Is Your Organization Managing or Mangling Its Technology Assets?

By Matthew Mouritsen

With the amount of valuable data that resides on computer hardware ever increasing and the cost of technology-related activities remaining a significant component of information technology (IT) budgets, organizations need to consider several vital points when setting policies and establishing procedures for managing technology. In the January 2007 issue of *Strategic Finance*, an article by Ron Mano and me titled "Do You Know Where Your Computers Are?" posed the following question: "Are companies tracking these (technology) assets?" We simply stated that "many aren't." Now I'll explore that question and its answer in this article by revealing the results of a survey that asked various entities to disclose their current technology asset management practices. These results and supporting research form the basis of several recommendations that may help your organization better manage and safeguard technology assets and lower total cost of ownership (TCO).

Total Cost of Ownership

The cost of acquiring technology assets is only one element of their total cost. Take Apple's iPad, for example. Business and technology analyst Jack Gold stated in his March 4, 2011, article, "iPad 2: Apple's Missed Business Opportunity," on VentureBeat.com that "while the end-user sees a price tag of $500 to $800 per device, they are often unaware of the true cost of deploying an iPad into the organization. This TCO is a direct result of what companies must do that individuals don't have to. They have to pay for infrastructure, deployments, device management and technical support."

The TCO model includes both direct and indirect costs. Table 1 shows how Gartner, the IT research group that popularized the management accounting term in the technology area in 1987, described the components of TCO in its 2010 research article, "Desktop Total Cost of Ownership: 2011 Update."

According to Gartner, effective asset management can cut the total costs related to the acquisition, support, and disposal of desktop hardware over its lifetime by nearly 43% (see Table 2). Gartner's cost estimates also show that end-user (indirect) costs can range from nearly 48% to 65% of TCO. In 2008, Gartner had altered its TCO model and began utilizing four levels of IT asset management that all have an impact on how much organizations spend on technology annually. The terms of Gartner's new TCO model are defined next.

Unmanaged: Users can install applications and change settings; few to no management tools are being used.

Somewhat managed: Some management tools are implemented, but processes and policies aren't fully developed.

Moderately managed: There are tools and good processes and policies in place; users can install software or change critical settings.

Locked and well-managed: There are tools and good processes and policies in place; users can't install software or change critical settings.

As you can see, when the levels advance beyond "unmanaged," each requires more investment in tools, processes, and policies to ensure greater control of IT assets and their end-users. One key assumption in the Gartner model is based on an organization having about half as many software applications in a "locked and well-managed" environment compared to one that's "unman-

Table 1: Components of TCO

GARTNER'S TOTAL COST OF OWNERSHIP		
DIRECT COSTS	**Hardware, Software, and Facilities**	
		Hardware
		Hardware Maintenance
		Software & Maintenance
		IT Software
		Data Center Allocation
		Electricity, etc.
	IT Operations	
		Tier 1 (Technical Support)
		Tier 2 (Technical Support)
		Tier 3 (Technical Support)
		Security
		Desktop Management
	Administration	
		Administration
		Management
		User Training
		IT Training
		Disposal
INDIRECT COSTS	**End-User Costs**	
		Training
		Fixing
		Downtime

Table 2: Asset Management Reduces TCO

PC (DESKTOP ENVIRONMENT)	DIRECT COSTS	END-USER COSTS	TOTAL COST OF OWNERSHIP	SAVINGS
Unmanaged (per year)	$2,038	$3,757	$5,795	
Locked and Well-Managed (per year)	$1,724	$1,586	$3,310	$2,485 (42.9%)

Source: Gartner Research

aged." This is achieved through the implementation of (1) policies that deter the purchase of redundant applications, (2) processes that move applications away from the desktop and into server or browser environments, and (3) tools that block users from installing their own applications. Instituting these changes significantly reduces costs in terms of time spent fixing—or helping to fix—applications, training, and downtime. Centralized support costs also are reduced, particularly when technical specialists are dispatched to solve software problems. Gartner estimates a single PC's hardware costs to be $972. Yet, in an unmanaged environment, TCO across a four-year life cycle of a PC is estimated at more than $23,000, making the $972 equal to only 4.2% of TCO.

Safeguarding Assets

When considering how to safeguard technology assets, organizations should seek to manage hardware, software, and data as material assets. According to IT research group International Data Corporation (IDC), 281 exabytes of data were created worldwide in 2007; that's 281 billion gigabytes. In 2009, it was anticipated that more data would be created in one year than in all previous years. Indeed, according to IDC, more than 750 exabytes of data were created in 2009. By the end of 2010, growth shot up to 1,203 exabytes, a 60.4% increase from the year before. Of note, in 2007, before the latest proliferation of data, IDC argued that "organizations—including businesses of all sizes, agencies, governments and associations—will be responsible for the security, privacy, reliability and compliance of at least 85% of the information."

Clearly, the data that customers and employees create resides on hardware devices that must be managed by the organizations that control them. According to Section 404 of the Sarbanes-Oxley Act of 2002, management has a responsibility "for establishing and maintaining an adequate internal control structure and procedures." Not only can effective asset management help safeguard assets and lower the cost of owning technology, but now it's also required by law.

In 1999, the Governmental Accounting Standards Board (GASB) issued Statement No. 34, "Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments." It requires state and local governments to prepare basic financial statements, including capital assets and their cost allocation information. (For the federal government, the requirements became effective in 2001.) In their November 2001 article in the *Journal of Accountancy*, "How to Implement GASB No. 34," Bruce Chase and Laura Triggs wrote this about the asset management system of the city of Alexandria, Va.:

"To make the conversion, it's essential to determine early whether a government's capital asset system can provide the necessary information and, if not, what additional steps are required to capture it. Fortunately for Alexandria, its existing asset management system had provided the information needed for the conversion. Also, the city had raised its capitalization threshold to $5,000 from $1,000, which substantially reduced the number of items to be tracked. As part of the implementation process, therefore, it's worthwhile for governments to review their capitalization policy."

At issue here is the change in capitalization threshold. In its 2001 GASB Statement No. 34 implementation guide, the Massachusetts Department of Revenue

declared: "If the government's objective is only to control its capital asset inventory for financial reporting purposes, then the minimum requirements are acceptable. This policy decision will result in higher Capital Asset thresholds and not require the government to count assets that do not meet the capitalization thresholds."

By raising capitalization thresholds and not counting assets, organizations (governments and businesses) are neglecting to manage, track, or control assets, such as computers, that have critical and valuable data stored on them—and thus are missing out on the opportunity to lower TCO and to safeguard these assets. In "Do You Know Where Your Computers Are?" we noted that most companies set a threshold for hardware in the range of $1,000 to $5,000. Specific thresholds are usually based on the acquisition cost, which may include only 20% of the total cost of the technology asset. There are many hardware components, including data storage devices, that can be purchased for less than those thresholds. In that case, a company's accounting department may be unaware of the acquisitions. If the accounting department isn't tracking the hardware, then the IT department will need to.

Table 3: Survey Organizations by Employee Count

	NUMBER OF EMPLOYEES			
CATEGORY	COUNT	MEAN	MEDIAN	MODE
Less than 100	24	5,981	230	200
100 to 1,000	30			
1,001 to 5,000	15			
5,001 to 10,000	3			
More than 10,000	8			
Unreported	18			

Understanding Asset Management Practices

In 2010, seeking to further understand the types of asset management practices that organizations are utilizing, I conducted my own study. I contacted the accounting departments of 100 entities, sent them questionnaires, and received usable responses from 98. The organizations represented a broad range of industries: communications, construction, education, energy/utilities, financial services, government, healthcare, hospitality/lodging, and professional services (accounting). Educational entities, representing higher education, private trade schools, public school districts, and charter schools, gave nearly half the responses (see Table 3 for a breakdown of the company sizes). The study focused on policies and practices utilized throughout the life cycle of technology assets—namely the acquisition, tracking, and retirement functions within asset management. I based the scope of the questions primarily on hardware assets rather than on software applications. Here's what I discovered.

Acquisition. As expected, the entities in the study acquire computer hardware using three main methods: expensing, capitalizing, and leasing (see Table 4). Nearly 91% of the respondents employed some type of capitalization limit or materiality threshold to determine which assets are expensed and which are capitalized in the accounting system. Of note, about 25% of the entities indicated that they don't have a capitalization limit, that it was unknown, or that it was determined at the corporate level but not communicated throughout the organization. Table 5 lists the range of capitalization limits among the entities that responded to the survey, with 75% of the organizations falling within the $1,000 to $5,000 range.

From the numbers, it's clear that there's a large disparity in thresholds. In most cases, the acquisition cost of many technology assets doesn't exceed these limits. Gartner's $972 estimated cost of a PC's hardware would have been considered material in only 17% of entities in the study. In other words, certain technology assets are determined to be immaterial on acquisition. By quantifying technology using the TCO model, however, many of these same assets would exceed the established capitalization limits, thus making them material in dollar value. If they

Table 4: Technology Asset Acquisition Methods

	EXPENSE ALL HARDWARE	EXPENSE UNDER THRESHOLD, CAPITALIZE OVER THRESHOLD	CAPITALIZE ALL HARDWARE	ALSO LEASE HARDWARE
Number of Entities	3	89	6	28
% of Entities	3.1%	90.8%	6.1%	28.6%

are considered material, you could anticipate that accounting functions would be more likely to track them throughout their life cycle. If assets are tracked, then they're more likely to be protected and managed, so their TCO may be reduced (compared to assets that aren't tracked or managed).

In addition to purchasing hardware, nearly half the entities in the study also lease it (see Table 6). Leasing hardware has distinct advantages in terms of warranties aligning with usage periods, and it offers a predictable refresh cycle. Leased hardware typically doesn't get recorded in accounting systems, yet it should be tracked to determine its location and so, too, should any components that are added to the devices. If leased assets can't be located, the process of returning hardware to the leasing company at the end of the lease is obviously more challenging. Not returning leased assets can trigger expensive lease buyouts.

To lower TCO, specifically end-user-related activities, support, and purchasing costs (such as through volume discounts), organizations need to stick with a certain brand or type of hardware, particularly a brand that has been tested within the entity's IT infrastructure. According to the study, more than half the respondents didn't do this (see Table 7), which suggests that these organizations are operating at a level that's "unmanaged" or "somewhat managed" when it comes to asset management processes.

Tracking. Nearly 60% of the respondents declared that they use technology asset management software. This suggests that they're tracking the assets, at least in a database. But it wasn't clear whether the assets are entered into the database at acquisition and then retired from the system after disposal. It also wasn't clear if a physical tracking of the technology assets was occurring because nearly one-third of respondents revealed that assets aren't tracked throughout their life cycle (see Table 8). More than two-thirds of respondents shared that they track assets in various ways, with some using accounting systems, IT databases, or spreadsheets. Tracking IT assets in a database may indicate only that an entity knows what it acquired but may not demonstrate that it knows where the assets are, who's using them, or when or how they were retired. The survey responses suggest that these organizations aren't using

Table 5: Material Thresholds (Capitalization Limits)

CAPITALIZATION LIMITS	NUMBER OF RESPONSES	MEAN	MEDIAN	MODE
$100	1			
$500	12			
$1,000	19			
$1,500	6			
$2,000	11			
$2,500	3	$3,179	$1,750	$1,000
$3,000	1			
$5,000	17			
$10,000	4			
$25,000	2			
Total	76			

Table 6: Who Leases Hardware and for How Long

INDUSTRY TYPE	NUMBER	DON'T LEASE HARDWARE	LEASE HARDWARE	NUMBER OF ENTITIES THAT LEASE
Communications	6	83.3%	16.7%	1
Construction	1	100.0%	0.0%	0
Education	50	52.0%	48.0%	24
Energy/Utilities	5	100.0%	0.0%	0
Financial Services	13	84.6%	15.4%	2
Government	8	87.5%	12.5%	1
Healthcare	8	100.0%	0.0%	0
Hospitality & Lodging	3	100.0%	0.0%	0
Professional Services	4	100.0%	0.0%	0
Overall Responses	98	52.0%	48.0%	28

Length of Lease	2 Years	3 Years	4 Years	5 Years
Percent	3.6%	85.7%	7.1%	3.6%

the tools needed to achieve a lower TCO at a "locked and well-managed" level.

Retirement. When technology assets need to be replaced, whether because of diminished usefulness or breakage, companies employ a variety of approaches to determine when to retire them. For example, organizations responding to the survey stated that they replace hardware in one specific year or over a range of years.

When asked about the replacement cycle for hardware, 54% of survey respondents indicated that they do so within three to five years. One-third said that they choose a specific year for replacement. Another third of the respondents indicated a replacement cycle based on system requirements, usability, and usefulness rather than on a time limit. Yet most of these entities noted that they replace technology "when it breaks." This could suggest that productivity among users is important and that organizations want to keep assets fairly current. It could also suggest that entities understand that aging hardware impacts TCO because it's more susceptible to downtime and higher support costs. Likewise, replacing hardware based on usefulness may mean that these entities know that replacing devices is time-consuming and disruptive. Strong asset management tools can pinpoint which assets are due to be replaced and where they're located, thus speeding up the replacement process.

Using the TCO model, you'll find that expenditures related to technology assets over their lifetime will far exceed most capitalization thresholds.

Regarding *how* organizations retire technology assets, the entities in the study employed multiple strategies (see Table 9). Clearly, leased assets are intended to be returned to the leasing company, but purchased assets are destroyed, discarded, donated, recycled, redeployed, or sold. Regardless of how they're handled, a key issue here is that software and data that reside on hardware must be removed prior to the hardware's disposal. If this isn't done properly, it can present a significant risk to the entity. Many respondents revealed that, for this reason, they redeploy hardware within their organizations. Redeploying hardware instead of acquiring new hardware is an efficient use of resources and can prevent unnecessary purchases and delays in installing custom components

Table 7: Entities that Allow Only Predetermined Brands/Types of IT Assets

INDUSTRY TYPE	NUMBER	NO	YES
Communications	6	50.0%	50.0%
Construction	1	0.0%	100.0%
Education	50	56.0%	44.0%
Energy/Utilities	5	0.0%	100.0%
Financial Services	13	25.0%	75.0%
Government	8	100.0%	0.0%
Healthcare	8	12.5%	87.5%
Hospitality & Lodging	3	0.0%	100.0%
Professional Services	4	80.0%	20.0%
Overall Responses	98	52.0%	48.0%

Table 8: How Assets Are Tracked

TRACKING SYSTEM	RESPONSES	PERCENT
Fixed-asset system	12	18.5%
IT database	11	16.9%
Excel	12	18.5%
Tags	5	7.7%
Other	2	3.1%
Manually	2	3.1%
Not tracked	21	32.2%

Table 9: Methods Used to Retire IT Assets

METHOD	NUMBER OF RESPONSES*
Auction/Sell/Give to employees	27
Auction/Sell to public	17
Destroy	13
Discard	56
Donate	43
Recycle	10
Redeploy/Hand down	48

*Includes multiple responses.

and applications. Many entities declared that they donate old hardware. Though that's admirable, I'd urge caution because the receiving organization may not be able to use the hardware: The recipient may, for instance, find that it's too expensive to support or that it doesn't integrate with its current infrastructure.

What Can We Learn?

Based on the results I just described, we can draw several key conclusions about the asset management practices of those organizations that responded to the survey. The conclusions are organized by each phase of the life cycle of IT assets.

Acquisition

- A large number (90.8%) of entities employ some type of capitalization limit.
- There's a large disparity in materiality thresholds (capitalization limits).
- In addition to purchasing hardware, nearly half the entities also lease it.
- More than half the respondents don't limit their hardware purchases to a predetermined brand or type of hardware.

Tracking

- There appears to be significant variation in how assets are tracked, with some respondents using accounting systems, IT databases, or spreadsheets.
- Nearly one-third of the entities responding stated that they don't track IT assets.
- Tracking assets in a database doesn't ensure that they're tracked after acquisition or that the physical locations of the devices are known.

Retirement

- More than half the respondents said they replace their technology assets within three to five years.
- Nearly one-third noted that replacement is based more on functionality, usability, and usefulness rather than on a predetermined or set schedule.
- Many organizations use multiple retirement strategies, including redeploying, destroying, discarding, recycling, selling, and donating.

A Call to Action for Management Accountants

Here are some recommendations that can benefit your organization as it implements policies, processes, and tools to strengthen technology asset management in a way that lowers TCO and the ability to protect assets.

1. It's important for management accountants to understand that capitalization limits based on acquisition costs, although practical, may keep the technology from being tracked by the accounting function. Therefore, capitalization limits should be reduced, if not eliminated. Using the TCO model, you'll find that expenditures related to technology assets over their lifetime will far exceed most capitalization thresholds.

Organizations should implement written standards for the types and brands of hardware and software that are allowed to be purchased and added to the company's network. This can reduce the number of software applications in the organization and can create opportunities for earning volume discounts on pooled purchases.

Finally, companies should install network tools or disable certain PC functions to prevent employees from adding software to the network without proper testing.

2. With the TCO model in mind, management accountants should implement processes and tools that allow them to track all technology assets and their associated costs from procurement through retirement.

Tools should be installed that let the IT function manage desktops centrally. These tools will facilitate troubleshooting and problem resolution, allow for PCs to be powered down to conserve electricity, and block unapproved applications from being installed.

3. Organizations should begin retiring software applications that are redundant or that have been installed illegally (without licenses). Also, they should look to migrate applications from the desktop to server and "cloud" environments. As assets are retired, organizations should remove data completely before allowing the hardware to leave their control.

By taking into consideration these calls to action, management accountants and other financial professionals can proactively manage IT assets. In so doing, they'll feel more confident that the asset, its software, and its data are safeguarded and that their organization will enjoy a noticeable reduction in total cost of ownership. **SF**

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