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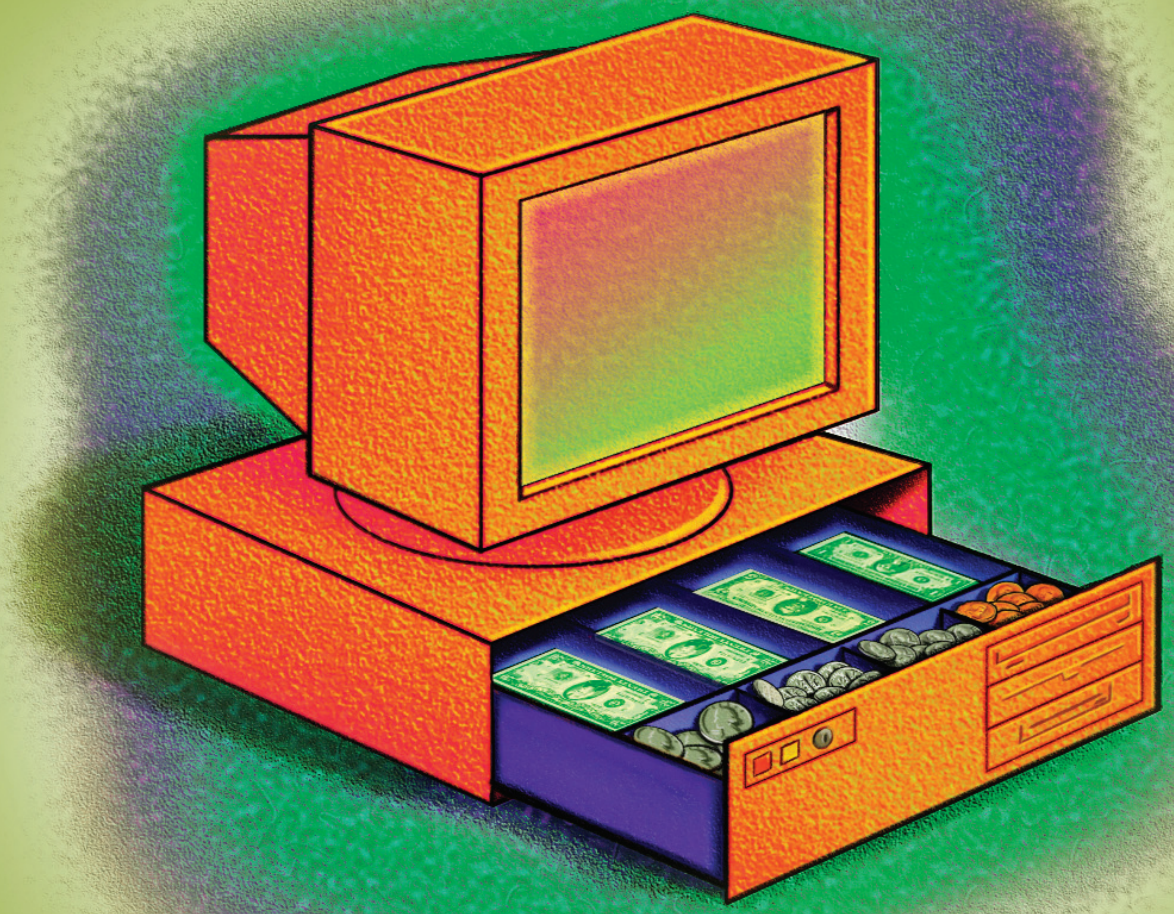

LOW-COST TECH SOLUTIONS

FOR SMALL (AND LARGER) GOVERNMENTS

BY LOUIS J. BOGLIOLI III

Where does technology fit into a government's budget in this slowing economy? Technology purchases are sometimes an afterthought even in good times. But at the same time, the pressure to modernize comes from many sources. Constituents are demanding more accountability and a broader range of services, and governing bodies from local to federal levels are enacting legislation to require electronic reporting and disclosure such as online disbursement information in "near-time." Some governments are not equipped to handle these requests, and staff is often asked to innovate and implement these mandates in-house.

Smaller governments, especially, find it difficult to finance and implement replacements for systems that are sometimes many years out of date. The problem only becomes more pronounced as economic pressures lead to decreased funding. There are a number of hurdles, including existing legacy systems that may or may not work; limitations to employee's technical abilities, and to the money available for training; and the divide between what decision makers want and their willingness to pay for it. Fortunately, there are solutions available in the marketplace and in the office for the taking. It is possible to integrate low-cost solutions by learning to squeeze every ounce of usefulness out of the systems and processes already in place, and creating a culture of creativity in the organization.

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WORKING WITH LEGACY SYSTEMS

Deciding to replace a legacy system is easy when it does not work properly or no longer performs the necessary tasks. It is harder to decide what to do about an existing system that is working but has problems with accessibility. One solution is to link to the legacy system with a newer, perhaps Internet-accessible, single-purpose computer. This allows the smaller computer to repeatedly query the larger, older computer and to pass the data on to the modern network and even the Web server. This workaround allows all the users of the modern computer network and on the Internet to access information on a legacy mainframe without scrapping a working system.

If the legacy system needs to be replaced, but the upgraded hardware is too expensive, an application service provider (ASP) might be the answer. ASPs provide computer services, including access to software, online — anyone with an Internet connection can rent or lease space on the provider's servers, and the provider hosts the applications. As an example, the City of Stuart, Florida (which has a population of 17,000), needed to modernize its recreation function and operations. Funds were limited and the network in place was deeply entrenched for other purposes, so the city used ASP recreation software, which allows employees and customers to access the same system online. System administration is minimal, and fees for the service are deducted from receipts and credit card charges. One limitation is that custom queries or reports may not be an option. And of course, if the Internet connection is down, work on the ASP applications may not continue.

Sometimes the legacy system being dealt with is what the techies call a PEBKAC ("problem exists between keyboard and chair"). Everyone has heard about or knows employees who have been with the government since they trucked in dirt, "old timers" who do not understand what the technology is for, why it is needed, or how it should apply to their jobs. And while many consultants think management buy-in is the most important human factor in technology implementation, it can also be argued that if the users cannot get what they want out of the system, or put in the required information, then no amount of money will get that government into the 21st century. The single easiest way to get users to buy in to technology is to give them a taste of what the technology can do. In Stuart, it began with an Excel budget they could manipulate and e-mail back to the financial services department with a keystroke. From that point on, even the old-timers found they could not live without paperless requisitions.

If users are willing to learn and advance, then a wetware upgrade may be what is needed. (Wetware refers to the human brain and its logical and computational capabilities.) Training is essential; it is the one appropriation that must be defended, despite budget cuts. Many community colleges offer low-cost business training courses and will often perform the training on location. Another option is Web-based training, which is now very affordable and easy to access, with the proliferation of broadband Internet. Another excellent

training source is, perhaps, more surprising: Most of the knowledge City of Stuart employees have about Microsoft Excel and Access came directly from Clippit, the animated paperclip that provided interactive help in Microsoft Office 97 through 2000/XP.

Once the legacy systems are either replaced or assimilated, and the users are up to speed or getting there, all that remains is the continued commitment to funding. The tips for upgrading the hardware and the users can also apply to decision makers. Introducing or transferring a tech-savvy assistant to a manager is similar to linking a new computer to a mainframe system. Putting decision makers together with power users on projects or tasks engages management in the technology implementation. The approach is like reverse career shadowing, and it works. Funding can come from outsourcing some of the existing operations or new technology advances; this is similar to the way the ASP service works. But the easiest way to get management buy-in is the same tactic that works for users — showing them what the technology can do for them. Research other governments that have implemented ideas management wants to mimic or recreate, and invite vendors to demonstrate the products those governments used. Demonstrations are always free, and they give managers an opportunity to see what is on the market. And there is no need to worry — if the organization does not decide to buy anything, the follow up calls and e-mails do go away eventually.

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FREE AND LOW-COST SERVICES

Another way to deal with the disconnect between wants and wallets is to seek out the cost-effective solutions many people overlook. There are a few first-rate products and add-ins that are free, or at least very affordable.

Users of Microsoft Office products, and Excel specifically, can benefit from a visit to the Office homepage at Microsoft's Web site, where many Excel templates and add-ins are available for free. One, in particular, is a rudimentary but useful loan and amortization calculator. The template generates a full amortization schedule and incorporates balloon payments, and of course there are no worries about whether it exports to Excel. Users can even customize the template to add their governments' logos to the printed schedules. For organizations that need to calculate a few special assessments, estimate some debt service costs on a note, or figure out an interfund loan, this template can do the job of an off-the-shelf amortization software package.

For the many Excel devotees, two Web sites are particularly useful: the Spreadsheet Page on John Walkenbach's Web site at www.j-walk.com, and the ASAP Utilities for Excel site at www.asap-utilities.com. Both Web sites offer free downloads of templates, add-ins, and formula examples. The "J-Walk" site offers a low-cost add-in for all versions of Excel — the Power Utility Pak, or PUP Tools — which allows users to perform hundreds of additional functions and features with push-button ease. The ASAP site offers a similar product for free.

Some governments are beginning to experiment with open-source products. Examples include Linux desktops and the OpenOffice application suite. Rather than installing and maintaining licenses for Windows on desktops, information managers might elect to install and use some version of Linux, a free alternative operating system (available at www.linux.org). OpenOffice, available for free at www.openoffice.org, is a suite of business applications very similar in appearance and feel to the Microsoft Office family of products. One problem with using open-source software is the difficulty in exchanging data with other organizations. Converting file types back and forth between applications during inter-agency transactions can be time-consuming. Also, since so many users already use Microsoft Word and Excel at home, school, or church, it might be worth the extra expense to use the products users are already familiar with.

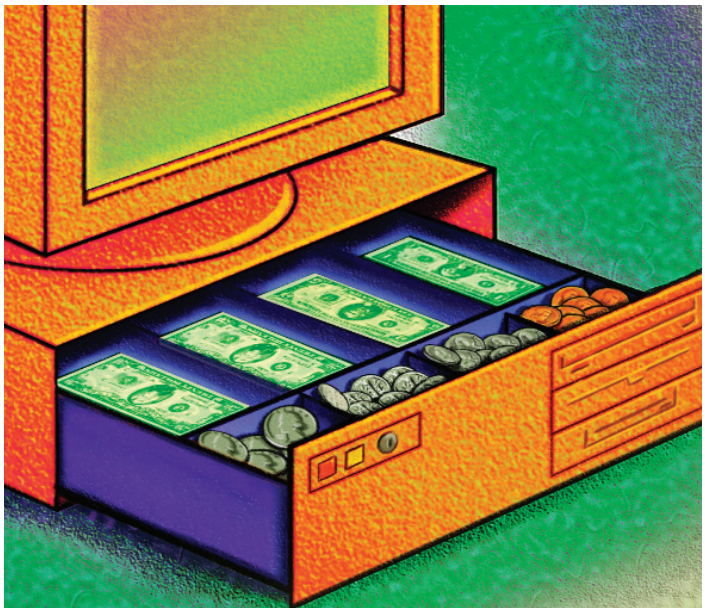
WHAT YOU DON'T KNOW MIGHT COST YOU

Most offices, especially government offices, do not use many of the features included in the products they already own. Some of those menu choices that are never explored and boxes that are never checked might be the solution to unmet innovation needs. The nearly ubiquitous Microsoft Office provides a good example of what a user is missing by

not selecting all the options that are available. Users can keep the computers from being laden with useless clipart by allowing the installation wizards to do a typical, default installation, but they might be missing out on useful adjunct products, settings, and converters. Several time-related formulas and what-if analysis tools are not even available in Excel unless various add-ins related to those features are enabled, and these features are not usually installed by default.

Imaging and Scanning. Many organizations are considering digital imaging or going paperless with some of their normal operations. Free utilities included on the Microsoft Office CD — Microsoft Document Imaging and Microsoft Document Scanning — might allow some users to avoid purchasing additional software for imaging and indexing. The City of Stuart uses these two utilities not only to image its accounts payable backup documentation, but also to scan paper bank statements, convert them to readable text, and locate anomalies and errors out of pages and pages of information. The application allows for desktop shortcuts to batch scanning, single-page scanning, and batch-plus-one scanning (batch scanning of multiple documents that allows for breaks to add additional documents).

Digital Photos. Digital photos play a large role in code enforcement activities, asset inventories, and employee identification. But the range of photographs taken from different cameras at different resolutions and in different orientations can make standardization of display nearly impossible.



Irfanview, a free utility available online at www.irfanview.com, allows a user to rotate, resize, relocate, and rename multiple photos simultaneously. Microsoft also offers a "power toy" for Windows XP users that allows them to resize and alter entire directories of photos en masse.

Mobile Communications. Governments that want to go mobile may be thinking about buying a Blackberry server or subscribing to a Blackberry service. Offices that have a Microsoft Exchange e-mail server can access all the mobile functions of a Blackberry, and more. They are already there, for free, although data transfer charges over a wireless network provider may apply. Also, Microsoft Office attachments are natively supported and can be viewed or edited in their original formats on a Windows Mobile Smartphone, which some employees may already have. A somewhat different experience can be had with the 3G iPhone.

FOSTERING CREATIVITY

Organizations need to get away from the narrow focus on one tool doing one thing. This kind of solution is almost always expensive. Instead of looking for a hammer, which does just one thing — hitting other things really hard — a better model is a set of pliers, which grabs, holds, turns, pulls, and sometimes even whacks problems. Much like the television character MacGyver making an airplane from a roll of duct tape and a pocket knife, solutions can sometimes be made from products that are just lying around.

When vendors present their products, they introduce the features in the way they envision those features being used. By thinking creatively, however, users can sometimes come up with uses the vendors never thought of. One way to do this is to look at field X and imagine what would happen if it were field Y instead. This kind of innovative thinking can allow users to contribute their own solutions to problems, using existing systems.

Taming Data. Structured query language (SQL) is an excellent example of a technical solution finance officers can use to help expand the bag of tricks and tools the organization has available to meet the ever-increasing puzzles and challenges governments are faced with. To transform raw numbers and metrics into meaningful statistics and reports, it helps to understand what data is being stored, and how. SQL, the foundation of almost every search tool and report engine

on the market, can be extremely helpful in this regard. Some type of SQL is used to access and join data from a database, or multiple databases. Learning SQL allows a finance officer to obtain meaningful and useful information by, for instance, generating comprehensive financial statements from a sea of disjointed numbers. When it isn't possible to access data directly, SQL provides a common vocabulary that helps enormously when asking the chief information officer or the system administrator to retrieve the information needed. Asking the IT department for all the transactions that were taken this year but were meant for last year, in order to accrue some revenues and expenses, often elicits a MEGO ("my eyes glaze over") response. SQL provides a straightforward way for everyone to understand what data is needed, along with a suggestion about how to find it.

Something called open database connectivity (ODBC) usually has to be in place to get at the data. Most report-writing software uses ODBC to communicate with raw databases and allow the user to pull out custom reports, tying data together. These types of programs write the SQL for the user in the background. A low-cost alternative is to use the ODBC and SQL capabilities built into the Microsoft Office products. Microsoft Office comes with several ODBC drivers that are available using a full or custom installation. The ODBC driver needed to communicate with a particular database sometimes has to be purchased from a third party, but these are usually inexpensive. Once the ODBC is in place, Microsoft Access and Excel are able to view and query the raw data at the heart of the database or the enterprise resource planning (ERP) system.

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Purchasing Cards. Purchasing cards create their own set of problems. Organizations have to figure out how to get the transactions into the accounting system and how to match vendor information with the expenditures (so expense reports do not indicate that pencils and pens were purchased from Visa). Using ODBC and Microsoft Access, a relational database management system, the City of Stuart was able to replicate the ERP system's accounts payable batch entry setup. After importing an Excel version of the monthly expenditures from the purchasing card bank, the city can quickly match merchants to vendors, code transactions accordingly, and then use the ERP's import features to upload the data into the existing accounts payable module. The vendor history is correct, and all expenditure line items reflect accurate year-to-date information. The solution was developed in-house, again using the friendly help wizard in the Office suite.

Exhibit 1: Hardware Printing versus Software Printing

	Hardware	Software
Number of Printers Available:	2	12
Average Cost per Printer:	$2,000	$500
Types of Documents Printed:	7	22
Time Required for Edits:	3 Weeks	Same Day
Cost for Edits:	$1,200	Staff Time

Budget Presentation. Budget presentation is another area where custom reporting is often needed. The standard menu reports on most budget program offerings do not allow users to combine volumes of detailed data, meaningful subtotals, and analytical displays. Even highly integrated ERP systems do not usually allow users to introduce additional analysis from "off the box" sources — such as a spreadsheet in "My Documents." Again, ODBC and Access might be the answer. The City of Stuart developed what it refers to as a HIMOS (highly integrated Microsoft Office solution). Using Access, the city can combine its ERP budget data with in-house information and data tables to create real-time custom budget reports. The budget document can incorporate Access, ERP, and Excel data in a single print function. And this technique requires no alteration to the ERP software, so the city did not incur any custom modification charges.

A TIP FOR PRINTING

Printing tends to be an underrated topic. It is the source of some big headaches. Finance officers rarely worry about the printing of accounts payable checks or payroll checks — until they cannot be printed. Green and paperless initiatives have made a dent in the amount of paper generated through operations, but some things still have to be printed, including

checks. Normally, organizations use a hardware-specific product involving preprinted stock and some sort of signing system. Check printing is considered mission critical and must be operational close to 100 percent of the time. There is, however, a solution that uses software.

The City of Stuart switched from hardware to a software-based printing application and can now print forms to any off-the-shelf printer. The improved flexibility and cost savings are substantial (see Exhibit 1). If one printer goes down, an alternate is just a mouse click away. Stock is ordered nearly blank and in self-sealable format. Changes to signatures, graphics, and layout are done in-house and on the fly. The technology incorporates logic into the print jobs, allowing the city to combine outside data sources such as Excel tables with ERP print information in real-time. One could, for example, use the software to examine utility bill print jobs and include a monthly newsletter for residents who already have sanitary sewer service, but print a survey inquiring about interest in establishing service for those who do not currently have it.

CONCLUSION

Technology can be used to overcome obstacles in ways that are both exciting and affordable. Contact the vendors of existing systems to find out what the software can do. Join user-groups of those systems; they are free, and a great resource. Encourage users to explore and experiment with the products they work with, and be receptive when they discover solutions to problems themselves. Contribute to the knowledge base by sharing information through networking and professional associations. With the right mindset, users can identify and take advantage of any number of low-cost solutions that meet the organization's needs.

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