROI from telecom expense management has contributed to a proliferation of suppliers. Aberdeen has identified more than 120 vendors, but there is no industry standard for what is included in the offering. Enterprises may get greater value following a fully integrated approach to address the complete lifecycle, which Aberdeen calls TTCM. Solutions can be delivered through Business Process Outsourcing (BPO), licensed software, hosted solutions which include "Software as a Service" (SaaS), Application Service Providers (ASPs), and On Demand programs. (Appendix C)

In survey responses and follow-up interviews, end-users confirm that selection of a solution provider has become a complex process. Evaluations require consideration of multiple internal groups that will be impacted. Stakes in making a selection are higher compared to solutions where one department is making a decision for an area that impacts a smaller group. Departments may favor different vendors based on divergent priorities. For example, a large insurance company indicated their engineers favored a vendor's strong provisioning capabilities while the accounts payable department was looking for a vendor that captured a greater level of detail, through automated invoice processing, for reporting. Ultimately, they selected a compromise vendor with a technology roadmap that promised to meet both teams' needs over the life of the contract.

Based on our research, Aberdeen recommends that enterprises start by determining which delivery model is most appropriate for their environment and then assess TTCM solutions in five primary areas:

- **Solution/Application/Technology**: Capabilities for inventory tracking, asset management, automated readers for invoice processing, and capabilities to process paper, and reporting

- Implementation plan, ongoing **process**, cultural fit and alignment to your team

- Supplier domain **expertise**, carrier relations, references, and Service Level Agreements (SLAs)

- Supplier financial **health and future vision**

- Overall **program value/price**

This report will help to address challenges in evaluating TTCM solutions. In addition, the report helps companies assess their gaps in their current environment, solution requirements, how to select the best-fit solution, and guidelines for the implementation.

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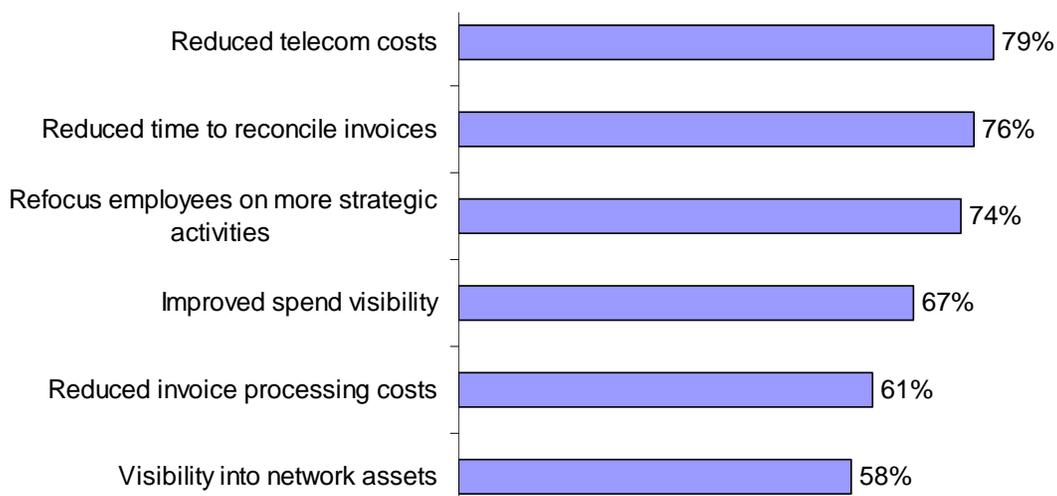# Tables

Chapter One:
Issue at Hand

Key Takeaways

- Emphasis on asset management and new network technology has accelerated demand for TTCM.

- Most enterprises have inadequate procedures, systems, controls and domain expertise to manage TTCM in an efficient and effective manner.

- Poor TTCM is negatively affecting enterprise performance in terms of sourcing, management of service order activity, invoice-processing, and reporting.

Communications is the lifeblood of enterprise activity and the telecommunications network enables employees, customers, and suppliers to connect in a "flat world" that features a supply chain of global competition for goods and services. Modern enterprises rely on complex networks to connect computers and exchange data. The network includes traditional voice services (local and long distance), data (internet, e-mail, frame relay, ATM, MPLS, data, etc.) and wireless services which allow a mobile work force to stay connected.

In recent years, market pressures have dramatically increased the complexity of enterprise telecom networks and the volume of issues that must be managed relating to the lifecycle of an expense. At the same time, two important technology trends impacting the network are mass digitization where huge amounts of data are being created. The other trend is ubiquitous connectivity which calls for access to this data through the network often through broadband wireless services. Enterprises cite the following primary benefits of Total Telecom Cost Management (Figure 1).

Figure 1: Top Benefits of Total Telecom Cost Management

Benefit	Percentage
Reduced telecom costs	79%
Reduced time to reconcile invoices	76%
Refocus employees on more strategic activities	74%
Improved spend visibility	67%
Reduced invoice processing costs	61%
Visibility into network assets	58%

Source: Aberdeen *Group*, September 2006

Market Pressures Driving TTCM Investments

Aberdeen research finds that the following market conditions are making TTCM a top priority for the enterprise:

- **Financial Regulations** require that CEOs and CFOs of public companies personally sign-off on the adequacy of their internal controls for tracking expenses. Sarbanes-Oxley compliance applies to companies using BPO, and hosted solutions where transactions are processed by TTCM vendors. It also requires improved financial reporting and visibility into spending. The European Union is introducing similar rules for international companies while new mandates from the OMB impact federal government agencies, and pressures for more accountability in charitable organizations' financial accounting.

- **New technology** with converged networks of voice and data services, wireless and remote access demand that enterprises develop more robust capabilities to track and manage network assets. Sourcing and procurement professionals need to manage migration from old familiar technology to new services.

- **Globalization** is increasing the volume of network communications, vendors that must be managed, demand for sourcing professionals to negotiate new contracts and management of far-reaching network services.

- **Carrier consolidation** is creating demand for accurate information on spending to gain leverage in negotiating contracts and reestablish alternative suppliers for network redundancy.

- **Security concerns** impact wireless e-mail and PDAs with sensitive data that is not centrally managed. With mobility, sensitive data is accessed remotely. Communications and the devices that store this sensitive data also need to be secured.

Services are going through change with widespread growth of wireless services and a shift from traditional voice networks to data-centric networks with Voice over Internet Protocol (VoIP) and multi-protocol label switching (MPLS) technology. Enterprises need network inventories to track assets to determine what equipment needs to be upgraded before rolling out VoIP. Inventory and invoice management is critical to ensure services and the related charges are disconnected as firms migrate to new technology.

Keeping up with the network inventory is critical in optimizing the network and saving money. For example, a privately-held distribution wholesaler for disposable paper and maintenance products had their TTCM provider analyze their PBX activity. The analysis found they were over-trunked with voice lines that they no longer needed. Further internal review determined that their business had changed over the past years with many customer inquiries handled through a portal on their website. In addition, customers called salespeople directly on their cell phones instead of using the office number. The wholesaler decided to disconnect lines that had been displaced by wireless services and their web portal.

Aberdeen also spoke to a vice president of network communications for a brokerage investment firm that reported a similar trend with adoption of wireless communications growth that lead to a different result. Traders' wireline calling communications were also being displaced by wireless communications, but instead of seeing a savings opportunity in this new trend, their VP of network communications saw risk and potential corporate liability. Further analysis of detailed reports provided to managers showed that traders were using their wireless devices for conversations on days and times when they were in the office. While they did not document any specific examples of illegal activity and the traders insisted this was the surest way for clients to reach them, a formal policy was created to limit the use of cellular devices for conversations and to ban them for all client calls involving trading activity. This policy ensured that conversations are documented as required by law protecting the brokerage and the company from the appearance of using wireless communications to circumvent the law.

TTCM Challenges and Impact

Enterprise executives are beginning to recognize the importance of employing procedures and systems to holistically manage the complete lifecycle of telecom expenses from sourcing, procurement, invoice management, expense validation, internal expense allocation chargeback, inventory and asset tracking, payment, to reporting. Aberdeen's research shows that most firms manage less than 67% of their telecom expenses. Part of the challenge lies in the decentralized nature of network services with local providers. Our research has found most enterprises continue to struggle with the following issues:

- *Fragmented telecom contract management procedures* – Over two thirds of the enterprises lack formal procedures for creating and managing contracts. In addition, most cases enterprises report that they do not have accurate information of their spending when they are sourcing contracts.

- *Procurement challenge* – Only 31% of the enterprises have procurement technology for service orders with carriers. Many of the problems in TTCM occur when orders are managed improperly. The current practice for many carriers requires enterprises to enter data into their own system and then place orders through indirect interfaces with their carriers. This often requires printing and faxing of orders then carriers manually enter the order. More seamless connections with new initiatives from Verizon and AT&T promise to allow enterprise applications to provide true e-bonding. In the meantime, enterprises hesitate to invest in technology that will help improve accuracy and streamline order entry.

- *Invoice processing inefficiencies* – Despite the adoption of applications by two thirds of the market, processing invoices is still an inefficient process. The average Fortune 500 company receives 15,000 invoices that need to be processed. Enterprises receive billing media in paper format for almost 60% of their bills. In addition, decentralized receipt of bills makes it easy to miss significant amounts of spending with vendors. SLAs can be used to drive visibility and help address these deficiencies for enterprises that are managing the program internally and those that have purchased a solution. Finally, only 55% of the enterprises indicate that they have an automated process for expense allocation charge backs.

- *Ineffective management of contract compliance* – Survey participants cited compliance as one of the most challenging aspects of TTCM. First there are challenges due to a lack of visibility into pricing terms (some items are priced according to the contract and others are priced from tariffs), and the inability to truly automate the reconciliation process. Despite these obstacles, the right technology can help automate identification of billing errors. Dispute management with the vendors offers a myriad of challenges documenting issues and having the carrier contacts to escalate and resolve claims. Move Add Change, Disconnect (MACD) service order activity creates a moving target that enterprises must reconcile with their billing. In some cases establishing and documenting the timeline for a claim can be quite complex.

- *Inadequate analysis of spending* – The shortfalls in procurement process and automation and challenges with invoice processing contribute to problems in reporting. Enterprises lack effective reporting and asset-tracking, which makes for spend analysis that is often based on incomplete information. The accruals for billing that has not been received or expenses that have not been processed create a drag on finances.

- *Bill Payment* – Firms that do not have a streamlined process to identify missing bills and get them paid in a timely fashion find that carriers disconnect services. The threat of disconnected services is real, and it leads many accounts payable departments to focus on the transactional aspects of paying bills instead of looking at the process.

TTCM involves many areas often handled by internal groups that need to coordinate their activities and strategies. Management of the lifecycle for telecom expenses requires knowledge to understand how things are interrelated. Gaps in one area can cause problems in other areas as illustrated below (Table 1). Enterprises may find they are able to get greater value following a fully integrated approach to address the complete source-to-pay lifecycle of telecom expenses which Aberdeen calls TTCM.

Table 1: The Impact of Ineffective TTCM

| Issue	Operational Impact	Cost
Fragmented procedures	• Under-leveraged spending • Increased supply and financial risk • Greater potential for fraud and misuse of telecom services • Lack of preparedness for technology migration	• Higher purchase price & variance to contracted rates • Inconsistent risky terms • Penalties for missing Minimum Annual Revenue Commitments (MARCs) with carriers
Labor-intensive processes	• High labor expenses • Delays in processing bills • Lost bills and manual search for billing information • Overpayments for billing errors and duplicate payments • Delays in posting charges	• Hidden costs for managers "pushing paper" to approve bills manually • Late payment penalties & uncontrolled service disconnects • Additional costs to store and archive bills in paper format or scanning costs
Poor visibility into assets and spending	• Underutilized assets & excess network capacity • No holistic view of spending • Less spend under contract/management • Non-competitive negotiations	• Unnecessary maintenance contracts • Duplicate billing • Challenges in determining spending for specific services • Long sourcing cycles
Paper or spreadsheet-based status and tracking tools	• Poor compliance • Limited visibility into spending & no view into category performance • No automation for flagging contract expiration	• Incomplete record keeping for service disconnects reduces claims collection • In effective dispute management, escalation, and unresolved claims
Inadequate reporting and analysis on TTCM data	• Ineffective performance analysis • Delays in budget planning • Lack of control over expenses	• Inflated accruals for future expenses reduces working capital • Ineffective chargeback and visibility to business units for expenses

Source: Aberdeen *Group*, September 2006

Top Performers Establish Programs to Manage TTCM

All top-performing enterprises have formal TTCM programs but distinguish themselves from other companies by proactively managing all or close to all of their telecommunications expenditures. In addition, they are applying a comprehensive holistic approach with a system that pulls data together, drives a structured workflow, and encourages collaboration among different groups internally.

Figure 2: Percentage of Network Spend Under Management

| 92% | 67% | 48% |

□ Best in Class   ■ Industry Average   □ Laggards
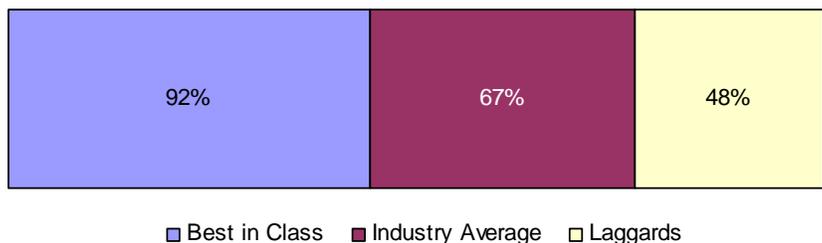
Source: Aberdeen Group, September 2006

Key characteristics of top TTCM performers include:

- **Telecom cost management program longevity**: Eighty-three percent of top performers have had TTCM programs in place for at least six months, including 61% that have had them in place for more than a year. Program longevity helps to provide the time needed to centrally-manage spending.

- **Greater sourcing efficiency:** Sourcing a typical telecom contract costs substantially less for enterprises with a formal TTCM program compared to the industry average ($12,150 vs. $21,663). This is primarily the result of access to detailed accurate data regarding expenses, standardized sourcing procedures, and use of benchmark data to compare pricing to the latest market trends.

- **Faster invoice processing cycles**: Leading companies take less time to process telecom invoices (average: 9.8 days vs. 13.6 for all others).

- **Broader use of technology**: Top performers are more likely to use technology (leveraging outsourcers' software, hosted ASP On Demand SaaS applications or licensed software) to help them achieve their TTCM goals, largely for processing invoices, compliance audit and reconciliation, usage tracking, allocation charge-back, and reporting. Many also use applications for service order procurement, with an even larger number indicating that they're planning to adopt them within the next year.

Chapter Two:
Key Business Value Findings

Key Takeaways

- Selecting the best vendor starts with getting an accurate inventory. Understanding the current needs and resources of the enterprise will help determine the best path

- Cultural fit and alignment is important, but large enterprises with strong teams can make demands that compromise the ability of the vendor to deliver. It is best to understand which demands require customization and which items are configurable.

- There is rarely one single area that will address *all* of the problems; TTCM requires a comprehensive holistic approach. The key is to identify gaps in managing the end-to-end lifecycle of a telecom asset and look for technology to address those gaps.

Considering the challenges in managing telecom expenses, the strong ROI of early programs, and current market pressures that accounts payable departments face, it is not surprising that enterprises are starting to place the evaluation of TTCM solutions as a top priority to address the top pressures they face.(Figure 3)

Figure 3: Top Pressures Reported for Accounts Payable

Source: Aberdeen *Group*, September 2006

Wireless expenses have also become a flash point for many enterprises as documented in Aberdeen's *The Wireless Costs and Performance Benchmark Report* (March 2006). Our research shows 75% of respondents find wireless costs are becoming a much larger percentage of telecom spend. Increasing wireless costs are spurring many enterprises to look at this area.

Enterprises are also seeking to address security concerns. A manager with a construction and mining machinery maker points out, "…most people think of wireless security and think about sales people leaving the company with their customer contacts. This is just the tip of the iceberg. They need to focus on wireless asset management because these devices have sensitive financial data just like computers. You need a database linked to HR systems to track these assets, policies and oversight to secure this data when people leave the company. Switching to a corporate liable (wireless contract is in the enterprise's name) centrally-managed program in which we manage wireless assets was not an easy sell, but it is impossible to manage these assets effectively if you don't have a program in place. After making the change we not only improved our security we were also able to negotiate a better contract that will reduce our costs by one million dollars."

Mobile employees are increasingly accessing proprietary customer, product and financial data. Aberdeen Group's research illustrates that all organizations, regardless of the maturity stage of their mobile usage, are investing in technologies that enable wireless access to customer data.

Table 2: Mobile Solutions Security Challenges and Responses

Challenges	% Selected		Responses to Challenges	% Selected
			Data encryption	65%
Securing data transmitted to device	50%		Internal company policies	65%
			Role-based security	59%

Source: Aberdeen*Group*, September 2006

While wireless is capturing the attention of many enterprises, there are benefits in having one department develop an integrated approach to manage the lifecycle for both wireless and wireline services. With carrier consolidation and new technology, Verizon, AT&T (Cingular SBC/BellSouth) and Sprint are working to enable phone calls, voicemail, and calendars to all be linked over the wireline and wireless phone, laptop or PDA. Instead of having to deal with multiple numbers and voicemail boxes, users would be able to link all their devices under one common number. The result will be integration of wireless/wireline services so enterprises that develop an integrated approach will be a step ahead when integration comes.

Aberdeen research shows that most enterprises now start with invoice processing, auditing, payment and asset management. Adoption of electronic contract management and e-procurement is expected to grow as indicated by the fact that the number of survey respondents expressing interest in using these systems outnumbered those who are currently using them (Table 3).

Table 3: Technologies Enterprises Use or Plan to Use for TTCM

	Use Now	Plan to Use within 12 Months	Plan to Use after 12 Months
Invoice processing	67%	17%	7%
Service usage auditing/accounting	64%	23%	5%
Invoice aggregation and payment	61%	13%	11%
Inventory/asset management	50%	26%	13%
E-procurement application for new service orders	31%	24%	16%
Electronic contract management	33%	22%	13%
Online RFx-based negotiations	18%	9%	11%

Source: Aberdeen *Group*, September 2006

The TTCM Solution Provider Landscape

Despite the market's continual growth, the solution provider landscape for TTCM remains fragmented and complex. There are specialists with domain knowledge and firms that specialize with services and software for areas like sourcing, provisioning, and management of wireless services. There are also a number of suppliers that have developed comprehensive solutions to address the end-to-end lifecycle for telecom expenses.

Providers of TTCM solutions can be categorized as one or more of the following:

- *Business Process Outsourcing (BPO):* With this approach, the vendor manages the entire program. Customers approve invoices for payment and the outsourcer may even pay the invoices on behalf of the customer.

- *Licensed Software*: These companies enable enterprises to host the software and maintain all data behind the corporate firewall. Enterprises that want to manage the entire program favor this approach.

- *"Software as a Service" (SaaS), ASP, and On Demand:* These providers host the software, which saves enterprises hardware and IT management costs. Some TTCM vendors load all of the billing into the system, while others just load electronic billing media and leave entry of invoices received in paper format to the customer. Expense allocation, and dispute management is typically performed by the customer, but a number of vendors will manage these functions as well. Below are some distinctions for these three categories that have been grouped together in this report to signify applications that are hosted externally with network-based access to applications via the Web. Software is managed from central locations rather than at each customer's site, and the application is not customized.

o Software as a Service (SaaS): is a model for delivery of software where the software company provides maintenance, daily technical operation, and support for the software provided to their client. SaaS can be considered a version of BPO that delivers software functionality without the overhead of operating the application. The SaaS provider strives to achieve better economies of scale than its clients could when operating the application themselves. Typically, SaaS also provides integration with web-based systems. In general, software can be delivered using this method to any market segment including small, medium and large enterprises. It is usually sold through a subscriber model with simple implementation that allows end users to tailor it within certain parameters. This results in a more standardized application across clients, and ultimately makes the economies of scale attainable. Application delivery typically is closer to a one-to-many model (single instance, multi-tenant architecture) than to a one-to-one model. There are two types of SaaS providers: ASP and On Demand.

o Application Service Providers (ASPs) host software applications and make the application available to customers over a network. A customer may also purchase and bring to a hosting company a copy of software. The focus here is on hosting the application and the host usually does not create nor do they own the software. The reason for moving away from the term ASP is this generation of software was a traditional client-server application that was not created for the web. Because the applications were not written as net-native applications, performance was often poor and updates were infrequent.

o On Demand software by comparison is updated more frequently.is a term typically associated with hardware and utilities. The concept comes from utilities where providers provide capabilities that customer can draw from as needed. Customers do not have to invest in owning (peak need) resources. The customer is only billed for the actual use of resources. The utility provider can spread customers' variance in resource needs, so it allows them to optimize the utilization of resources. It is comparable to the use of electricity, gas, and most other utilities model.

(A small number of TTCM vendors offer all three options of BPO, licensed software and hosted applications. If a client wants to migrate from a fully outsourced program to licensed software or migrate from licensed software to a BPO program, they can avoid the disruption of changing vendors. It is best to verify if there are any compromises from the vendor in how they execute software and business process outsourcing because TTCM solutions are challenging.)

Which approach for delivery of the solution is best? In some cases the policy is established by senior management with a clear preference to keep things in-house, outsource it, or perform some functions through a hosted solution. Often the corporate culture of an organization informally sets the tone for how enterprises approach these issues. Part of the answer also depends on determining if there are internal resources to perform core functions of TTCM: processing invoices, resolving disputes, allocating charge-backs, and paying the invoices.

Health South had to develop a business case and sell it internally but early in the process they determined that software was the right approach for their organization. Based on past experience with other IT projects, they felt they could do a better job at lower cost managing the program internally. In contrast, the vice president of IT Finance at a rail transportation company selected a BPO delivery model. He knew he would never be able to pull resources from the core focus of railroad design and transportation to work on TTCM. He also felt that his company would not be able to recruit a high level of telecom expertise, provide ongoing training, and develop career paths to retain the people needed to manage the program.

Get Focused and Determine How the Solution Will Be Delivered

One of the challenges in evaluating the solutions is a lack of industry standards for the service. Aberdeen defines TTCM as a program that holistically manages the complete lifecycle for telecom expenses from sourcing, procurement, invoice management, expense validation, internal expense allocation chargeback, inventory and asset tracking, payment, to reporting.

The first step is to see if the enterprise needs to address all of these functions. Next the enterprise needs to determine the preferred method of delivery for the solution. The delivery approach will help to narrow the field of vendors. It also can be used to establish the framework for evaluating functionality and it will determine the types of questions that need to be asked. It is best to select the delivery approach before getting into too many details of vendor functionality. The same vendor may offer different functionality. The vendor demonstrations and the resources that need to be employed will change based on the delivery approach that you select.

Suppliers that appear to be presenting the same program may be processing different levels of detail from carriers' billing. To make effective comparisons it is important to verify if they load data down to call detail records, line item or summary level. Comparisons can be difficult because the level of detail that a supplier can process may vary by carrier. In some cases depends on the carrier's billing media. In other cases, it comes down to the core strengths and weaknesses of suppliers. In general, billing granularity allows for more detailed reporting and more precise expense allocations. Like a scientist going down to the DNA level to get a deeper understanding, getting more billing detail helps to understand billing components to improve accuracy. Some enterprises may not require this level of detail for their chargeback. In these cases, it may not be worth the effort and added expense to get call detail records, but line item level of processing is desirable.

Defining the Scope of Work

The Statement of Work is critical in terms of documenting in detail the scope of work and services that will be performed. Most enterprises report that they manage less than 67% of their telecom expenses. With nearly one third of the expenses not being managed, enterprises do not have an accurate inventory. In fact, one of the key drivers for TTCM is the desire to create and maintain an accurate inventory of assets and telecom costs. Without a reliable inventory, it is difficult to receive a definitive price for TTCM.

For the core service of invoice-processing, validation, allocation and reporting of wire-line services some vendors charge a fee based on the amount of spend that they are managing. This is the simplest approach but not a true measure of the workload and the resources that are needed to staff the project. It could present a conflict of interest since the supplier should be helping to reduce an enterprise's costs. Proper SLAs can mitigate the issues raised by this conflict of interest.

A more precise method takes a listing of the telecom service providers, annual spending, volume of Move Add Change Delete (MACD) activity, and the hierarchy for chargeback allocations to develop a cost. (Wireless providers that perform monthly optimization and manage the inventory typically charge a fixed fee per unit.) The vendor may also need a more complete listing of network assets, wireless devices, account numbers and master accounts, site locations, vendor contracts and expiration dates.

The most detailed approach identifies the cost to process each billing telephone number (BTN) or Working Telephone Number (WTN). This pricing model calculates the costs for each account that must be entered into the system, validated and charges must be allocated. The spending for each account may be reduced though efforts to optimize spending, but the workload to manage the individual account will not change. The challenge with this approach is most enterprises do not know their BTN or WTN count. This makes it hard to price and creates the risk of missed expectations with costs that are much higher than anticipated because they didn't understand the pricing structure.

The key is to establish the scope of work, key assumptions, and select a pricing approach that all vendors adhere to when pricing the program. This will enable the evaluation team to make fair comparisons and control the impact of incomplete data on the fees paid. Too often evaluation teams learn of the lack of industry standards and pricing structure late in the selection process and uniform pricing standards are not well communicated to vendors.

Savings Guarantees and Service Level Agreements

Telecom cost management vendors have been able to provide services and technology that enable enterprises to save money and secure an ROI. Historically, the sales proposition centered on the ability to reduce telecom expenses. Solutions were often sold with guarantees that the cost of the program would be paid through audit findings, optimization, and sourcing. Savings guarantees that focus solely on telecom expenses are difficult to enforce. It is virtually impossible to know ahead of time what the error rate is on a particular clients billing.

There are risks to the enterprise in signing a guarantee with a vendor that can not deliver on the audit savings because vendors have real costs to deliver their solution. The risk lies in doing business with a vendor that will need to cut back on service if their business is not profitable. These business models are unsustainable. Larger suppliers want to be able to recognize revenue from services they deliver in a timely manner. Annual guarantees create liabilities for firms that are difficult to quantify. Shortening the guarantee period is not a good approach because larger billing errors may take more time to identify and resolve with carriers. Over time, errors that are caught on the first bill will not be as large as the historical errors that accumulated for many months or even years before the program was implemented. Quantifying the value for cost avoidance for TTCM programs is a real challenge. There is greater value because the client avoids paying the over-

charge, but this is hard to quantify. If the program were discontinued there would be no program to proactively identify the errors. Programs that are solely cost justified based on savings from telecommunications errors can lead to and disputes between TTCM vendors and their clients over the savings that were achieved. They detract from the other areas that create value with the program.

The savings categories include labor costs for labor intensive inefficient processing of paper invoices, hidden costs for managers involved in approving bills, tracking missing bills, late payment penalties, unplanned service disconnects, and archiving costs. There are also costs to document control procedures for Sarbanes-Oxley compliance. There are also opportunities to improve asset management and drive better accountability to the costs centers incurring the expenses. Finally, inefficiencies from inflated accruals that drain working capital can be eliminated with TTCM programs. (We will quantify the costs and provide more detail for the ROI with our benchmark report in November.)

Savings guarantees need to evolve to match the services that go beyond auditing of phone bills. Guarantees give buyers a false sense of security. Guarantees fail to provide assurance that: the program will be implemented properly, invoices will be processed on time, expenses will be allocated properly, reports will be accurate, and bills paid on time. Guarantees also do not enforce accuracy in managing assets and quality in sourcing arrangements.

Instead of savings guarantees, the focus should seek to create service level agreements, score cards and reports that provide visibility into the health of the program. The SLA should measure performance for the following areas:

Timeliness of Delivery

- Achievement of implementation milestones

- Invoice processing from receipt to payment

- Late payment penalties

- Carrier disconnect notices

Quality of Information

- Accuracy and completeness of expense allocations

- Reporting

- MACD reconciliation

- Asset tracking

Program Management

- Resolution of account management issues

- Communications (are e-mails & phone calls returned in a timely)

- Completeness of the program: are all carriers' bills being processed?

Chapter Three:
Implications & Analysis

Key Takeaways

- Establishing a baseline for your current TTCM competence requires examination in the areas of organization, process, knowledge, and technology.

- Truly assessing performance requires benchmarking against peers and Best in Class enterprises.

- Building a business case for TTCM must factor in more than just savings from audit findings, which are likely to drop after historical errors are resolved. While the errors continue, formal programs identify the overcharge on the first invoice. This avoids the cumulative impact of errors that grow when there is no program is in place.

- TTCM can deliver one-times or greater payback, but calculation of the savings has become an area of contention due to inflated expectations and poor tracking of baseline costs.

As the market for TTCM solutions continues to increase in scope and maturity and more products are introduced, enterprises need to take a hard look at their current process, competencies, inventory, and future plans for a converged network infrastructure to determine where a TTCM solution will provide the most value.

Understanding the current costs, challenges in managing the lifecycle of expenses and setting the TTCM program objectives will help to navigate the choices offered by competing vendors. An enterprise that is opening new sites or changing services will set different priorities from an enterprise that has a static environment with few network changes. If management of wireless assets, expense allocations, or reporting is a critical priority, the evaluation needs to reflect this. Some common goals include:

- Visibility and centralized control for voice, data, wireless services, network assets, and expenses

- Improved access to accurate data to inform decisions about changes to the network and technology migration

- Identifying ways to control and reduce costs

- Reducing expenses associated with invoice receipt, processing and reduction of uncontrolled disconnects

- Better vendor relations, process efficiencies, more collaborative approaches with carriers to improve billing quality and more accurate service orders

- Gaining a better understanding of telecom expenses and reporting capabilities (charge-back, data quality, trending analysis)

- Improved compliance and enforcement for 404 internal controls, corporate compliance policies, and greater accountability of business units for expenses

Self-Assessment Criteria

If there is a limited understanding of the costs and current process, disputes are more likely to develop with your TTCM provider. Each side may struggle to explain why an implementation is delayed and document savings with little documentation of what the environment was like before the engagement. Below are common performance measures:

- The volume of invoices processed

- The percent of billing received electronically versus paper

- The average time to process an invoice from receipt to payment

- The number of uncontrolled disconnect notices received from carriers

- Average time to process a MACD (Move, Add, Change, Disconnect) request

- Percentage of telecom spend under proactive management

- Average time to source a telecom contract

- Access to reliable data on spend

What are the costs to manage the current program? Some items to consider include:

- o Invoice allocation and approval activities

- o Invoice receipt, date stamp, and log-in, etc.

- o Researching unidentified billed items

- o Reconciling billing with MACD inventory activity (research of timelines for service installation and disconnects versus charges)

- o Identification of missing invoices

- o Archive of billing records

- o Audit validation and reconciliation activities

- o Expense allocation (including determining the allocation for one time charges and solution of user allocation disputes)

- o Data entry into financial systems

- o Vendor summary, historical trending, etc.

- o Generation of accrual reports

- o Payment activities (including reconciling vendor payments, researching and responding to bill queries, etc.)

- o IS maintenance and support.

Is TTCM Right for Your Enterprise?

To identify and prioritize opportunities for TTCM improvements, an enterprise must begin by conducting an internal assessment of its competencies. Aberdeen advises enterprises to assess TTCM competencies across five areas: Organization, Process, Knowledge, Technology, and Performance Measurement.

Table 4: Product Service Management Maturity: Self-Assessment Framework

Area	Action	Sample Assessment Criteria
Process	Assess process standardization and efficiencies	• What processes ensure invoices are received, processed and paid on time? • Do your internal controls provide an audit trail for Section 404 compliance? • How are wireless assets managed? • What quality control programs are in place today?
Organization	Assess organizational structures, skills, and decision-making alignment across the enterprise	• Do you have a group that manages billing? • Does the executive team view TTCM as a cost center or a profit center? • Is there a clear entitlement policy for which people in the organization receive cell phones and wireless devices and usage policies? • How well are network services and policies aligned across the enterprise with business goals? • Do business units have visibility and accountability for their expenses?

Knowledge	Assess visibility into product performance, technician availability and customer history	• Do you have an accurate accounting for expenses to estimate what portion of the billing is currently proactively managed?
		• What is the tenure and industry experience of the people managing the program?
		• How are telecom rates and terms and conditions benchmarked?
		• Are you on track to meet contractual Minimum Annual Revenue Commitments (MARCS) with carriers?
		• How do you ensure integrity of vendor billing vs. contracts?
		• What does your network look like?
		   o Do you know the rate of spending at each location?
		   o What types of circuits are at each location?

Technology	Assess level of automation and how well it is integrated throughout the service chain	• What is the primary technology to manage invoices and what steps have been taken to convert paper invoice to electronic media? • How do you reconcile tariffs, contract pricing, physical inventory and MACD activity to invoices? • Which procurement and sourcing processes have been automated and to what level of effectiveness? • Does the program provide early alerts when contracts are up for renewal? • Is TTCM a high-priority investment area for your company's executive team? • When carrier billing media changes, can you make the necessary adjustments to continue processing invoices in a timely manner?
Performance Measurement	Assess level and consistency of measurement as well as actual performance against each metric	• What metrics and procedures does your company use to measure TTCM performance? Do you have internal SLAs to enforce these standards? • Is there a system to track spending for specific services and spending with specific vendors? • Is there an accrual system to determine what funds will be owed in the future? • What are the trends for expenses compared to budget? • How do expenses compare to prior periods? • What reporting tools does your service organization use to, monitor assets and spending and how effectively does it meet the enterprise's reporting needs? • Are metrics and procedures consistent enterprise-wide? • How does actual service performance measure up to that of industry peers and Best in Class?

Source: Aberdeen *Group*, September 2006

Looking at the process, knowledge management, and technology categories, it becomes clear that an enterprise's maturity in each of these individual areas has a direct correlation with overall company performance. For instance, the industry average is proactively managing just 67% of their expenses. The remaining balance is nearly 60% of OEMs that trigger all of their service orders based upon data captured directly from their products are above-average performers, relative their peers (Figure 4). Conversely, only about one-third of companies that trigger service workflows based upon verbal communication from their customers achieve this level of performance.

Figure 4: Best in Class Performance Indicators
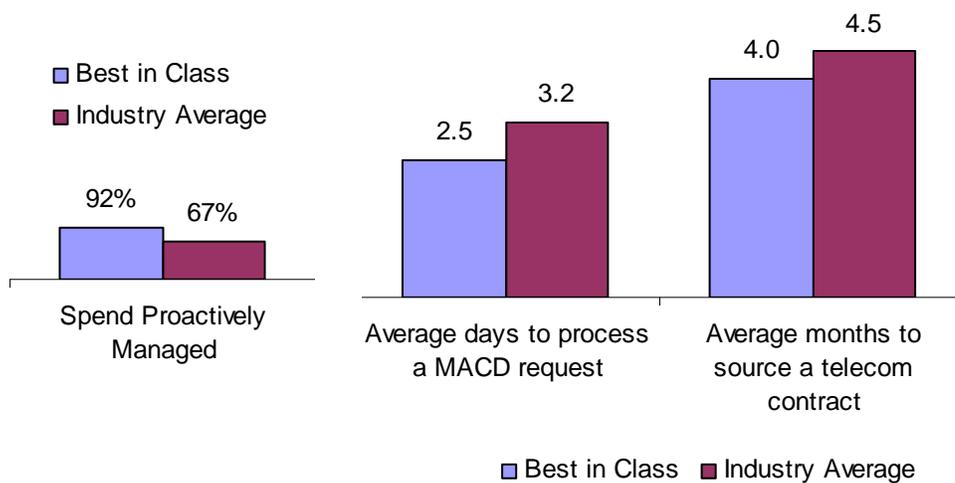
Source: Aberdeen *Group*, September 2006

Chapter Four:
Recommendations for Action

Key Takeaways

- Aberdeen recommends that enterprises start by determining which approach to delivering the solution (hosted, licensed software or BPO) fits their needs. Next they should evaluate prospective TTCM solutions and vendors according to the following criteria: technology, implementation plan, ongoing process, cultural fit and alignment to your team, domain expertise, financial health, future vision, overall program value and price.

Enterprises that Aberdeen interviewed that realized the most benefits from TTCM solutions began by setting clear success-criteria for their selection, expected product capabilities, and improvements. When evaluating the viability of TTCM vendors and solutions, the Best in Class companies cited the following criteria as most influential on their final solution selection:

- **Solution/Application/Technology**: this is the software used to deliver the solution, whether used by the outsourcer, licensed and used by the enterprise or hosted by the vendor. Areas to focus on include inventory tracking, asset management, invoice processing readers and capabilities to process paper, reporting and solution match to your needs

- Implementation plan, ongoing **process**, cultural fit and alignment to your team

- Supplier domain **expertise**, carrier relations, references **and SLAs**

- Supplier financial **health and future vision**

- Overall **program value/price**

Solution Selection Criteria: Software Application Functionality

The software application is a foundation for a successful TTCM programs. Even fully managed outsource programs need robust software with functionality to succeed. One challenge is verifying capabilities and features. Some vendors offer the application on a trial basis. While it will help, the software can be complex and work to implement TTCM applications with client data and other configured features can be costly.

Assessment of the current environment and communication between departments and vendors helps to go beyond the standard RFP evaluation and software demonstration. James Knisely Finance Manager Delta Air Lines who selected a BPO solution states, "vendors may say they can do something, but you need to understand exactly *how* they do it. We used case studies to highlight problematic areas that we felt were not managed effectively by the incumbent solution. Case studies were presented as questions to see how finalists' operations teams would deal with difficult challenges. We had them demonstrate how their software managed our specific challenges. We also wanted to determine, in advance, if these challenges would have any impact on the cost for the program. Using case studies allowed us to go beyond the standard RFP responses to get a better

understanding of the vendors' capabilities and determine how they would manage our program."

Table 5: Solution Selection Criteria: Solution Application Functionality

Solution Application Functionality*
How does the solution …

Manage Invoices & Data
• Demonstrate and describe your system's ability to manage different billing formats (EDI, CD ROM, paper, etc.)?
• What level of detail is loaded for carriers?
    o Is it summary level, line-item or down-to-call detail?
    o Is this standard or are there extra fees for more detail?
    o How does this vary for different billing platforms?
• How does it support workflow for invoice-processing and program management?
• How will the system flag missing bills? What are the time-frames for alerts?
• Does it allow seamless business process integration into enterprise systems, legacy and back-office systems such as ERP, AP, GL, HR, etc.?
• Does it use a web-based interface requiring no software installation?
• Does it execute programmed rules to ensure data transfer with minimal intervention?

Billing Validation • How does the system validate billing? • What documentation will it provide for a service or circuit is billed in error? • How does it validate tariffs, contracts, physical inventories, MACD activity?
Reference Tools and Resources • Does the application reconcile carrier-billing with customer service records, special contract-pricing, tariffs, and inventory? • What tools are used to validate billing? Who does this?
Security & Disaster Recovery • If it is hosted, is it a multi-tenant environment? • How is data secured? • Does it utilize authentication and security encryption, such as SSL, for secure connections and IP filtering? How often are tests performed to ensure the security and disaster-recovery program will work? • What were the results of any third-party "ethical hacks" to test the security of data? • What is the disaster-recovery program? • Is there a program that will continuously monitor hardware to detect leading indicators of failure before the system fails?
Reporting • What standard reporting is available for users to access current and historical data? • Is there a way to our data for comparison of the run rate to our forecast? • Are there intuitive graphical depictions of data points? • Does it show filtering that breaks out spending in a variety of ways? • What graphical interfaces and customized/ad-hoc reporting is available? • Is there a dashboard view to track key performance indicators on billing status, expenses, and assets?
What functionality is operational and used by clients today, and what functionality is planned for the future? *(This is the software used to deliver the solution, whether used by the outsourcer, licensed and used by the enterprise or hosted by the vendor.)

Source: Aberdeen *Group*, September 2006

Solution Selection Criteria: Implementation, Process & Alignment

Our interviews confirm that implementation of TTCM programs take longer and are harder than what most suppliers promise. One of the challenges is that vendors must act as an intermediary between carriers and their clients to get information. Suppliers do not control everything involved in the implementation. As cited earlier, most enterprises are not currently managing their entire spend (Figure 3). In addition, multiple groups have touch-points for telecom spend. For example, in a large organization procurement negotiates contracts, engineers manage service order requests, IT manages data services, and regional office facility managers and business unit managers may deal directly with local provider and audits. Accounts payable and finance may also be involved. Many of these groups may not have a good understanding of how changes in their process will impact other groups. Evaluations should involve all of the groups that have a role in telecom with one person ultimately responsible to manage the process.

In addition, it is critical to determine in advance if special requests for changes require customization or are configurable. Items that require customization will delay the implementation and can cause future problems. Configurable items are things that were planned for by the programmers.

Most vendors have developed pricing models that do not charge separate fees for the implementation. It would be better to have dedicated resources that would take the time to understand each client's internal processes and apply best practices. As one electric utility's network manager stated, "It is not enough to buy the system. Ideally, the vendor should present methods and procedures to help make the program successful."

Table 6: Solution Selection Criteria: Process & Alignment

Process & Alignment
How does the vendor manage the…
Implementation Plan • Consider your business processes, timeframes for deployment, and technical requirements when implementing the solution? • Have a detailed implementation plan that has been developed for your requirements? **Ongoing Process Control** • What special skills or knowledge sets their staff apart from the competition? • Is there one point of contact where issues can be escalated and resolved? • Does the application limit access to data for various user groups? • Are there system security audits for traceability? • Has a third-party audit been conducted to certify both the solution and the policies and procedures of the vendor? • How do you determine the amounts of work that people are assigned? • What is your turnover rate? • How will my project be staffed? Can I meet these people during a site visit? • How does the vendor benchmark employee performance for clients? **Alignment/Cultural Fit** • Does the supplier's approach align with your enterprise? • What vendor resources will monitor the program success? • Do they actively invest in R&D and product support?

Source: Aberdeen *Group*, September 2006

Selection Criteria: Expertise, Carrier Relations & References

Industry knowledge and carrier contacts are an important component of successful programs. Good carrier relationships help to get billing issues expedited. A number of vendors have hired employees with deep understanding of billing systems and contacts that can help when issues arise.

References may be one of the most important steps in evaluating domain expertise. In the final steps of a selection process, most evaluation teams start to call on references to confirm the lead choice. When calling references, it is important to remember there is a natural tendency to avoid negatives if things are going well. Try starting with contacts that you know or with companies with whom you have contacts. Since each TTCM project has its own nuances, learning about the reference accounts' program will help you with your project. Be specific in your questions. Instead of asking "How's their service?", instead ask, "How long does it take for the vendor to get back to you?" Remember what is good for one company may be inadequate for you.

Also be wary of references that indicate the vendor is easy to work with. One of our interviews with a news service highlighted the problems that can arise from working with a vendor that is too agreeable. This vice president of voice and data services pointed out, "We picked the vendor because we heard they were easy to work with, but they let me get away with too much. They should have held their ground and said, "Your program won't get implemented on time unless you get me the information we need." We picked them because we like to get our way, and we heard they did a lot of extra work at no extra cost. But we would have had a better implementation if they had been tougher on us."

Table 7: Solution Selection: Expertise, Carrier Relations References & SLAs

Domain Expertise, Carrier Relations, References, & SLAs

Does the solution provider have superior…

Domain Expertise
- What is the tenure and industry experience of the people that manage the program?
- What clients have they managed?
- What training procedures ensure my team is capable of managing the program?
- Does the staff receive special training and certifications?
- How will the content/information from the software be used to negotiate contracts, optimize the network, or identify additional savings? (What track record do they have doing this?)

Carrier Relations
- What experience and contacts does the vendor have working with carriers?
- What are some of the vendors' best and worst experiences with carriers?
- Do they have vendor references?

References
- Does the vendor have a record for success and the ability to provide client references?
- Have solutions been deployed for clients similar in scope with comparable pain points?
- Does the vendor have people who can learn about their clients' internal processes quickly and apply it to the implementation?

SLAs and Quality Control
- What quality control programs are in place today?
- Does it provide examples of web-based reporting for each stage of invoice management?

  Timeliness of Delivery
  - What visibility is provided to customers to monitor time for processing bills?
  - Are late payment penalties tracked and who incurs the costs for paying them?
  - Is there a system to track carrier disconnect notices?

  Quality of Information
  - How is the accuracy and completeness of expense allocations monitored?
  - What is the reporting accuracy?
  - How accurate is MACD reconciliation?
  - Is there a way to measure the quality of asset tracking mechanisms?

  Program Management
  - How does the TTCM vendor rate on resolution of issues?
  - Is there a champion and point of contact to escalate and resolve client issues?
  - What is the quality of communications (are e-mails & phone calls returned in a timely manner?)
  - Are all carriers' bills being processed with the program?

Source: Aberdeen *Group*, September 2006

Solution Selection Criteria: Supplier Financial Health & Future Vision

The TTCM industry is rapidly changing with new technology and carrier consolidation. TTCM solutions are only now starting to address the end-to-end lifecycle of telecom expenses. Network migration from separate voice and data networks to converged networks with wireless access and demand for asset management will require suppliers to fund investments to add new capabilities.

TTCM business process outsourcing and hosted solutions are complex ongoing professional services. There are significant risks in selecting a vendor that is not profitable. Services cannot be easily substituted. If there are disruptions in processing bills, services will be disconnected for not paying them on time. Most of the firms that provide these services are small. Validation of the firms' financial health is critical to ensure they have the stability to support your program.

Table 8: Solution Selection Criteria: Supplier Financial Health & Future Vision

Supplier Financial Health & Future Vision
Does the solution …
Financial Health
• Is the firm profitable and financially stable?
• What is the current run rate of profitability or losses?
• What is the current cash flow run rate?
• Is there VC funding? If so, is it debt when is it due?
Future Vision
• Is there a schedule that reflects ongoing investments and regular software releases?
• What is the vendors' product roadmap?
• How does their roadmap of future capabilities align with your plans to implement new technology (Wireless services, VoIP, etc.)?
• Is the vendor planning for long-term growth or looking to be bought?

Source: Aberdeen Group, September 2006

Solution Selection Criteria: Overall Program Value/Price

Ultimately, enterprises want to get good program value for the cost of the program. Large enterprises will often use an RFP to drive competition, as current market conditions are very competitive. In this environment, enterprises find they only need three or four vendors to receive highly-competitive prices. In fact, including more vendors in the evaluation will prevent you from making the best selection for your needs. Rather than sending out RFPs or evaluating vendors that are a poor fit for your needs, it is best to quickly down-select three or four vendors that meet your challenges and have the right experience to implement your program. A smaller pool of vendors will allow you to spend more time evaluating their offerings and learning how they meet your requirements.

Our interviews and research shows that price is rarely the deciding factor in selecting a vendor. Managers have also told us that the lowest price did not always equate to the best value. Suppliers that appear to be quoting a price for the same capabilities may be processing different levels of detail from carriers' billing. Comparisons can be difficult because the level of detail that a supplier can process may vary within a carrier's billing media for different services. In one case, a grocery store chain told us they had selected a vendor with a price that was substantially less than the other vendors, but now are paying a bit more than what the other vendors had quoted because the winning vendor had relied on assumptions about the project scope that they had used which the other vendors did not ask for. Be sure to provide all vendors the same information particularly in the later stages of the evaluation process.

Table 9: Solution Selection Criteria: Overall Program Value/Price

Overall Program Value/Price
How does the solution rank in overall value and price…
• Is there a fee for each Internet reporting tool license?
• What are the maintenance fees?
• Are there additional fees for vendor tape processing?
• Are there any (VAN) charges associated with processing EDI?
• Does the vendor provide planning and deployment expertise to assist in the configuration and integration of the solution?
• How does the solution and the pricing reduce total cost of ownership and management of the lifecycle for expenses?
• What types of cost savings are developed through the program and implementation process?

Source: Aberdeen Group, September 2006

The key is to establish the scope of work, key assumptions, and select a pricing approach that all vendors adhere to when pricing the program. This will enable the evaluation team to make fair comparisons. Most enterprises are working with incomplete information in for spending and assets and the TTCM providers have different approaches in terms of how they price their offering. When you combine this with a lack of industry standards and customers that have different expectations for which steps of the source-to-pay lifecycle will be managed and *how* they will be managed, communication breakdowns can lead to missed expectations. Clear communications with internal stake holders and TTCM vendors throughout the evaluation process are critical.

The challenges are overcome by gathering information about the current environment and selecting how the solution will be delivered at the beginning of the process. Once the enterprise determines if BPO, hosted (ASP SaaS, On-Demand) or licensed software is the best approach to deliver the solution, they can work from a short list of vendors that specialize in that particular delivery approach.

Next the enterprise needs to determine which steps in the source-to-pay cycle will be included in the scope of work. Aberdeen's research finds the framework of Total Telecom Cost Management (TTCM) with a fully integrated approach to address the complete life-cycle may provide the best value. The next step is to establish a uniform standard for how the service will be priced and how changes in volume and other assumptions about the scope of work will impact the price. Finally, SLAs need to be established to ensure deliverables and services are meeting the standards set in the selection criteria.

When one considers the amount of money spent by enterprises on their telecommunications network and the fact that most enterprises proactively manage less than 67% of their spending, there are real opportunities for improvement. Historically, enterprises have found strong ROI from audit recoveries. Now enterprises are beginning to look for more than just savings from audit results to address the complete management of the life-cycle for telecom expenses and asset management. The old model of using guarantees to monitor performance needs to be replaced with SLAs to address how the program has evolved. Considering the wide range of choices that are available enterprises must thoroughly assess their internal process and carefully evaluate what solution providers are proposing. Considering the value that the leading TTCM providers deliver, enterprises will find their time is well spent approaching the evaluation process as an informed decision that enables them to implement a program that allows them to gain control of one of their most valuable strategic assets.

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Appendix A:
Research Methodology

T his research effort aimed to identify best practices for total telecom cost manage-
ment solution selection and provide a tactical handbook for enterprises consider-
ing business process outsourcing, software and hosted (ASP On Demand SaaS)
solutions. It draws on the following Aberdeen Group research activities:

- In September 2006, Aberdeen assessed the TTCM strategies and implementations
  of leading enterprises of all sizes in multiple industry sectors. Selection ap-
  proaches and criteria used by these enterprises are reflected in this report.

- Aberdeen conducted a benchmark survey between November and December of
  2005, and a wireless benchmark in January and February of 2006 assessing the
  strategies and technology approaches of more than 200 enterprises, as part of its
  Best Practice in TTCM and Wireless Benchmarking initiatives. Aberdeen sup-
  plemented these research efforts with more detailed telephone interviews with
  additional enterprises.

Solution providers recognized as sponsors of this report were solicited after the fact and had no
substantive influence on the direction of the *Total Telecom Cost Management Market Landscape
and the Total Telecom Cost Management Solution Selection Report*. Their sponsorship has made
it possible for Aberdeen *Group* to make these findings available to readers at no charge.

Appendix B:
Related Aberdeen Research & Tools

Related Aberdeen research that forms a companion or reference to this report includes:

- *Total Telecom Cost Management: Savings Are Just Part of the Picture* (September 2006)

- *The Challenge in Total Telecom Cost Management: To Unlock Savings and Control Spend, Mid-Market Enterprises Can Learn a Few Lessons from Leading Enterprises* (June 2006)

- *The Total Telecom Cost Management Process Benchmark Report* (February 2006)

- *The Wireless Costs and Performance Benchmark Report* (March 2006)

- *Spend under Control Key to Cost Savings: The Category Spend Management Report Series 2004 ─ Telecom* (June 2004)

- *Best Practices in Telecom Cost Management* (March 2005)

- *Procurement Contract Benchmark Report (March 2006)*

- *The CFO's View on Procurement* (September 2005)

Information on these and any other Aberdeen publications can be found at www.Aberdeen.com.

Appendix C:
BPO, Licensed Software, ASP, On Demand, SaaS

Option	Definition	Advantages	Drawbacks
Business Process Outsourcing	Business process outsourcing of the management of the expense lifecycle of telecom costs. The enterprise leverages the process, technology, people, and domain knowledge of TTCM vendors.	• Implementation speed benefits over standard ASP model because costs of software, hardware, and connections to suppliers, carriers, data sources, etc., are shared across multiple firms. • Users can be migrated easily to latest software version and leverage new functionality. • Easily enables community benefits such as industry benchmarking and group buying power.	• Harder to migrate implementation in-house. • Requires robust company and role-based data security model. • As adoption grows the program must be scalable.
Licensed Software	Each company is given its own in-stance of the soft-ware but shares services, such as an integration platform, security and permis-sibility models, or optimization engines.	• Assurance of complete data security; flexibility for unique data storage or performance requirements. • Enables community benefits, such as a shared network directory • Ability to stay on back version of soft-ware. • Easier to migrate system in-house.	• More limited com-munity benefits. • Shared services must be able to scale as adoption grows.
SaaS (Soft-ware as a Service)	Application is hosted by vendor or outside hosting firm in a separate, virtual instance just for your firm, but is housed on hardware shared by multiple compa-nies.	• Somewhat faster deployment than in-house implementation. • Assurance of complete data security; flexibility for unique data storage • Enhanced ability to customize applica-tion. • Ability to stay on older version of soft-ware. • Ability to share hardware costs with other companies.	• No ability to share cost of business partner connec-tions. • No native commu-nity benefits.
ASP	Application is hosted by the vendor or, more often, an out-side hosting com-pany in a separate instance on a sepa-rate piece of hard-ware just for your company.	• Somewhat faster deployment than in-house implementation. • Assurance of complete data security; flexibility for unique data storage • Ability to stay on older version of soft-ware. • Easier to migrate system in-house.	• No ability to share cost of hardware or business partner connections. • Software designed for client-server en-vironment not the Web

| On Demand | Primary supply management application located at your company or trading partner. Supplementary functionality provided via On Demand model. | • Creates new value from existing in-house supply management implementations without having to staff an in-house IT project.
• Elegant way to extend information or application value to new stakeholders. | • The utility model of fluctuating demand does not really apply to TTCM services.
• Risk with smaller providers that resources will not be available when needed. |

Source: Aberdeen *Group*, September, 2006