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# CIOs: Reduce Costs By Scoring Applications

by Phil Murphy

BEST PRACTICES

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Includes Forrester user interview survey data



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## CIOs: Reduce Costs By Scoring Applications

Lower Maintenance Costs And Change IT Demand Governance

This is the sixth document in the "Application Management Strategies For Legacy Applications" series.

by **Phil Murphy**

with Laurie M. Orlov and Lauren Sessions

### EXECUTIVE SUMMARY

As long as IT spends the majority of the IT budget for "lights on" operational and maintenance activities against existing applications, CIOs will be criticized by business executives for their inability to respond fast enough to new business needs. IT management can no longer afford to manage its application portfolios blindly but must introduce some transparency and insight into the portfolio. An application scoring mechanism is a first step toward creating better application transparency, providing actionable, objective information about each application that will, in turn, enable better decisions about the proper fate of each application. Application scoring mechanisms give CIOs a rating mechanism that can help them reallocate maintenance dollars to the highest-priority applications while starving commodity applications. These actions will eventually reduce the percentage of the IT budget allocated to maintenance from 80% to perhaps 60% or less, freeing funds for IT innovation.

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### NOTES & RESOURCES

In October 2006, Forrester conducted an online survey of 221 IT execs to learn more about their application maintenance practices.

#### Related Research Documents

["IT Execs Boost Focus On Business In 2007"](#)

October 25, 2006, Trends

["Evaluating Your IT Operations Organization"](#)

August 14, 2006, Best Practices

["CIOs Must Target Legacy Applications With A Maintenance Renaissance"](#)

June 22, 2006, Trends

**TARGET AUDIENCE**

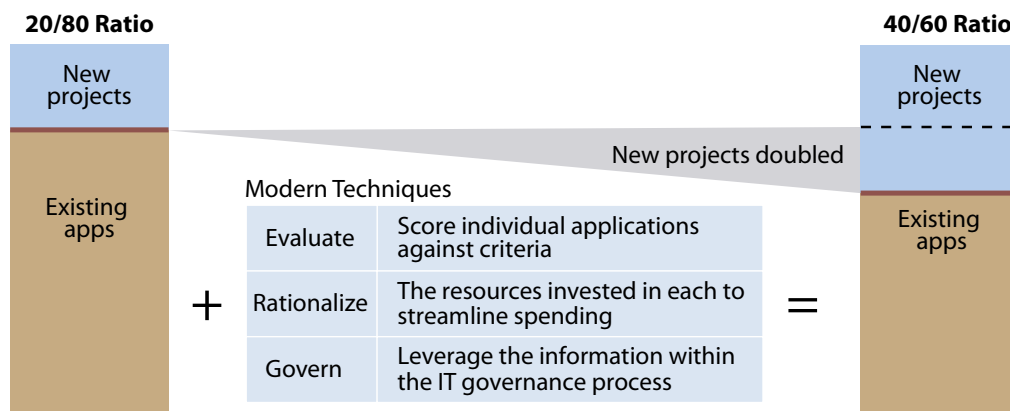
Application development and program management professional, chief information officer, enterprise architecture professional

**LIGHTS-ON MAINTENANCE COSTS ARE OUT OF CONTROL**

The funding earmarked for new project spending dipped to just 20% of the IT budget in 2006, driven downward by the ever-increasing percentage used to fund lights-on maintenance costs. While some increases are predictable — salary increases and packaged software maintenance fees, for example — the overall cost of lights-on maintenance remains frighteningly high. Globally, the amount of money spent for lights-on operations and maintenance will top \$1.6 trillion in 2006.<sup>1</sup> In October 2006, Forrester surveyed 221 IT execs to learn more about the nature of this spending.

To increase the funding available for new projects, CIOs must focus on efforts that reduce the waste in IT — ideally, the duplicate applications and inefficient processes in their lights-on operations, because that is where most of the opportunity for reduction lies (see Figure 1).

**Figure 1** CIOs Must Reset The Maintenance Ratio



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Source: Forrester Research, Inc.

**Because Technical Diversity Is A Maintenance Multiplier**

Applications built atop distinct genres of infrastructure (monolithic, client-server, distributed) are taxing maintenance budgets and killing IT’s ability to bring innovation to bear on business issues. While the problem is arguably worse in larger, more mature organizations that have been developing applications for 30 or more years, younger organizations are starting to suffer from similar problems. First-generation Java applications suffer symptoms that are nearly identical to their older COBOL

cousins (the authors of the early Java applications have moved on, taking vital internal knowledge with them to the point where programmers are reluctant to change them for fear of breaking them).<sup>2</sup> Recently captured Forrester survey data highlights some of the root causes of high maintenance costs.

- **IT is wasting time “thrashing” between new development and maintenance.** More than 60% of firms use the same staff for new development and maintenance. In these organizations, development staff must set aside new project work to fix maintenance issues as problems arise. Switching between tasks takes time and effort, breaks project momentum, and interferes with the project schedule. Is it any wonder that new projects routinely fail to meet timeliness and budget goals?
- **Application knowledge transfer happens inefficiently and at a snail’s pace.** When faced with an assignment on an unfamiliar application, 45% of firms surveyed said that tapping the expertise of a knowledgeable peer is the primary method they use to learn the unfamiliar application. This effectively doubles the cost of maintenance by staffing it twice — once with a mentor and once again with the person assigned to do the work. Looking at other answers from the same question, another 29% read documentation (which is often out of date) or source code (which is highly inefficient) to learn the application. Clearly, IT can do a better job of knowledge transfer.
- **Technical diversity is crushing productivity.** Another Forrester survey shows that 43% of firms purchased database management systems (DBMS) engines from three to five vendors and nearly 11% purchased DBMS engines from six or more DBMS vendors.<sup>3</sup> Each different DBMS version requires IT to maintain separate tools, skills, and experienced programming and DBA (database administrator) staff to operate what are essentially duplicate technical functions.

## SCORING APPLICATIONS ENABLES COMPARISON AND EVALUATION

In an effort to reduce their operational and maintenance costs, some IT organizations are choosing to migrate from legacy DBMSes, platforms, and languages to a unified set of technology on either mainframe or distributed platforms. While some migrations will produce savings, don’t expect the business to readily embrace these technically oriented migration projects — with such a small percentage of IT resources (20%) earmarked for new projects, business people are reluctant to surrender precious IT resources to migration efforts that produce no apparent business benefit.<sup>4</sup> The rising interest from Forrester clients in the topics of application rationalization and application portfolio management (APM) suggest that CIOs are beginning to take a serious look at streamlining whole application portfolios as a means of shifting the 80/20 split to a more favorable ratio.<sup>5</sup>

### Scoring Provides Objective Support For Rationalization

An application scoring mechanism creates a list of criteria by which one can evaluate an application from several perspectives. Whether part of an ongoing program to increase application quality or an application rationalization effort, an application scoring mechanism will help firms objectively rate an application from four points of view:

- **Business perspective — how well suited is this application?** The opinions may range widely from its users to its owners to the people in other business units with upstream and downstream dependencies on the executive management team. Knowing the relative importance of the business unit to the company and the relative importance of the application to the business unit enables better decisions based on the weighting of proposed work. The business perspective will also include an approximation of the cost and impact of an application outage and whether manual processes can replace the application for a period of time (see Figure 2).
- **Application perspective — does it effectively serve the business?** Does the application enable a commodity function that is easily purchased as a package, or does it perform a core function — something that gives your company a competitive advantage? Commodity functions include accounting, payroll, and human resource functions, whereas core functions may include actuarial applications for an insurance company or underwriting software for a mortgage company. Is it stable and easy to modify, or is it a nightmare to change? What are the metrics around its size, complexity, code quality, frequency of change, or reasons for change? Some of these metrics can be compared with other applications to benchmark and identify troublesome applications (see Figure 3).
- **IT perspective — does the technology align with architectural strategy?** What is the underlying application platform, DBMS, and programming language? Does that technology align with the company's future technical plans? Is it ascending or waning technology? Is it compatible with service-oriented architecture (SOA), for example, or is it an obsolete 4GL? Are the skills needed to maintain the application readily available in-house? Can you hire the skills easily and locally (see Figure 4)?
- **Vendor perspective — how viable is the vendor?** Especially appropriate for packaged applications, these questions also apply to the underlying technology used to build, operate, or maintain the application. What is the financial health of the vendor — is it large, small, robust, or barely surviving? Would you invest money in the company? If not, why would you trust leaving your software on its product? Is the product important to the vendor, or is it on a path to replacement? What competing products are available, and what would it take to make you switch? Finally, for niche applications and vendors, does source code escrow make sense — would you ever exercise it, and, if so, should you have an individual policy (see Figure 5)?

Figure 2 Business Score

**Adjust weights to reflect the importance of each question to your organization**

Business Score	Weight	Score	Weighted Score
<b>Strategic or commodity function?</b> (3=strategic; 0=commodity)	1.0	3	3.0
<b>Which business unit(s) does it serve?</b> (3=customer-facing; 2=revenue-producing; 1=internal operation)	0.8	3	2.4
<b>What percentage of the organization's revenues does the unit generate?</b> (3=30% and above; 2=20% to 29%; 1=10% to 19%; 0=others)	0.8	3	2.4
<b>What is the owner's opinion of the application's functionality?</b> (3=very satisfied; 2=mostly satisfied; 1=needs significant work; 0=dissatisfied)	1.0	2	2.0
<b>What is the user's opinion of the application's functionality?</b> (3=very satisfied; 2=mostly satisfied; 1=needs significant work; 0=dissatisfied)	1.0	2	2.0
<b>What is the financial or revenue impact?</b> (3=major; 2=significant; 1=minor; 0=none)	1.0	2	2.0
<b>What type of departments suffer during a system outage?</b> (3=strategic or customer-facing; 2=critical; 1=important; 0=minor)	0.9	2	1.8
<b>How many employees are affected?</b> (Establish a range within your company; 0=lowest, 3=highest)	0.8	1	0.8
<b>Is there a manual or other workaround for the outage?</b> (3=yes, tested; 2=yes; 1=partial; 0=no )	0.8	1	0.8
<b>Does your company's disaster recovery plan adequately cover this app?</b> (3=yes, tested annually; 2=yes; 1=somewhat; 0=no)	0.8	1	0.8
<b>Totals</b>		20	18
<b>Averages</b>		2.0	1.8

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Source: Forrester Research, Inc.

**Figure 3** Application Score

Adjust weights to reflect the importance of each question to your organization

Application score	Weight	Score	Weighted Score
<b>IT’s opinion — is it functionally complete?</b> (3=very complete; 2=mostly complete; 1=needs work; 0=needs significant work)	.8	2	1.6
<b>Is it stable when run?</b> (3=always; 2=mostly; 1=sometimes; 0=not usually)	1.0	2	2.0
<b>Can it be easily changed?</b> (3=always; 2=mostly; 1=sometimes; 0=not usually)	0.8	2	1.6
<b>How big is it? (FP, LoC)</b> (Establish a range within your company; 3=smallest, 0=largest)	0.5	1	0.5
<b>How complex is it? (cyclomatic complexity and other industry std measures)</b> (Establish a range within your company; 3=lowest, 0=highest)	0.6	1	0.6
<b>How often does it change?</b> (Establish a range within your company; 3=lowest, 0=highest)	0.8	1	0.8
<b>What are the annual costs to maintain it? (labor reporting)</b> (Establish a range within your company; 3=lowest, 0=highest)	1.0	2	2.0
<b>Totals</b>		11	9.1
<b>Averages</b>		1.6	1.3

**Figure 4** IT Attribute Score

<b>Adjust weights to reflect the importance of each question to your organization</b>			
<b>IT attribute score</b>	<b>Weight</b>	<b>Score</b>	<b>Weighted Score</b>
<b>State the technical makeup of the application</b> Language, DBMS, Platform, SOA? Mainframe? Off-mainframe? J2EE? .Net?			(informational only, do not score)
<b>Does it align to the company's future technology direction?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.8	2	1.6
<b>Is the current platform stable?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.8	2	1.6
<b>Is the platform easily integrated with other technology?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.8	1	0.8
<b>How easily can the technical issues be resolved?</b> (3=simply; 2=fairly simply; 1=difficult; 0=significant difficulty)	0.7	1	0.7
<b>Are the skills required to maintain it in good supply internally?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.7	2	1.4
<b>What about externally? Can they be trained or acquired?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.7	2	1.4
	<b>Totals</b>	10	7.5
	<b>Averages</b>	1.7	1.3

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Source: Forrester Research, Inc.

**Figure 5** Vendor Score

**Adjust weights to reflect the importance of each question to your organization**

Vendor score	Weight	Score	Weighted Score
<b>What is the financial health of the vendor?</b> (3=rock solid; 2=solid; 1=fair; 0=poor)	0.5	2	1.0
<b>Is it an important product within the vendor’s portfolio?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.5	3	1.5
<b>What are the vendor’s future product plans for this product?</b> (3=actively updating; 2=occasional updates; 1=maintenance only; 0=off maintenance)	0.4	2	0.8
<b>Do the vendor’s plans align with our needs?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.4	2	0.8
<b>Are competitive products available and suitable?</b> (3=yes; 2=mostly; 1=partially; 0=no)	0.6	2	1.2
	<b>Totals</b>	11	5.3
	<b>Averages</b>	2.2	1.1

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Source: Forrester Research, Inc.

### Interpreting The Value Of Scores

After developing the list of questions, firms should determine where to find the answers to the questions for each application and build a continuous collection mechanism. As collection occurs, evaluate the importance of the questions and answers, and assign point value ranges to the answers. For example, consider a scale of zero to three, with “0” being the most negative rating and “3” being the best possible rating. Then total and average points for a perspective-level score.

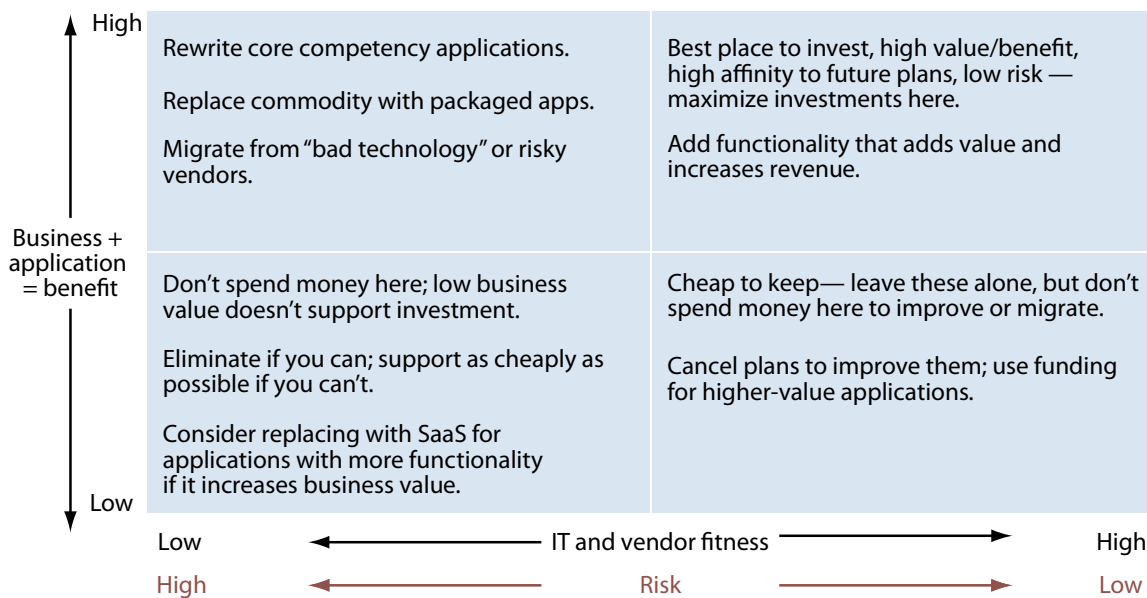
The questions within the business and application perspectives largely address the benefits the application brings to the organization, whereas the IT and vendor questions address cost, flexibility, and risk. Grouping the scores together in that manner permits a two-dimensional quadrant with four types of application groups (see Figure 6):

- **High business/application scores should dominate IT’s attention.** IT should focus on the applications with the highest business/application scores that also score high on the IT and vendor scale. This group indicates very important applications that are on solid technology that has affinity to the company’s future technical plans. Plan to maximize investments in this area.
- **High business/low technology scores need action.** These applications have high business value, but something is wrong with the technology. Applications that provide strategic

advantage should be repaired or rewritten, while commodity applications should be replaced with packaged applications. The low technical scores may indicate that an obsolete piece of technology is holding it back from being Web-enabled or that IT scores it low because the database vendor has announced a cessation of support, but something desperately needs attention, and the base functionality and business value warrant the investment.

- **Low business value and high technical scores — leave it alone.** Some segment of the population must lose its investments so others can increase investment, and this is the losing category. Low-value business applications that operate well, are on stable technology, and do not induce undue risk do not warrant investment — regardless of the political pull of their owners. Stop spending money where it will do no good. IT’s goal is not to take action against every application but rather to take action against those that warrant action.
- **Low business value and low technical scores — shed them.** Applications with little business value or poor functionality that are also based on outdated technology are draining funds from IT — throwing good money after bad. Eliminate these applications if you can; if you can’t, seek the cheapest possible solution that will allow you to eliminate them. Consider software-as-a-service (SaaS) replacements that will increase the functionality and thereby increase the business value, pushing these upward in the business/application axis, while replacing the bad technology and reducing overall cost. This is a time for CIOs to think outside the box and consider suggesting that the business outsource the entire business function, not just the IT portion.

**Figure 6** Using Application Scores To Rank



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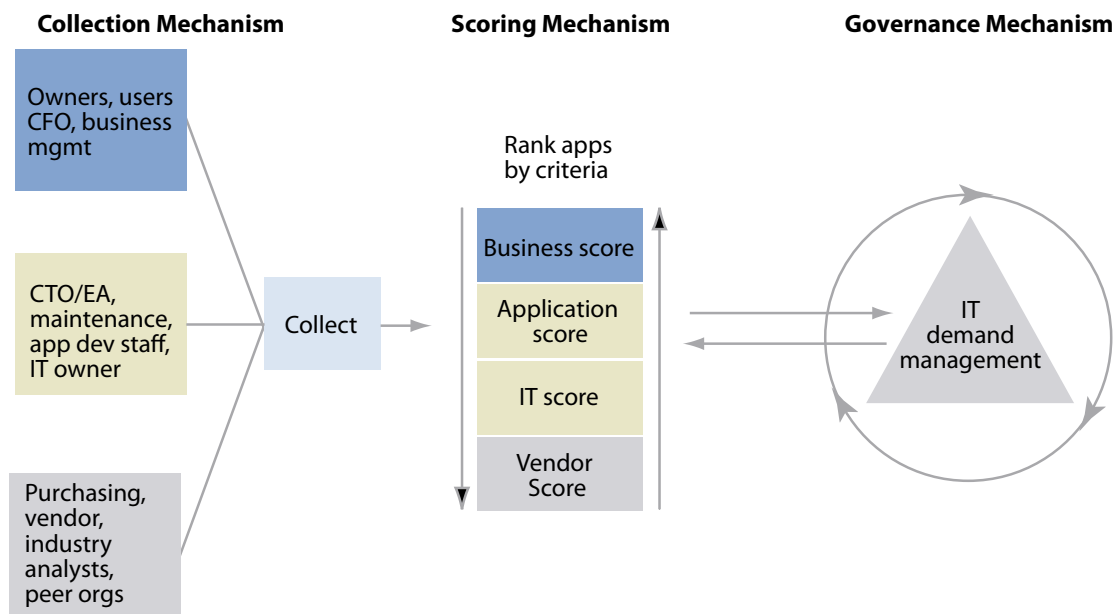
Source: Forrester Research, Inc.

Not all questions are created equal, and first attempts may reveal a flaw in the model. Consider using importance weightings to differentiate important questions — like whether it is a core function versus a commodity function — from less-important questions. For example, the weighting factor could range from 0.1 to 1.0 or higher and be used as a multiplier on the answer points. Build a scoring mechanism that is flexible; as you use it, refine it to make it more and more accurate and usable.

**ADD GOVERNANCE CHANGES AND COLLECTION TOOLS FOR SUCCESS**

Creating a scoring mechanism codifies a list of information to collect and a guide to decision-making, but CIOs will need to construct a collection mechanism and implement permanent governance changes to make full use of the application scoring mechanism (see Figure 7).

**Figure 7** Collection, Scoring, And Governance Mechanisms Must Change



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Source: Forrester Research, Inc.

**Tools To Collect And Disseminate Application Information**

Whether the collection mechanism is part of an APM tool or assembled from a series of available tools — such as application mining tools coupled with either business intelligence (BI) tools or a project portfolio management (PPM) dashboard — collection mechanisms will ideally trap activity as it happens as a natural course of events, rather than employing manual entry and/or a series of point-to-point integration functions. Collection mechanisms should also:

- **Collect information automatically and continuously.** Snapshot views of information that are manually collected are a breeding ground for failure. Most often, firms that start this way only succeed in delaying their efforts by six months as they learn how quickly the information gets out of sync, that no one trusts it, and how it falls into disuse.
- **Collect subjective information from stakeholders and other sources.** The opinion of users, owners, and technical stakeholders — such as enterprise architects, operations, and CTOs — should be collected periodically and graphed alongside the other metrics.
- **Present statistical analysis options and information to stakeholders.** The ability to quickly and easily graph information is key, as is the ability to present the information in various role-based views. PPM tools can perform these two tasks well and are ideally suited to them, given their IT governance focus. However, none of the PPM tools today collect sufficient depth of application information to employ them as standalone collection mechanisms.
- **Offer a choice of repository engines.** Any commercial tool worth considering will permit buyers to choose from among the popular SQL-based DBMS engines.

### Governance Process Leverages The Information To Create Change

Finally, CIOs must ensure that they have the right governance structure in place to leverage the information. What good is a continuous stream of application scoring information if it isn't leveraged to improve the status quo? To be successful, CIOs must replace politically motivated prioritization mechanisms with a governance mechanism that prioritizes IT demand based on business need. These mechanisms will reflect:

- **PMO-like structure.** Whether part of the Office of the CIO (OCIO), a project management office (PMO), or a newly created demand management functional group, the team that restructures the maintenance process will formulate decisions for 80% of the IT budget.<sup>6</sup> As such, the group must report to the CIO and work with the CIO's business peers as part of a cross-functional team.
- **Prioritization for the “greater good.”** As IT organizations move from prioritization based on a “squeaky wheel” culture to prioritization based on business need, squabbles about sacrificing one project for the greater good are sure to follow. To keep progress through spirited debate, at least some of the team members must be skilled negotiators and diplomats.
- **Feeds to other management functions.** Scoring the applications will create new stores of information that have the potential to benefit other areas of the company. For example, metrics on the quality or rate of change against an application may alter plans for a new project that integrates with it. The cumulative maintenance effort for a business unit may feed information

to the balanced score card. The information generated does not replace the score card reporting but may feed it and other reporting mechanisms with fresh sources of information.<sup>7</sup>

- **Marketing the effort to ensure it is exposed in a positive light.** There is plenty of bad news emanating from IT these days, and these kinds of efforts can be viewed as more bad news if they are not properly introduced. CIOs must market the idea of scoring the applications as the first step in an effort to streamline the inventory and revamp the IT demand process — a positive event that will curtail waste, re-evaluate the status quo, and redistribute the wealth of IT resources to the efforts most important to the business.<sup>8</sup>

## RECOMMENDATIONS

### TRADE TOP-LINE BUDGET INCREASES FOR A RATIONALIZATION PROGRAM

Devising a scoring mechanism is a good first step, but there is a long way to go from there to make the effort productive. CIOs should be taking stock in their IT investments, evaluating the inventory, and creating a management structure with the wisdom and authority to cut waste and streamline operations wisely. IT will still play a marginal role in enterprise strategy and decision-making as long as it remains a storehouse of modern, dated, and obsolete technology. To get started:

- **Beg, borrow, or author an application-scoring mechanism.** Creating criteria with which to evaluate applications isn't difficult, but it will take some forethought into how you will use the information. Be prepared to answer questions such as: Which metrics can be used for leading or trailing indicators? Which are misleading or dubious? Which can be cross-checked with a second metric to make it more reliable?
- **Collect information automatically and continuously or don't bother.** Learn from the mistakes of others and forget trying to collect this information manually — it changes too frequently. Collecting the information manually is like trying to estimate the value of all real property in a major metropolitan city to establish the property tax rate. If you estimate the number of properties, no one will trust your method, and they will refuse to use it. If you take the time to visit each property manually, by the time you finish it, the information will be useless because it will have changed.
- **Use the information to change the IT demand management process.** Much of the waste in IT is because people can't see what is happening. A major US financial institution had 17 travel and expense applications for 16 subsidiaries — not because they were wasteful but because people weren't aware of the existing (duplicate) applications. Visibility changes everything, and IT's biggest problems are due to a lack of visibility, coupled with an overly political prioritization process. Create a group with the power and authority to change based on newfound application visibility, and watch the 80/20 split begin to shift toward 50/50 or better.

## WHAT IT MEANS

### VISIBILITY HAS A DARK SIDE

The type of fundamental change that results from scoring applications — the ability to evaluate and rank existing applications and potentially revamp the entire IT demand management process — should be a welcome change in virtually every IT organization. Streamlining duplicate applications, eliminating waste, and increasing productivity will demonstrate what IT staffers have known all along: There is a lean, mean fighting machine inside of every bloated IT organization that is struggling to break free. So how can visibility be a bad thing?

- **Winners and losers emerge in the prioritization process.** There are winners and losers in every prioritization battle — the winners in a “squeaky wheel gets the oil” environment may well become the losers in a prioritization scheme formulated so that commodity functions make sacrifices for the “greater good.” Faced with the prospect of losing a power base, the influence, and juice, folks who lose may not do so gracefully.
- **Market the scoring process throughout.** CIOs must market and champion this program before, during, and after it is sanctioned. Visibility will not be welcomed by all; in fact, the rollout of an application scoring program was stopped dead in its tracks in one company interviewed by Forrester because the program was championed at too low a level in the organization. The dark side of shifting power can halt progress in its tracks, and the way to combat it is with light. Shine a public light on the effort and its importance to IT and the business — in fact, the program will have more positive impact on the business than it will on IT.

## ENDNOTES

- <sup>1</sup> Forrester projects that global IT spending will reach \$2.1 trillion in 2007. See the November 21, 2006, Market Overview “[Global IT Spending And Investment Forecast, 2006 To 2007.](#)”
- <sup>2</sup> While “legacy issues” are commonly discussed in terms of COBOL and mainframes, applications built with modern technology like Java, Perl, and C# suffer from many of the same issues. See the November 11, 2005, Quick Take “[Java, COBOL, And Perl Share A Common Problem.](#)”
- <sup>3</sup> In October 2006, Forrester surveyed 221 IT executives on their application maintenance practices — how they organize, budget, and transfer knowledge; which productivity tools are available; and what they would do to increase maintenance productivity given adequate funding.
- <sup>4</sup> Forrester interviewed leading IT organizations to document the reasons they are considering leaving the mainframe and other platforms. In the majority of cases, the cost of third-party software was a significant motivating force. See the September 12, 2006, Best Practices “[Got Legacy? Migration Options For Applications.](#)”

- <sup>5</sup> APM tools support the rationalization process by developing size, quality, and cost metrics about the application, then melding them with stakeholder surveys and related business information (ownership, etc.), and graphing the results in role-based dashboard views. See the October 20, 2005, Best Practices “[Building The Business Case For APM.](#)”
- <sup>6</sup> The IT governance process is undergoing tremendous change as the business demands more transparency and IT departments align their operations more closely to their business counterparts. See the October 3, 2006, Best Practices “[From Relationship To Demand Management.](#)”
- <sup>7</sup> The metrics captured by the collection mechanism have value outside of the prioritization process, and CIOs should ensure that those secondary and tertiary opportunities have access to the information. The balanced score card is one such vehicle. See the June 23, 2006, Best Practices “[Anatomy Of An IT Balanced Scorecard Project.](#)”
- <sup>8</sup> When CIOs undertake a large and potentially controversial project such as revamping the processes that surround IT demand, the reasons for doing it and the expected benefits should be marketed to the business to ensure that they are explained in the proper perspective and gain the proper levels of support from the business. See the May 23, 2006, Best Practices “[Step By Step: A Template For Marketing IT To The Business.](#)”

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