

Prove IT >>

The Disciplines of Harvesting
Value from Public Sector
Information Technology

CENTER FOR
DIGITAL
GOVERNMENT

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Prove IT

The Disciplines of Harvesting Value from
Public Sector Information Technology

*“The mighty doors of change swing
on the tiny hinges of discipline.”*

— Ken Wendle, Co-founder/Past President,
IT Service Management Forum (itSMF) USA

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>> INTRODUCTION

>> MEASURING WHAT MATTERS

“Existing roles for evaluating governmental activities need to be updated to reflect the ongoing shift toward a digital economy.”

— Joseph E. Stiglitz,
Nobel Prize in Economics, 2001

“Prove it!” The challenge has almost universal applicability — as a taunt in the schoolyard, an imperative of the scientific method in the laboratory and the standard of evidence (beyond a reasonable doubt) in the law courts.

“Prove IT!” has also been the elusive holy grail in information technology (IT). Witness a body of work that includes over a thousand books and almost a billion Web references to information technology costs, benefits, value and return on investment (ROI).

Searching for Information Technology's Value (By Search Term)	Web References (Google)	Books (amazon.com)
Information Technology Cost	935 Million	1,491
Information Technology Benefit	339 Million	1,448
Information Technology Value	589 Million	1,389
Information Technology ROI	63 Million	279

That the billions of words of explanation and advocacy on these topics have not resulted in a mature discipline of informatics economics suggest that there is something missing from — or even wrong with — the conventional approach, at least as far as government is concerned. U.S. private sector investment spending on IT, after having eclipsed all other types of spending at 50.5 percent of the 2004 total, continues to rise.¹ What seems to have been proven in the private sector has been greeted with suspicion and delay in the public sector. This is so even when there is no technical, financial, or philosophical disagreement over what can and should be done to make government work more efficiently and effectively. The failure to act in the face of the obvious leads many to the conclusion that government just does not work any more or cannot adapt to the digital world fast enough to avoid being bypassed by others who can do government's work better than government can.

Perhaps reformers, technologists, and technocrats plying their trade in government have all talked “past the sell” or, perhaps they are speaking the wrong language. All have been relying on words to do the work of math, which, by definition, is the natural language of digital transformation. And the error may be an unavoidable hazard because, for all the ink spilled in the name of proving the value of information technology over most of the last 50 years, there are still no universally accepted metrics for proving IT; that is, measuring the value of Information and the value of Technology.

The formula is deceptively simple:

$$\frac{\text{Cost (Numerator)}}{\text{Benefit (Denominator)}} = \text{Value}$$

The problem, particularly in the public sector IT community is two-fold: First, government does not know the numerator (that is, the cost of the investment in IT). Former Gov. Mark Warner of Virginia, a technologist by profession, tells the story of when he ordered his government to tell him what the state spent on technology. His willing and eager staff and department heads struggled so much to find the answer, the exercise was a catalyst for reforming how IT was organized and funded in Virginia. Or witness the renewed efforts of former Michigan Gov. John Engler, now president and CEO of the National Manufacturers Association, to make government more transparent. Frustrated by the lack of data during his tenure in office, the technology-friendly Engler is convinced that making government spending on IT visible is one of the greatest favors that could be done for elected officials. The Legislature in the state of Iowa would concur in that it had to order such an analysis be done by the administrative branch and an outside consultant brought in to tell the state government what it was spending on IT.²

The numerator problem is compounded by the second problem: there is no agreement on the denominator (that is, the benefits harvested from the IT investment). The promise of potential benefits has been exaggerated and oversold by project proponents. This tendency is perhaps most charitably explained through an observation by Microsoft chairman, Bill Gates, who said, “We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.”³ The realities of a political environment suggest a more pragmatic explanation. Elected officials want solutions to intractable problems that fit within a single term in office and that desire has been heightened in jurisdictions with term limits. Elected officials, together with career bureaucrats, would prefer to avoid threats rather than manage risks — making them uneasy with the

difficult work of modernizing government through technology and subject to sticker shock when total costs are disclosed.

To make matters worse, fiscal analysts for departments — often anxious to defend baseline spending and the legacy programs they manage — want to keep the existing budgets, processes, and staff in place even as a new system is being deployed that should require substantial budget, process, and staff change or elimination. Moreover, they discount or even dismiss so-called soft dollar benefits, including cost avoidance, service improvements or benefits that accrue to parties outside of government (taxpayers, residents, businesses and community organizations). Finally, budget writers too often claim and cut the promised savings before the investments have been made to harvest such savings, or even worse, expect the savings on insufficient investment in the new system and the actual cost of changing the workers, skills and culture that supports the legacy system. All of which creates hard dollar disincentives for public entities to mine out costs from their existing processes, or to even suggest that they are trying to mine out those costs.

Together, these two problems of knowing what should go in the ROI formula have led — incorrectly — to the perception that digital technologies must add an additional and unaffordable layer of cost to government while giving short shrift to the external (if still early) hopeful indicators that public organizations are changing for the better.

In the pages ahead, *Prove IT* argues that the real payoff for these public investments in information technology is in these investments' disruptive impacts in displacing tired, old burdensome processes — not enabling incremental improvements to old burdensome processes.⁴ *Improve IT* just does not set the bar high enough. *Prove IT* takes sides with the future over the past, the citizen over the bureaucracy (if forced to choose), with leading in place rather than being good enough for government work, and with finishing what the Internet started in transitioning — even transforming — public institutions in order that they might be responsive, responsible and relevant in a new century.⁵

Prove IT sets out the foundation of a new disciplined approach to realizing public value through:

- **An Integrated Future:** Preventing the development of tomorrow's stovepipe systems today by eliminating bureaucratic impediments to data sharing that are built into technical systems or reinforced by perceived or a rare real legal impediment to sharing.
- **Transparency:** Creating and optimizing public value by using IT to allow decision makers to see their operations, systems and information across agency lines.
- **Results:** Capturing the value of:
 1. **The Possible:** The new ways of doing the public's business that were impossible but for networked, digital technologies.

2. **The Improvements:** Those things that government was able to do with people, funds and time that would have otherwise been consumed by old, tired processes and work that can now be done better by machines.
3. **The Greater Good:** Efficiencies and the savings that changes create for people and organizations outside of government and the economic multiplier effect of reducing the friction drag of government on our businesses and lives.

And yes, *Prove IT* uses exponentially more words than numbers but it is a call to action that embraces both math and language in revisiting the proposition that has helped drive the campaign for government modernization for most of the last decade.

>> About This Paper

Prove IT is the fourth in a signature series of white papers from the Center for Digital Government on the hard but important work of governing through technology. The debut installment, *Citizen 2010*, coincided with the 2002 gubernatorial elections and anticipated a networked, digital majority that have different expectations and needs of government; expectations that require a different kind of government to respond and anticipate adequately. The Center followed *Citizen 2010* with *Pay IT Forward*, which offered a dozen funding options for doing the public's business with digital technologies while reducing pressure on the general fund. Borrowing from an American literary classic, the third installment called *The Sawyer Principles*, focused on new networked models of collaboration to help government rethink its approach to the public's business and how it gets done.

Copies of these foundational white papers and other publications from the Center for Digital Government are available at <http://www.centerdigitalgov.com/center/reports.php>

In completing this set of four foundational white papers on digital government as a new platform for governing, *Prove IT* is a call for discipline in making the right choices about technology and the right choices in implementing them in the public interest.

Prove IT is ultimately not about the return on investment, at least not as ROI has been conventionally defined in the public sector IT community. It takes both a broader and deeper view in three main parts:

I. Resetting the Proposition: Government as a Service

Prove IT begins with a reminder that public service and delivering services to the public remain legitimate and intrinsically valuable ends. Having (re)established the "what" that was the basis of the proposition, this section continues

with a discussion of “how” those ends are properly served by a new generation of technological means, and “why” government has been unable or unwilling to pursue a full harvest of benefits for its own internal operations and to the citizens it serves.

II. The Harvest: Finishing What We Started

If the exception proves the rule, then it is useful to examine exceptional cases where a disciplined harvest has been enforced. This section of *Prove IT* profiles notable examples from the state of Indiana and county governments in Nevada (Clark) and Florida (St. John’s and Seminole).

III. The Menu: The Full Deal Meal and A la Carte Choices for Moving Forward

Prove IT culminates with a comprehensive menu of choices for bringing more discipline to the harvest of savings, efficiencies and new opportunities. It itemizes tools of the harvest that make the new proposition possible as technology has caught up with a long-standing and often-validated vision of what modern government can be. Some tasks require daring, most require only doing.

>> Resetting the Proposition: Government as a Service

“Services are governments’ primary product. The delivery of those services at the needed scale requires IT.”

— Center for Digital Government, 2003⁶

The next five years will be more important to the effort to modernize government than the preceding 20 years. The arrival of the commodity Internet with distributed and interoperable databases in the mid-1990s established a base for a networked world and a networked government as a part of that world. The essential elements are in place to change the way government works — if we take the next steps technologically and extract and use the value to be gained from those steps. The enabling and disruptive technology that is the Internet represents the supply side as a platform for governing differently. The next steps here at the midpoint of the opening decade of a new century can create a digital supply of government services and match it to the growing demand for cost effective services and results. As technologists know, a digital supply is fast, flexible, adaptive, reconfigurable, replicable at no or only incremental cost, and cheaper by exponential factors than its analog counterpart.

To take the right steps, we must see the exponentially different future and see it before it speeds by us. We too often see the future through the rearview mirror. We see what happened with changes in mainframe-server-application-database-Internet cost/performance ratios over the last decade or so, and we base our plans on today’s capabilities and costs and the rate of change we have experienced. We forget that the speed-price-performance-power-ubiquity-interconnectedness curve is still screaming exponentially through the roof. As Ray Kurzweil argues persuasively, we have difficulty thinking exponentially or outside of the change paradigms of our own experiences.⁷ Therefore, we plan and prepare for the *past* and in government, do so slowly. Moore’s,⁸ Metcalf’s,⁹ Ellul’s,¹⁰ and Murphy’s¹¹ Laws will not be repealed and we need to assume exponential progress and its likely effects if we are to be able to catch up to the future and realize the value flow from this technology curve in rapid assent.

>> Tracking the Trends

To be responsive, responsible and relevant in the decades ahead, government must stop making technology choices that are aimed backwards. It is incumbent on public institutions to know and use the tools and technologies that are already in the pipeline, and to stop buying for the past, and instead, catch up with today and anticipate the future. It is incumbent on public executives to have sufficient curiosity to know what is already invented and what is either in production or awaiting an engineering or process improvement to get into cost effective production. That curiosity combined with an ever maturing tool set represents the obvious future. The combination of that curiosity and technological innovation allows government leaders and planners to begin seeing trends that are likely to continue, to see what kind of changes those trends will cause, and plan around them.

At one level it seems obvious to say that those who govern should keep an eye on the exponential growth and the power of IT components in changing the nature of government. But, then again, the mantra of transformation was overused and abused during the gov-dot-com era and elected officials and those who worked for them can be excused for casting a jaundiced eye at claims that echo what appeared to be empty promises of an earlier time.

Hyperbole notwithstanding, some of those promises may have just been early. Still, like the private sector, government has to build its business or service delivery models as if the tools existed now or are likely to exist. Consider the example of the online entertainment rental company NetFlix. For a monthly fee, customers make a list of the movies they want to see and NetFlix sends titles off the list three-at-a-time, renters keep them for as long as they want, and then mail them back in postage-paid pouches. At first glance, it seems that NetFlix is in the DVD lending business. It is more than that. NetFlix is building a huge database of customers for which the company has become the first choice in providing entertainment products. It will be much easier for all concerned when NetFlix is able to deliver real-time video reliably on the Internet, a proposition that is rapidly becoming a reality. That is what the company set out to do from the start — and it uses DVDs and the U.S. Postal Service as a surrogate for network delivery; that is, a transitional delivery mechanism. Now the questions are how well it can make the transition and compete with the pure-play, Internet-only start ups.

If NetFlix had fallen prey to a problem with which the military is sometimes accused — that is, being perfectly prepared to fight the last war — NetFlix would have opened a chain of brick and mortar video rental stores. It did not. Instead, the company built its business models as if the tools existed, and built a valuable and convertible

customer base in the meantime. Rather than being displaced by network delivery as many of its competitors are, NetFlix is building value now in order to build more value later.

The NetFlix experience helps to validate an axiom used by computer scientists and venture capitalists alike during the dot-com excitements: As the power of technology rises exponentially, you should not be doing the same old thing ten times faster, you should be doing something different. That has been a tough lesson for the public sector to learn.

>> Seize the Inevitable

Government modernization has proven to be more evolutionary than revolutionary but, incrementally, iteratively and inevitably technology has made government more logical and less physical, with greater capacity and reach and less cost and bureaucracy. All of that is taking place in the face of dramatically increased urgency caused by a growing number of external factors:

- A cyclical recovery in both revenue and spending among state and local governments making more projects possible and giving pent up demand an outlet.
- The long-term U.S. fiscal crisis now described by the comptroller general of the United States in disaster terms such as “demographic tsunami that will not recede,” “a Category 6 hurricane,” and the fall of the Roman Empire.¹²
- A maturing digital economy that every day shows consumers the gulf between what is possible in digital prices and services and what services are delivered by the analog government and what it costs.
- The exponential growth in the power, speed and capabilities of the technology itself.
- The continuing impact of the “invention” of the cure for cognitive dissonance with the ongoing more-for-less mismatch between the price of government, demand for government services, and costs of government services (we all want to eat the super-sized chocolate cake without exercising or gaining weight).
- Health care, unemployment insurance and the looming demands of a retirement bow wave of baby boomers create growing demand against the finite resources of government. Medicaid has already grown to consume 22 percent of the state spending by itself¹³ and is projected to account for more than 75 percent of new state revenue in 10 states by 2009.¹⁴
- The growing demand for quality K-12 and higher education and job training to restore American competitiveness without a concomitant commitment of resources.

- “Flat world” challenges (see page 10) to the American economy that undercut fiscal capacity while increasing demand for government investments to either meet the challenges or mitigate their effects.
- The uncertainties and costs that attend the rebuilding of hurricane-damaged communities in the Gulf Coast states and the increased likelihood of more natural and man-made disasters without a rainy day fund to absorb them.
- The additional burdens of the war on terror and the War in Iraq.
- An election cycle that could put otherwise safe incumbents in play, making them even more frantic to do more with the same or less.

>> A Decade of Discontent

Even before Hurricane Katrina and the public dissatisfaction with the government response, 2006 was shaping up as a volatile political year. For example, the nonpartisan Cook Political Report anticipated the 2006 election outcome as being in question in just 50 of 435 House districts. A Wall Street Journal/NBC News poll released during July 2005 ranks the overall approval rating for Congress at a paltry 28 percent. By a 46 percent to 41 percent plurality, Americans said it was time to give a new representative a chance rather than reelect their incumbent member. Larry Sabato, a University of Virginia professor and political analyst, reminds us, “There is a chance that the dissatisfaction in the public will catch fire politically.”¹⁵

What is true for Congress is also true for state houses — not to mention the 36 governors’ mansions the occupants of which must return to the polls in 2006.

36 States with Gubernatorial Elections in 2006

Alabama	Hawaii	Minnesota	Pennsylvania
Alaska	Idaho	Nebraska	Rhode Island
Arizona	Illinois	Nevada	South Carolina
Arkansas	Iowa	New Hampshire	South Dakota
California	Kansas	New Mexico	Tennessee
Colorado	Maine	New York	Texas
Connecticut	Maryland	Ohio	Vermont
Florida	Massachusetts	Oklahoma	Wisconsin
Georgia	Michigan	Oregon	Wyoming

In the big contest for governors in 36 states, term limits take seven incumbents out of the hunt this year; and most of the others will be seeking new mandates after head-turning wins in 2002 or, in the case of California, the 2003 recall election.

With more than two-thirds of the country in play, it is not too early to think about the talking points for public sector IT in the campaign ahead. It has been a long time since we have heard lines like the “dot-com-ing of government services” or “everything e by 2003” in stump speeches. Propositions have been replaced by tactics — the current flavor of consolidation come-what-may is driven by the desire to mine costs out of IT, rather than using IT to change the cost structure of delivering government services. It is the perfection of means and the confusion of ends.

The public sector IT community has been on message for decades on the promise of efficiency, effectiveness, cost savings and increased capacity. The track record on those points is uneven. The body of work is book-ended by examples of transformational success and disappointing failures, with a largely undistinguished middle.

Government modernization is an iterative process that is really never done. That’s tough to reconcile with a four-year political cycle. Still, there is an important and underreported lesson in the 2002 gubernatorial election. There were only 12 incumbents among the three dozen governors elected that fall. Moreover, 15 of the rest represented a change in party for the chief executive’s office in their respective states. In all, two dozen states are led by men and women who came to office with no skin in the e-government game. If there was ever a moment that the digital government experiment could have collapsed, it was Inauguration Day 2003.

Look around, click around — 50 states, 50 official state portals, many of them in better shape today than they were when their benefactors took office. Not one portal was taken down. While we were busy worrying about other things, state portals and the online applications that stand behind them finally shook the old description as “alternative delivery channels” to emerge as the new mainstream in public service. To be clear, in seven short years, states (and many localities) had established an all new, permanent and scalable delivery channel. Importantly, the new governors expected nothing less because they, unlike their predecessors, were able to live digitally before they had to govern digitally.

>> Feeling Flattened

Then it all hit a wall of retrenchment in response to what David Osborne calls a “permanent budget crisis.”¹⁶ For its part, much of the work in public sector IT was reduced to blocking and tackling inside government — even as these same technologies were “flattening” the world, the analogy favored by Thomas Friedman in his most recent book on globalization, *The World is Flat*. Friedman’s contribution is not to provide unique insights into how technology is removing the bureaucratic and logistical friction — or flattening —

organizations all over the world (and the world itself by his account). Rather, as a consummate storyteller, Friedman has engaged a universe of readers that tend not to read white papers. The National Governors Association has made the book recommended reading — Michigan Gov. Jennifer Granholm does not leave the office for any of her town hall meetings across the state without her well-thumbed copy — as has the Council of State Government and other like organizations. Ultimately, the book matters because the people for whom the public sector IT community works are reading it.

In the August 2005 issue of *Public CIO*, Keith Comstock urged public servants to read Friedman’s “disturbingly accurate assessment” because “a whole lot may depend upon it.” Comstock and other reviewers have argued with Friedman over propositions — the institutional failure of American education, the loss of large volumes of good jobs, an economy that is supposed to be built on the imagination rather than steel or even sand, and, ultimately, the erosion of national sovereignty. Still, we see the erosion of sovereignty as governments struggle to regulate areas like gambling, pornography, and banking and protect local jobs and culture. Governments see sovereignty washed away by the ones and zeroes of the Internet and ask: what is government to do?

Indeed, Friedman’s book may do as much to shape the political mind-set for the next election cycle in that it provides a framework for having important public conversations — and arguments — about the interdependencies and contradictions of our time. As those who helped unleash the technology-based flatteners, it is incumbent on public CIOs — and not just the elected officials for whom they work — to respond to Friedman’s repeated challenge to “Figure that out.” It gets harder from here, but it *is* getting interesting again.

>> Pent Up Demand in Search of Opportunity

It may be counter intuitive at first glance to think that the growth in technology spending would outstrip the increase in general

REVENUE GROWTH

Year over Year State Revenue Growth (Range 2004 - 2005)	5% - 24%
Year over Year State Revenue Growth (Average 2004 - 2005)	11.7%
Adjusted for Inflation and Tax Law Changes	3.9%

Source: Nelson A. Rockefeller Institute of Government, June 2005

SPENDING GROWTH

26-Year Average	6.2%
During the 2001 - 2003 Public Sector Revenue Recession	0.6% - 1.3%
Post Recession Recovery (Each of the last 2 years)	2.8%
Year Over Year Growth in State Technology Spend (Projected, FY 2006)	4.75%

Source: Center on Budget & Policy Priorities (2005). NASBO (2005), Center for Digital Government (2005 - 2006)

government spending, until you consider the pent up demand pushing against a new reduced baseline and the larger trends in society level investments. IT is where the money goes to solve a lot of problems effectively if the problems are understood and matched to a proper solution. Furthermore, there are new mandates and old systems, all of which need fresh investments in technology to address the creaks and crevasses of governing in a new millennium.

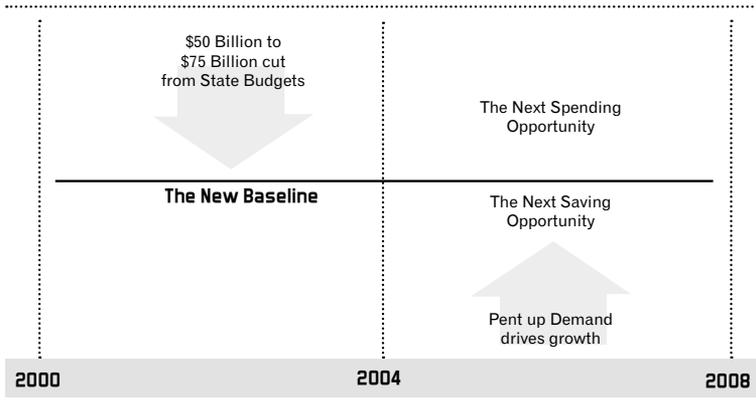


Figure 1: Pent Up Demand for Modernization

Moving forward, the baseline may not rise or fall, but there are opportunities on both sides of the line. It may not be necessary that there always be a growth in spending. Below the line, government may very well seek savings by scavenging money from other programs and redirecting those resources so the technology then reduces our base cost.

At a time when everything that government does (and how it does it) is under increased scrutiny, a track record becomes all the more important. And that track record is more than the heady days of the dot-coms. In fact, it reaches back a half century. The track record speaks for itself, except that we have never taken the time to tell the story. There is at least a 50-year history of success in digital government.¹⁷ This history parallels an unblinking advance in the exponential growth of the power of technology and the growth of the IT sector, IT use, and IT investment that was not affected by the dot-com market bubble burst.¹⁸

The public sector IT community tends to always ask, "what's next?" or "what's new?" and those are the right questions almost all of the time. But there are times when it makes sense to look back. The term "e-government" has fallen out of favor in some circles. Note that Harvard's JFK School of Government has been championing "moving beyond e" while a major analyst house concludes that e-government has fallen into a "trough of disillusionment."

Yet, digital government is not just the Webification of government services or putting a pretty electronic face on bureaucratic processes — nor is it confined to the wave of excitement that was the dot-com era.

Digital technologies have been doing the heaving lifting of government for decades, since hardware, software and modem-based communication were first combined to provide a Cold War defense in 1955. The myriad automated eligibility, administrative and criminal justice systems in the intervening years owe their existence to the need for capacity because administering these programs — and distributing public assistance — became more complex than could be handled through manual or mechanical means.

Today's public servants stand on the shoulders of those who have come before; we have inherited systems that are uniquely able to process the volume and complexity of data necessary to conduct the public's business; and we are charged with looking around the next corner.

>> Climbing P.K.'s Ladder

P.K. Agarwal, who returned to public service in 2005 as the director of California's Department of Technology Services, originally rose to national prominence in the mid-1990s as an early proponent, practitioner and prognosticator about the then nascent campaign for e-government. During previous public service with the California Franchise Tax Board, Agarwal was among the first to set out the milestones on the journey toward e-government, a model that developed over time into PITIT — Publish, Interact, Transact, Integrate and Transform.

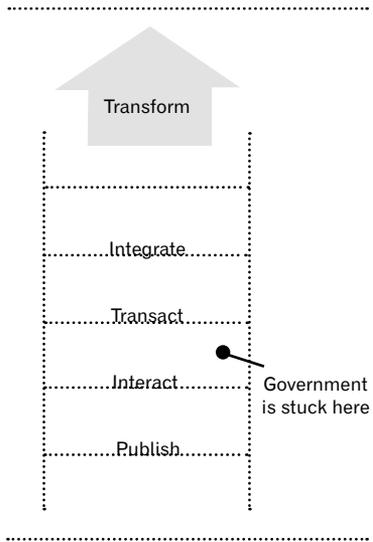


Figure 2: P.K.'s Ladder or PITIT: Publish, Interact, Transact, Integrate and Transform

>> Stuck on "T"

PITIT represents the rungs on P.K.'s ladder with an implicit recognition that the lower rungs were relatively easy to mount but the climb became more difficult with each step up (see Figure 2). But, government got stuck half way up the ladder, somewhere between interact and transact. Putting up a Web site and sending

and receiving electronic communications has become routine stuff in government, even though there are still a surprising number of smaller municipalities and counties without a functional and regularly maintained Web page. Transactions were slow to start for the same reasons that e-commerce had difficulty before climbing the Transaction rung — access, trust, user fees, identity management, payment issues, security and acceptance. While private sector entities now rely on e-commerce as their customer’s channel of choice, and these entities are climbing on to the Integration and Transformation rungs, many governments have yet to put all their forms online. This means a citizen still has to download, fill, and print forms using their own paper and printer, assuming they can even find them in an electronic format in the first place. An even smaller percentage of government entities have all or even a substantial part of their forms set up so that they can be filled and filed online along with any required payment. Here is the breakdown of sample county government transaction types from a national survey and their e-form status:¹⁹

Government Transaction Type	Print and Fill	Submit Online	Submit Electronic Payment
Property assessment/ Tax payment	67%	34%	—
Procurement docs	64%	21%	—
Voter registration renewal	60%	39%	—
Building Permits	58%	14%	—
Vital Statistics	56%	19%	9%
Parks and recreation services	55%	20%	—
County records request	50%	20%	—
Court services (jury duty, court date)	49%	32%	—
Library card or materials renewal	40%	28%	n/a
Animal services	36%	9%	4%
Child support or child care	32%	9%	7%
Occupational license renewal	26%	6%	—
Utility bills	16%	11%	11%

Figure 3: E-Form Status Among County Governments

Nearly everything government does starts and ends with a form, making forms a critical junction point for the transition from paper to electronic. Much is riding on making the change; for example, an estimated \$154 is saved per transaction completed through an e-form rather than a paper form. Simple math suggests that billions are being wasted or saved every year inside government on real paperwork and some multiple of those billions wasted or saved by those who must fill out the forms.

There are no longer technological or user adoption barriers to electronic government transactions. Doing transactions electronically is the biggest, most obvious, most lucrative harvest left waiting in the field. So why not just do it? Let’s assume, perhaps charitably, that government leaders need a little reminder nudge that this

remains one of the big payoffs and to give them a bit of information and vision to say to the staff, "Make it so." Perhaps their resolve can be strengthened through an E-Forms Starter Tool Kit.

So, here is the gentle nudge in the form of an E-Forms Tool Kit: To find an E-Forms Business Architecture, E-Forms Solutions Architecture, and a complete presentation spelling out this vision go to: <http://www.centerdigitalgov.com/center/reports.php>. Follow the link to the *Prove IT* paper to find links to the Tool Kit documents.

Here is a breakdown of the potential savings:

Cost Per Form	Paper Form	E-Form	Savings
Printing & Storage	\$15	\$1	\$14
Filling, processing & keying	\$145	\$5	\$140
Cost per completed form	\$160	\$6	\$154 ²⁰

Figure 4 illustrates the essential vision of what needs to be done:

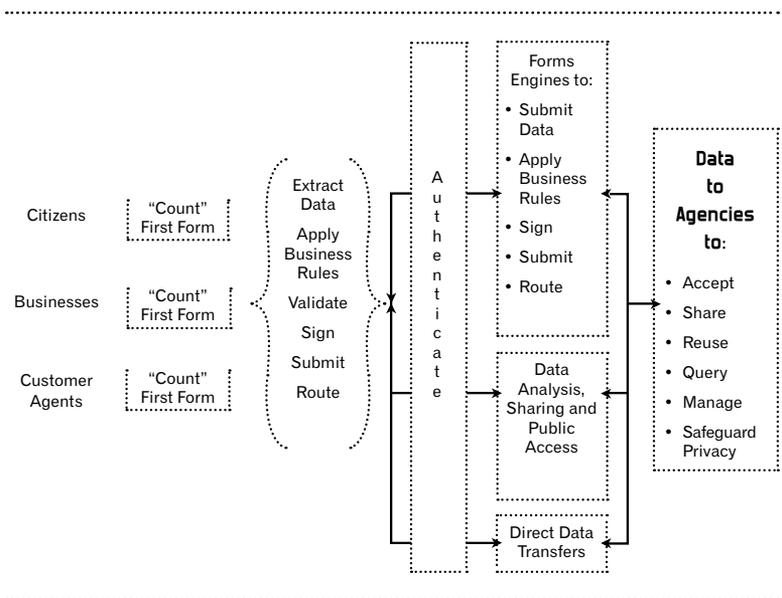


Figure 4: E-Forms Functional Summary

Figure 4 represents the key strategies of letting citizens reuse their own data across all government forms, allowing as much of the "work" of government to be done prior to its submission to government (think about how tax preparation software actually eliminates government forms, leaving the government to just catch the data). Optimization

of the remaining necessary government forms infrastructure, in the form of catalogues and portals, and data management and standards allow data from the government forms engines and citizen and business databases to flow to the agencies that need it. Done right, e-forms can help government climb the Integration and Transformation rungs and on to Government as a Service (see Figure 5).

The key to continued migration or, optimally, leap frogging is to deploy e-forms in a manner that enables others called Customer Agents to build the forms' functionality into the software and services the Agents' customers are already buying.²¹ Government leaders need to facilitate the move to e-forms and direct data transfer to happen faster rather than force private entities to engage in reverse engineering to figure out government requirements and processes. Figure 5 shows a basic blueprint to pave the way to completing the Transaction step and the move on to Integration and Transformation. More detailed plans can be found in the Tool Kit documents referenced earlier.

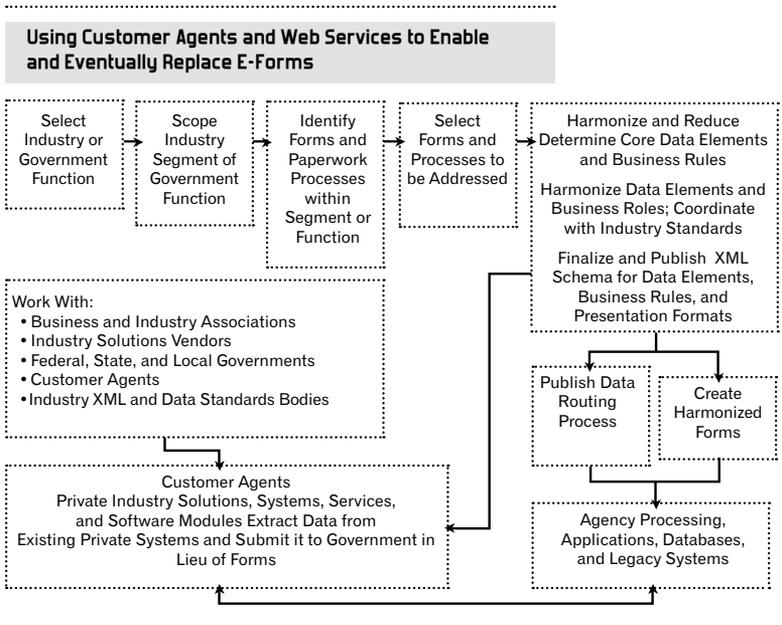


Figure 5: Beyond e-Forms to Web Services and Customer Agents

Moving Out of the PIT and On to IT and to Government as a Service (GAAS)

PITIT is another way of talking about Internet-centric business process re-engineering, a term that too often leads to a conversation of means over ends. More's the pity. The important question

for proving IT — whether discussing PITIT, business process re-engineering, service oriented architecture (SOA), GAAS, or making new investments in core infrastructure — is *to what ends?* Answering the *to what ends* question goes a long way toward getting government unstuck and on to what government can become.

This question was the genesis of this white paper. The authors observed a general fatigue after an extended period of blocking and tackling — or an almost exclusive focus on tactics and means — in the public sector IT community. There was a firm grip on “what” and “how” in the post-recession recovery including consolidation and strategic sourcing, but there was a general silence on “why,” never mind a grand vision of transformation that fueled the early PITIT efforts.

So, why finish what we started with PITIT? Simply put, reaching the integration rung on P.K.’s ladder is a necessary precursor for re-imagining Government as a Service or GAAS²² — a model powered by Web Services technologies and reflecting mainstream practices of the Service Economy.²³ As illustrated in Figure 6, the Government-as-a-Service model leverages uniquely digital economies of scale, the multiplying power of multi-jurisdictional and multi-sector collaboration, and the combined expertise of civil service, industry and Non Government Organizations (NGOs) — all for the public good. As envisioned, this model puts “service” back into public service by letting people and machines play to their respective strengths. While machines and software agents process huge volumes of routine transactions and analyze kilo/mega/giga/tera/peta/exa/zetta/yotta²⁴ bytes of data, public servants do what humans are best at: solving problems and providing care. Now there is a vision to draw to.

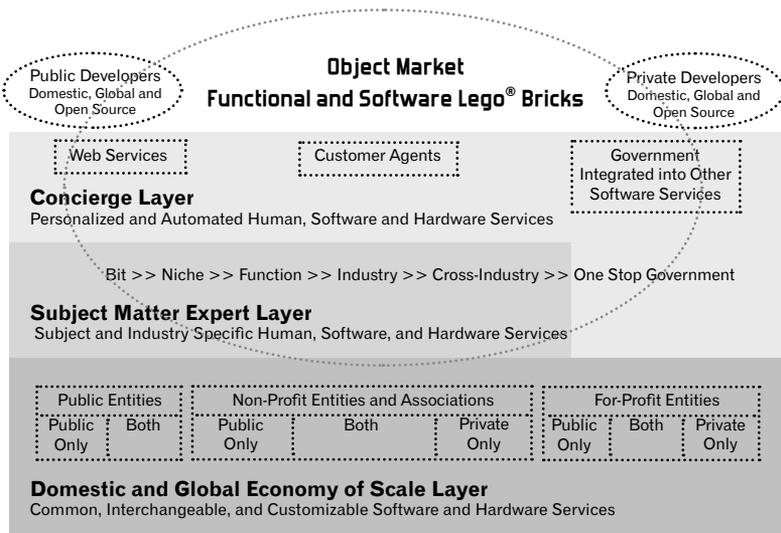


Figure 6: Government-as-a-Service

>> GAAS Defined: Fuel for Imagining the Future of Government

Government is part of the Information Industry. Perhaps it is one of its oldest members. Information is the natural resource on which government depends and one of its key outputs. Government therefore will inevitably be affected by what happens in Information Technology. IT is moving toward a new paradigm known variously as Web Services, Service Oriented Architecture, Software as a Service, and the Interaction Web. Added to this trend are technological revolutions in genetics, nanotechnology and robotics.²⁵ These four “overlapping revolutions” will substantially change the way we live and work and the business models that are possible and dominant. Government in some cases will still be a provider of services. In most cases, government will come to be a consumer of information services to such a degree that it will be able to return primarily to its essential functions:

- Listen – to the wishes and ideas of the electorate
- Deliberate – study, think and listen some more
- Decide – officiate between competing values, parties and sources of influence
- Act – to effectuate its decisions
- Create – content, data, analysis, rules and laws
- Judge outcomes – objectively, subjectively, guided by public opinion and guided by the outcome of elections
- Protect – its people and their rights, property and sovereignty

Such a return to basics is in part an extension of the business models government has already adopted in road building, Medicaid and power generation. (Most agencies do not create their own electricity). In other ways, it is profoundly different because of what is possible when technology becomes standardized, interoperable, ubiquitous, cheap, intelligent and reliable. The Industrial Revolution was in large measure made real and dominant when standards for all the relevant parts were adopted and implemented to the point at which they achieved critical mass. Making things that worked for a broader audience became possible and the business models followed that capability with assembly lines, mass marketing, commodity goods, consolidation, globalization, and so on. IT developments have co-enabled these trends and now more and more critical processes and products in every industry are dependent on or are part of the IT Industry.

Now, IT is being standardized in its machine to machine interactions much the way the human computer interface was standardized though the Web. IT standardization will cause concomitant changes in business models in the same reflective way that various industries and industrial business models changed

to reflect industrial standardization and more recently, business models changed as a result of the Internet. Adding to the change will be that these standardized systems, modernized processes and their attendant reformed business models will use the growing and hard-to-imagine power from computers and intelligent software.

The change is hard to imagine, but exponential growth from currently known and implement-able production techniques will make a super computer run at brain speed by about 2020, a \$1,000 computer run at brain speed 10 years later, and by midpoint in the decade a \$1,000 dollar computer will run faster than all the human brains on earth *combined*.²⁶ We will also see parallel increases in software power and abilities so that many more human and super human processes become possible with machine intelligence. It is hard to imagine what we could do with that much processor power and software or that it could even exist — much harder than it was to imagine, when vinyl was king, that in a few short years we would be carrying a lifetime collection of music around in a shirt pocket. But imagine we must, because these changes will come and they will change us.

To examine what that change will look like for government will take a broader and deeper look than can be afforded here. This paper starts the discussion and focuses on the inevitable and very likely changes we will face. The paper also describes how government can take advantage of such changes to excel at its mission. When the most recent e-government revolution began, there was a cadre of committed IT professionals in government and elected leaders who just did not get it. It was not because they were not smart, committed public servants, it was because they clung to what they knew and doubted a future that seemed obvious to those who did get it. The gulf between what we are doing now in government, including those that are doing e-government well, and what is to come is even greater than it was then.

Ironically, time and an innate desire for stability often have the effect of turning reformers into incumbents who become what they rebelled against. At one point, they railed against the so-called mainframe bigots who stood in the way of the Internet. Now they find themselves defending their systems, their processes and their way of doing government against a new generation of young upstarts at the door and their call to seize the inevitable. The irony gets piled high enough to obscure reason when a person is told that they don't get it and they helped invent *IT* in the first place. It may be a bit of an epiphany to now know how one's predecessors felt, but rather than empathizing, this new realization should be used to avoid the mistakes the forbearers made.

GAAS will mean that government, for the most part, will no longer be operating unique or separate systems to support government operations. Instead, many of the operational activities of government service will be absorbed into software services

that will be spread across the three layers described below and a ubiquitous object market. Each GAAS layer can use the processes and services of another layer and draw from the object market.

The Economy of Scale Layer

The Economy of Scale Layer (EOS) is the primary layer and will consist of processes and services used by most entities and/or persons or commonly used by other machines and systems. These processes and services will be, as the name implies, large and dominated by a small number of utility-like entities. It will be generally unthinkable to try to do what this layer of services does yourself (unthinkable as in building your own nail factory to shingle your roof).

An example of the economy of scale layer operating today would include online auctions (part of a general class of services known as reverse logistics), which optimize the efficiency of bidding through large-scale aggregation of bidders and products. As a result, it would be unwise for government to dispose of its surplus assets by using its own system if it wanted to maximize its return. This would be so even if a government wanted to limit bidders to some geographical area because an EOS Layer online auction can be customized to a subset of users. More processes and services will become part of this layer and more of them will become common to more entities, sectors and persons. Such economies of scale are inherent in the nature of IT convergence and the characteristics of this layer will make that possible. To better understand this layer, it is instructive to define the characteristics of these processes and services:

Interchangeable

- The process or service is defined in its basic functionality and can be obtained from any supplier complying with the standard methods and specifications.
- Interchangeability flattens monopolies among providers based on key differentiators:
 - Generic – whatever is cheapest
 - Brand Loyalty – buy what you like and trust for image, stability, longevity, etc.
 - Quality – belief that not all standard things are made equal
 - Relationship – buy from whom you like and trust
 - Extras – additional features that do not interfere with interchangeability

Interoperable

- Core, like, and unlike functions can interact and exchange data, the limits of which are defined by the data owners in policies and software-coded rules *not by* the rigidity of system silos.
- Functions can be combined to perform known, newly invented, and ad hoc tasks and processes.

Customizable

- o Functions are able to be easily changed at the discretion of the user or maker without affecting interchangeability and interoperability.
- o Customization can be done by the software itself using an interface that a business manager or subject matter expert would understand without IT training.

Subject Matter Expert (SME) Layer

Simply put the Subject Matter Expert (SME) Layer lies in between the one that does *something* for most everyone and the layer that does *everything* for you. The SME Layer is comprised of expert people and expert software, hardware and systems that are unique to government in their kind or methods. This subject matter expertise can be very narrow or wide — from a byte or niche on one hand to cover an entire subject like health care or cross boundary functions like benefits, case management, training, and business intelligence and analysis on the other. Environmental compliance, public safety, justice, zoning, and Medicaid management and myriad other governmental functions, services and processes all occupy this layer.

In one sense, subject expertise is a prime value that the public sector possesses today — government is an expert on its own programs and services. This subject matter specialty will continue for some time, but there is and will continue to be a growing encroachment as government processes and private sector processes converge and become indistinguishable from each other. More and more of these services become distributed and many get pushed down to the EOS Layer. Qualifying a person for benefits — especially in areas such as Medicaid, Medicare, TANF and other human services programs — is a vital SME area that is dominated by government, but a substantial number of private vendors, providers, and Non Governmental Organizations (NGO) are expert on this as well. Even now many parts of benefits qualification and management are done by these outside experts and this is likely to grow. Moreover, where parts of these systems and processes are the same as that which non-government entities do, those parts will be served by the EOS Layer, either from conscious outsourcing decisions or by dint of it being the cheapest and best way to do it.

Concierge Layer

The word concierge was selected in part because the word is rarely used in government or IT circles, but it should be. Concierge also has a very specific meaning and it conveys an expectation that is atypical for government. A concierge listens to your needs, interprets how to meet them, interfaces with others for you and delivers a result. If the concierge knows you, then your needs can be anticipated and results

delivered without having to ask. What is envisioned here is exactly that: personalized and automated human, software and hardware services that deliver government to its citizens and customers and do so, in most cases, without having to be asked. Where a request needs to be made, it would be made by you or your intelligent agent in the plain language of who you are, what you are doing, and what you want or need and not in the language of government programs and rules. This would not sound anything like what government is to most people. It also does not sound like the kind of government for which most people are willing to pay. That said, not only is this kind of government well within reach, it will be more expensive to do government any other way.

At first glance, it may seem counterintuitive or even illogical to contend that high tech, high touch concierge government is cheaper than government as it operates today. Yet there is nothing cheap about today's government. A lack of money is not the problem — how it gets spent is. Too much of the public treasury is being used to prop up old, tired processes.

To be clear, the cost structure of government will change — either through blunt instruments of an ongoing tax revolt that expresses itself most forcefully through citizen initiatives to 'starve the beast' or through surgical means akin to an 'extreme makeover' to give hope and a future.

The issues with which government must contend are two-fold: human labor costs and the misapplication of human talent. Government has high labor cost (not including stock options and executive pay) compared to other sectors in society including everything from the financial services industry to NGOs that fight poverty in the developing world (often as a subject matter expert partners with government). Failure to adapt to technology and adjust the work culture accordingly has left government workers doing far too many drone and duplicate tasks that are already better done by machines of the last decade.

As the EOS and SME layers continue to grow and mature, distributed machine processes replace more stand alone, people-driven processes, and Concierge Government becomes possible. It is not too hard to believe that machines replace people and change the cost structure of an industry: imagine trying to go back and run the finance and insurance industry with only tellers, field agents, and yellow note pads. It may be hard to believe that software services and artificial intelligence can power personal agents to do work for you, in part because of past premature deployments and hyperbole. But believe we must. Artificial intelligence is all around us and its deployment and use are on a steady adoption growth curve that will soon hit the exponential growth phase. We cannot drive without looking in the rearview mirror, but we become lousy navigators and drivers when that is all we do.

Concierge Government is emerging today in customer services systems, 311, portals, and customer agent software and services (as discussed earlier). Building on the EOS and SME layers and using new powerful artificial intelligence tools, new kinds of modes of service become possible that were previously too complicated or labor intensive. Many who serve in government would like to think that what they do is unique art; that is, it can never be done by others or by machines. But even with today's tools, Intuit, H&R Block and others have reverse engineered one of the most arcane and artful areas of government — the tax code — and turned it into an automated service.

While the totality of government programs, rules and data needs seem dauntingly big and complex, we are now imagining and implementing deconstructions of much more complex subject areas and dynamic problems. Humanity is working on deconstructing the universe, all its particles, the human genome, global weather, tectonics, disease, the environment, the human brain and other mind numbingly complex subjects that put deconstructing government in perspective. Government has a limited, reasonably sized universe of laws, rules, interactions, data and processes that can be mastered by machine intelligence and managed by caring people who deal with exceptions as needed. This makes the work of having a one-stop concierge take care of all your interactions with government feasible. Doing this not only frees people and business from a lot of non-productive and frustrating activity, it frees a massive amount of government resources to be put to better governmental uses or left with the taxpayers. Jefferson said, "The government is best which governs least." It will be possible to reformulate that axiom to read: "Government is best which governs invisibly." Or, for a more contemporary source: "The less I say, the more my work gets done."²⁷

Object Market

The real gas to fuel the engine of the GAAS model is the object market — a growing collection of Lego[®]-like software, content and services that can be used and reused in many disparate applications and subject areas. From widgets, to data, to applets, and Web services, the global virtual market of objects is growing and becoming more used and useful. These objects are made and sold or given away under a wide variety of business models (proprietary and for-profit to open source) and for an equally wide variety of reasons. Making objects was once an arcane art and sharing and reusing them was either impossible or an even more arcane art. Those limitations were major barriers to efficiency and collaboration. While it is premature to declare the barrier gone, we spend more time now dealing with the fact that the barrier is not there, than we do tripping over the remaining rubble. For example, now that Web services and software as a service such as *salesforce.com* are well established, we are reworking our processes

and systems to accommodate that fact and its implications rather than writing interfaces or making our own solutions.

Another implication of the opening up of this market and the lowering of barriers to entry is that an exponentially larger number of creators and sellers will contribute to it. Not only is making an object easier today, numerous software platforms are moving to create interfaces that require no coding experience and that can make software and services as an end product without human intervention in between. (That sound you hear is pocket protectors being clutched in either horror or derisive laughter). This democratization of the object layer will happen much the same way that document creation for printing or making Web sites used to be an art form that has been turned into a task most anyone with a computer and inexpensive software can do. Consistently higher order tasks are being pulled into the IT process and democratized so that most anyone can do it with a little training and access to hardware and software. Software, content production and service creation will follow a similar course because a committed group of the curious and reform-minded (who may not even know what a pocket protector is) is making it happen and it is an inherent property of the technology itself. Look for the object market to grow and for the role of brokers to grow with it to act as a steward of the object market resources.

>> Snakes and Ladders

The process of government modernization has a *Snakes and Ladders* dimension to it.²⁸ For all the care taken to design, build and climb P.K.'s ladder toward the "100 point square" of transformation, many public agencies misstep and end up sliding downward. The key difference is that an element of chance is decisive in the classic board game. Freak events notwithstanding, deliberate choices are decisive in how, and how well, government works. Discipline is what keeps an organization climbing the ladder, even when storms make the rungs slippery, and firmly footed en route to transformation and reaping value.

Indeed, IT presents numerous opportunities, such as e-forms as discussed earlier, to move from relatively high-cost and low-value activities to those with high value and low cost. We see how Wal-Mart or Federal Express uses technology to accomplish this feat in managing the supply chain and logistics. Such ability to leap and reap has become the hallmark of successful entities worldwide and marks the difference between the winners and losers in the corporate world.

In a world of all ladders and no snakes, or if there were greater discipline in avoiding snakes, government modernization would be done by now and the public would leap from old to new

processes rapidly and reap the bounties of the attendant efficiencies. (See Figure 7.)

Alas, in the world in which governments actually operate, there are at least as many snakes as there are ladders, and many public entities find it difficult to remain firmly footed on the rungs. The result is depicted in Figure 8, which is a slow and frustrating way to play the game. Realizing

such improvements in the cost/value ratio in government would seem to be a consensus goal for any unit of government, but it remains the exception, not the rule. In fact, the norm in government actually leads to the exact opposite result with the value realized much later than a reasonable effort would produce and the cost much higher than any

sensible person would pay. The reason for this is that snakes have wrapped themselves around every rung of the ladder. But with few exceptions, most of the snakes are of government's own making or its collective imagination. As depicted in Figure 8, government's footing is often unsure because it:

- Maintains the old, mostly paper-based, labor intensive systems, at the same time it spends resources on the new method and system.
- Either delays investing at all or under funds the new system delaying the time to secure value but actually costing more as short cuts and cost squeezing leads to quality issues.
- Funds for new systems are taken from the existing budget with no reduction in work load and no method to finance the transition to the new while maintaining the old and short changing both.
- Almost no resources are devoted to the transition from the old to the new for training and re-training, re-assigning personnel, eliminating jobs, and restructuring work processes and organizations.
- It forces fees on those who are actually using the lower-cost methods while it provides free service to those who use the labor and paper intensive processes.

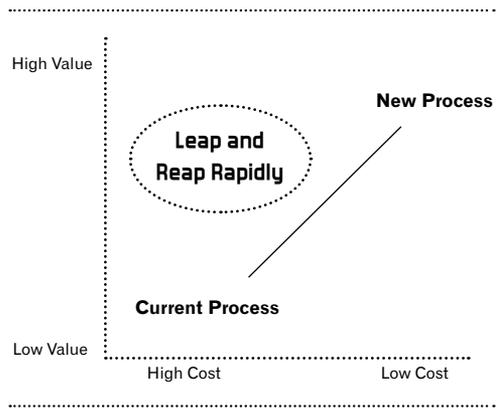


Figure 7: Ladder to Leaping and Reaping Rapidly

In this game of snakes and ladders, the habits of incumbency are often stronger than the catalysts of change through technology. One of the contradictions of our time is that there is no certainty of change in the timeframe in which it is needed, or that change will be successful. But change remains inevitable because of the innate characteristics of technology to change everything it touches. The choice for leaders is whether to act as a catalyst, set a catalytic effect

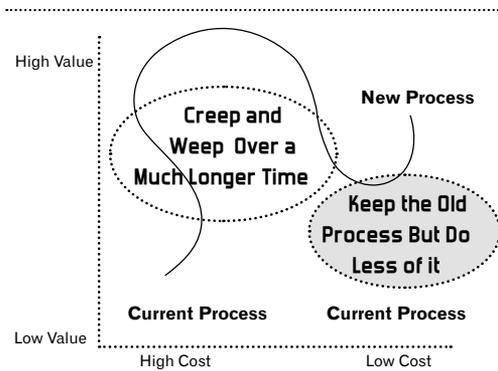


Figure 8: Snakes, Ladders and Catalytic Failure in Government

in motion, or let events take their course without intervention. If the creep and weep course is chosen instead of a catalytic course, then the value is not pulled into the here and now for the kind of uses that our political processes and managers crave. If and when along the creep and weep course the value is harvested, the gains are often absorbed into other activities or used in the next fiscal crisis when cuts are ordered — although it is more likely to have the effect of increasing organization capacity and ameliorating cuts rather than creating a pile of money to return to the general fund. We rarely see the full value captured when it is available and immediately used for better purposes, even when the catalyst works. That not only shortchanges the perception of technology, it cheats the public out of the value of their tax dollars.

For decades, government has had a tendency to know something is going to happen, and let it happen but fail to gather the value from it. The other problem with value is having the ability to actually count it. As discussed earlier, government often does not understand the specific costs of doing any specific thing nor agree on the desired results to put a numerical value to the value. As a result, government suffers from a chronic “the cost of everything and the value of nothing” problem.

Government is most broken in its ability to know what things cost, to judge what has the greatest public value, and to apply some kind of indicator of that value. Without those rungs on the ladder, there is no reliable way to judge benefits against cost — impairing any ability to extract the value from the change. It is that last segment — the failure to extract — that is the slippery snake that jeop-

ardizes everything. Such a harvest requires planning differently by thinking about implementing the future as it begins to unfold rather than waiting for it. An example of this kind of harvest is in catalyzing Government as a Service, or what Cisco's CEO John Chambers calls the emerging "Interactions Web,"

and building your enterprise activities toward that end with the technology of today and some sound assumptions about the technology of tomorrow.

While it is not yet the majority report, extracting value does happen in jurisdictions that take a disciplined approach to changing the way it does the public's business. We turn now to their stories.

The Interactions Web

"The interactions Web is the next rung up from the familiar point-and-click Internet ... an Internet that works on your behalf — finding or doing things in the background, with no intervention."

Sources: USA TODAY/ CISCO/ WEB 2.0

>> The Harvest: Finishing What We Started

*“As long as we keep tending to the secrets
of our sauce, we will do fine.”*

— Thomas L. Friedman
The World is Flat, 2005

*“The pioneers often get turned into fertilizer,
and the rest harvest off them.
It seems to be harvest time.”*

— Zach Nelson, CEO of NetSuite

The secret to a good harvest is what it always has been — hard work and discipline. Tools can help but not to the exclusion of the other two.

Among the thousands of examples of public entities doing the right things the right way, this section, “Finishing What We Started,” profiles examples from government agencies that proved IT. This section tours an online application for outdoor licensing in Indiana, looks under the covers of an ERP replacement in Clark County, Nevada, and visits two final stops in Florida.

>> Harvest Tour Stop 1: Indiana — The Great Outdoors Only a Click Away

The state of Indiana issues more than 800,000 outdoor licenses per year, primarily through retail outlets, an activity that brings in \$15 million in annual revenue. Until late 2004, the Department of Natural Resources (DNR) used a paper system to issue these licenses and collect receipts.

DNR stocked and distributed paper licensing books at an annual cost of \$400,000, and collected and managed paper reports and payments from hundreds of retailers. A staff of four was required to manage the payments. Collections were slow and there was little insight into accounting errors. “In the old system, retail locations would send paper reports and attach checks. When you have 600 to 700 locations, that’s a lot of paper coming in,” says John Ryan, director of the accounting division of DNR. “During the busiest times such as

opening day of deer season, retailers would often run out of licenses.” Before they could receive the license books, bait shops, sporting goods stores and other retailers were required to secure bonds at an annual cost ranging from \$175 for small bait and tackle shops to several hundred thousand dollars for a large retail chain store.

In response to chronic complaints about the cumbersome process and a steady decline in retailers willing to resell licenses, DNR asked the Indiana Legislature for funds to automate its paper-based system. The legislature authorized the funds with a provision: the system had to be operational by January 2005. The agency turned to the state’s Web portal team for help. Indiana Interactive, a subsidiary of NIC, manages *accessIndiana* through a public-private partnership model. All operating expenses are paid through fees generated by online transactions.

DNR worked with Indiana Interactive and license retailers to design and implement a solution built on the existing portal infrastructure. Implemented in only eight short months, the Outdoor Licensing System is the first to serve all retailers, from the smallest seasonal bait shops to the largest chain stores, and provide direct sales to the public. It allows retailers to capture customer information and process licenses instantly. The system automates the entire payment process through an Automated Clearing House/Electronic Funds Transfer (ACH/EFT) payment.

“Retailers never run out of licenses, and they can be issued in less than two minutes,” says Ryan. During the first three days of deer season, more than 84,000 licenses were issued. “We’ve also added about 100 new retailers in the last year, but only require one person to oversee the payments” he adds. Retailers who were initially slow to sign up witnessed the success of the system and were asked to join. DNR anticipates savings from the Web-based solution to exceed \$3 million in three years.

>> Harvest Tour Stop 2: Clark County, Nevada —

Growing Into Enterprise Systems

In late 2003, Clark County, Nevada undertook one of the most difficult projects in local government: a replacement of aging finance, payroll/personnel and procurement systems with an integrated Enterprise Resource Planning (ERP) system. Rod Massey, Clark County CIO, knew it was unavoidable if the county was to serve constituents in the 21st century. Clark County is one of the fastest growing regions in the United States, with more than 5,000 new residents a month. Its aging technology systems, some more than 15-years old, could not keep pace with the growing demand for services.

Massey knew the back office systems needed to be replaced if the county was to provide electronic services to constituents. “ERP

is the enabling foundation. If you don't begin here, the front end may be pretty, but it just doesn't pay off," Massey says. However, gaining support for an endeavor that would eventually cost close to \$40 million required a compelling business case.

In Clark County, such an endeavor meant identifying the county's core services, developing measures around those services, and identifying where the ERP system would improve those measures. The county spent one year developing measures for services as varied as financial auditing and animal licensing. One key benefit identified for this project was a standard user interface across county functions. Massey believes that this is one of the largest payoffs of an ERP system, and one that IT professionals historically fail to articulate. "If tools are similar, there is a much shorter learning curve when new employees are trained" Massey explains. "Employees can be trained on all business tools one time." Clark County agencies measured performance against these criteria before the implementation and will continue to report on them after the implementation.

No matter what measures of success an organization identifies, building and retaining support for large projects requires this up front work. "An organization needs to be able to measure performance in the areas that really matter to know the effect of an IT project," says Massey.

In partnership with SAP, the first project phase completed in November 2005. The county does not yet have sufficient data to fully assess the impact. However, one obvious success measure reflects the county's disciplined approach: the first phase, which included a complete replacement of the county's financial, inventory and purchasing systems, was completed in just 15 months, on time and on budget.

>> Harvest Tour Stop 3: St. John's County, Florida — Inspectors Outstanding in the Field

People have been settling in St. John's County, Florida for nearly 500 years. The county spans more than 600 square miles on Florida's Atlantic coast and encompasses the historical city of St. Augustine, and miles of beaches and riverfront property. It is also the second fastest growing county in Florida and ninth in the nation. The accompanying construction boom created a heavy workload for the county's 32 building inspectors. With nearly 900 inspections a day, deputy building official, H.T. White, knew that simply adding inspectors was not the answer.

The Building Services Division turned to wireless technology for help. "It was a matter of sheer survival," said White. "We couldn't add enough people to keep up with the demand." The division used an automated inspection system for years, but inspectors had to

return to the office periodically to enter inspection information into the system. The trips took a lot of the inspectors' time and delayed construction as builders waited for inspection results to be posted.

To eliminate repeated trips, St. John's worked with Nokia and Celesta to implement a mobile wireless solution. Now, inspectors load their daily work onto a Nokia 9500 communicator — a device that lands somewhere between notebook computers and smart phones. Using the wireless device, inspectors connect to the building system from the field and record inspection results. The information is immediately available to the construction company.

White says the wireless system saves at least 24 hours each day in travel time alone. Equally as important, the division provides better service to the contractor community. "The contractors now have instant status; they no longer need to wait for the inspector to return to the office before they know if work can continue," White explains.

>> Harvest Tour Stop 4: Seminole County, Florida — Putting 235 Hours Back Into the Week

Located in the heart of central Florida, Seminole County is a fast growing county of approximately 400,000 people with easy access to Orlando. In an effort to keep up with the steady increase in demand for new services, the Seminole County Board of Commissioners implemented electronic document management technology in multiple departments across the county. Seminole County conducted a cost-benefit analysis and estimated the entire computerized imaging software and hardware system to cost less than 60 percent of the manual process for a single year.

The county selected Hyland Software's OnBase system. A single project manager coordinated the implementation and encompassed agencies including the Water and Sewer department, Public Works and the Fire Department. Important public records, some old, worn paper documents, were scanned and filed in the system.

The electronic image repository gave employees instant access to the documents they need, regardless of location. Instead of searching for paper files that could be at a different location, misfiled or on another desk, employees now simply access the central repository. Prior to the electronic document system, county staff spent an estimated 39 hours each day searching, retrieving, reviewing, copying and re-filing documents. At least 8 hours a day were used searching for misplaced documents. In a single week, the county now saves more than 235 hours. The county also sees hard dollar savings in addition to the efficiencies gained. As the sheer volume of records increased, the county had to rent or purchase additional physical storage space. This need for space goes away as the records are converted to electronic format.

>> The Menu: The Full Meal Deal and A la Carte Choices for Moving Forward

“Do, or do not. There is no try.”

— Yoda²⁹

As the Jedi Master correctly observes, discipline is a digital decision — yes or no, on or off, do or do not. The decision to take a disciplined approach to the stewardship of public investments in information technology begs a final question, *how*?

This final section addresses the question of *how* at a strategic level with a 10-point program, and at a tactical level with 17 exemplars of proven tools covering multiple roles from decision maker and information manager to aggregator of public sector demand and broker of infrastructure, connectivity and security services.

>> Proving IT: What Are We Proving and How to Prove IT

There are 10 distinct elements of Proving IT, each of which must be part of an integrated process if the value sought is to be realized. Each element is discussed in turn.

Prove IT Process:

1. Gather
2. Determine Benefits
3. Determine Costs
4. Prioritize
5. Choose
6. Oversee
7. Track Value
8. Report Value
9. Redirect Value/ Reprioritize
10. Monitor Performance

1. Gather

Build a portfolio of IT programs, projects and proposals that are worth managing:

- a) Pre-procurement Ideas – for pursuing new opportunities
- b) Trans Capability Requests – for enterprise, multi-agency or cross jurisdictional collaborative initiatives

- c) Project Proposals – for agency-specific business needs
- d) Pain Points – for fixing aging broken applications or things that never worked

The following five-step analysis encourages a broad view of subsequent investments that add value to the entire portfolio rather than just solve a single problem:

- Step 1: Define the Problem
- Step 2: Evaluate Existing Systems
- Step 3: Identify Alternatives
- Step 4: Articulate Specific, Measurable Objectives
- Step 5: Run the Numbers

Proving IT in the State of Vermont — An Independent Analysis

IT is the most readily available solution.

"The Institute finds that a comprehensive IT reorganization is the single greatest opportunity for state government to save money, better support state employees, transform underlying business processes and serve the public effectively. Given that today's average state employee costs over \$60,000 per year and the pending bubble in employee retirements, the more employee (and outside contractor functions) that can be transitioned to a technology solution or transformed from *administration/basic processing to front line/value-adding service* functions, the better positioned Vermont state government will be to more effectively serve its citizens and employees sustainably."

Downside

- Dispersed Infrastructure
- Technology Skill Sets Unknown
- Coordinated Planning Mostly Absent
- Legislative Oversight
- Low Overall Investment
- Growing Employee Costs
- Workforce Retirement Bubble

Upside

- Reconciling Federation & Enterprise
- Massive Savings Possible
- Job Transformation Opportunities
- Synergy
- Economies of Scale
- Critical Mass
- Transparency and Accountability
- Performance

Source: Vermont Institute on Government Effectiveness, Inc.

2. Determine Benefits

The portfolio provides a common reference point for identifying benefits from initiatives — individually and together. Whether taking the broad view of the entire portfolio or only a few key initiatives (individually or in combination), potential investments ought to be reviewed for potential benefits against a classic ROI lens such as the award-winning state of Iowa's R.O.I.owa, which offers five major criteria:

1. **Constituent Benefits:** Objectives are directly intended to benefit citizens, businesses, other government organizations, or employees.
2. **Social Benefits (Externalities):** Objectives that benefit society as a whole.
3. **Internal Financial Benefits:** Objectives that positively impact a government's financial condition (as measured by traditional ROI analysis).

4. **Internal Non-Financial Benefits:** Objectives that enable a government to enhance service delivery.
5. **Strategic Organizational Benefits:** Objectives that enable the government to fulfill its mission or strategic goals.

For its part, the Center for Technology in Government at the University at Albany, SUNY, recommends a simple triage model for categorizing “benefits of features and functionality at modest, moderate, and elaborate levels of investment” by key elements such as “customer access, response time, degree of customization, level of security, extent of manual data handling and degree of integration with other processes or systems.”³⁰

The conventional ROI view remains necessary but some question remains as to whether it is sufficient as government confronts new challenges and demands for services.

The social benefits or externalities category becomes more important during times of social upheaval or displacement. Taking the social factor into account, what is the “Determined Citizen Value” of a government program? It would include social credit for contrib-

Conventional ROI View of Benefits and Costs

Benefits

- Increased revenue
- Increased productivity
- Reduced paper transactions and costs
- Reduced staff
- Fewer processing errors

Costs

- Hardware
- Software
- Database
- Telecommunications equipment
- Hiring and training new and existing employees
- Consulting fees

Source: State of Iowa R.O.I.owa/ GFOA

uting to the general public welfare, but what about benefits that accrue to — or are produced by — small groups within society? How is a government supposed to account for those gains? The question, asked here rhetorically, underscores the unpaid bill of government in having never reached agreement on the denominator (benefit) in calculating public value. As discussed earlier, the numerator (cost) is not without challenges either.

3. Determine Costs

The rules of accounting for costs are well known but that has not translated into systems that track costs well, or instill discipline in using them. Determining costs may not be rocket science but does require special attention to detail. Budget and accounting systems can be too rigid to track project expenses that, by definition, are fairly fluid. Personnel systems do not track who spends time on what. Inventory systems cannot typically show an agency everything it owns, or identify what an agency should know about those assets.

Often, these systems cannot isolate operational costs and, if the costs are unknown, they are not built into cost project estimates. System rigidity is compounded by data entry problems that usually reflect human frustration or neglect.

The lack of scenario data deprives agencies and project teams the ability to simulate what happens when building, deploying and running a new system — by itself or in the context of the wider IT portfolio — or deciding not to build it all and rely on a third party. Speaking of externalities, the blindside to internal costs become further exacerbated when scenarios expand to include costs to citizens or society.

4. Prioritize

The state of Washington's IT Portfolio Management program combines four key measures of severity and four measures of project risk to aid planners in rating and ranking their choices:

Severity	Risk Level
a) Impact on Citizens - direct, indirect or none	a) Organization Impact - nature and degree of change
b) Visibility to Legislature and Exposure of Executive Branch - by budget, mission criticality and timeframe	b) Development Effort - investment of cash, staff time and other resources
c) Impact on State Operations - enterprise wide or agency specific	c) Technology - by standardization and maturity
d) Consequences of Doing Nothing - loss of public accountability or inability to deliver vital services	d) Organization Capability - sponsoring agency's track record with like projects ³¹

Taken together, the first three steps in the *Prove IT* process provide a funnel for collecting streams of needs, opportunities and potential solutions into a common list of activities and initiatives that can serve as a common decision point for action:

- *Stop* – Things (programs, projects, processes, activities and the like) that can be discontinued (too often the thing government forgets to do).
- *Reduce* – Things to continue but do less of each.
- *Maintain* – Provide the resources to keep as is.
- *Redirect* – The right thing, just not the right way anymore.
- *Combine* – Keep doing things that are similar, but do them together.
- *Increase* – It's okay, but do more of it.
- *"Redesign"* – Rethink the process and the methods and redeploy.
- *New* – Things that are brand new, you are not doing, and that cannot come from any of the things you are doing.

Prioritization is important not only to how much government might harvest because of a decision but also in determining what it harvests. Beyond dollars and cents, speeds and feeds, units of service and workload per revenue dollar, the more important question may be: will the method of rating, tracking and reporting change behavior for the better and cause people to think and act differently?

5. Choose

As you choose, keep in mind the rough orders of magnitude of value that can be returned from each project.

As the chart illustrates, the choosing should not be too self-serving and should aim for the most benefit to the public. Cutting the government cost by 15 percent would provide opportunities for reinvestment, substantial tax cuts or both. As for how a project affects the public at large by savings or giving benefits, you may not be able to easily quantify either;

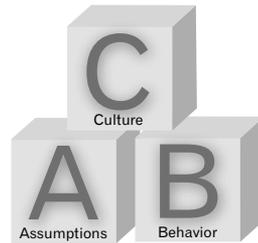


Figure 9: Building Blocks — Assumptions, Behavior, Culture

In *The Sawyer Principles*, the Center pointed to the interconnections between assumptions, behavior and culture.

In harvesting value from prioritized investments, it is incumbent to ask:

- Does it change the assumptions?
- Does it change the behavior?
- Does it change the culture?
- For the better?
- Does it cause people to think and act differently to the benefit of the citizens?

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Area Affected By Project	Potential Value
Projects that only consolidate, reduce or change IT spending	A Little (Maybe as much as half of what you spend on IT now)
Projects that involve intelligent application of IT to business processes of government	A Lot (Up to 15% of the total spending of government)
Projects that use IT to automate and streamline citizen, business and non-governmental organization interactions, compliance, transactions and service delivery	A Lot More (A multiple of the cost of the paperwork burden plus the cost of the friction drag that inefficient government processes have on the economy)

but rest assured it is a bigger number than what government can save. It is ironic that government can prove an Economic Multiplier Effect³² from its activities in painstaking detail, yet has done much less to document or quantify government's

own drag effect on the economy from the bureaucratic burden it places on citizens and business. Make sure you keep your eyes on the biggest prizes and do not allow blocking and tackling-type internal IT projects to dominate IT spending.

It is equally critical to choose a system that is NOT overly burdensome, laborious, long, tedious and easily gamed so that it becomes a barrier to clear-sighted change and decisive action rather than enabling success. From overhead-intensive RFP processes, to paper-intensive budgetary decision packages and burdensome business cases and feasibility studies, government makes it difficult to make a choice. Digging out from the paper and policies, it seems there are four important tests that support consistently sound decisions:

- What projects provide the greatest good for the greatest number?
- As for those persons or entities that your politicians and society value, which projects provide the greatest good:
 - For very important persons (kids, teachers, cops, nurses, etc.)?
 - For very important businesses and entities?
 - For very important agencies and jurisdictions?
- But for the project, will the benefit occur? (Echoing the Washington Portfolio's nil consequences, there is no other way this can be accomplished unless this technology, fund, pool or activity takes it on and does it.)
- Does the process lead to results that are supported and supportable?

Making sure project teams have good key performance indicators (KPI) is a central theme in IT project management literature, as is a long list of examples of projects that were hampered by poorly defined or measured project goals. It is one kind of problem for projects that go bad but it can be equally troubling to strong projects that come in on time, under budget but are still perceived as failures because the business objectives were never defined or communicated, allowing the goal posts to be moved continually. That twisted logic also appears to work for some analysts in control agencies who know the price of everything but cannot track value. Finally, it is equally important in a political environment to have the right kind of sponsor or a good review in the press.

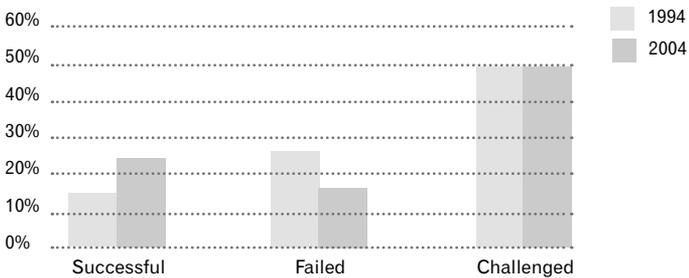
A trade magazine tells this story of one public CIO:

Bill Hill, IT director at the city of Dayton, Ohio, puts it ... bluntly. "A project could be so good that it comes in

well under budget, saves a fortune, and does everything it's supposed to do, but if it doesn't have a high-powered backer, it's a pig." Conversely, Hill adds that a project could be a complete loser, but if someone uses it to get a favorable reaction from the press or public, it's considered a winner.³³

6. Oversee

Leo Tolstoy observed that "all happy families are alike; each unhappy family is unhappy in its own way." Much the



Source: The Standish Group, 2005

Figure 10: IT Project Success Metrics Over a Decade

same could be said of successful, failed, and challenged IT projects. Successful projects are generally characterized by disciplined use of KPI and ROI and the elements that comprise them.

According to recent data from the Standish Group, the percentage of successful IT projects in the private sector increased from 15 percent a decade ago to 30 percent today. The

mirror image of that trend is also true, with the share of failed projects dropping from 30 percent in 1994 to 18 percent now. That said, the rate of challenged projects has remained just above 50 percent for the last decade.

The Standish Group's schedule and cost metrics are less cheery. Time and cost overruns have been slashed in half or better in the last decade but, even with those improve-

IT Project Schedule and Cost Metrics Over a Decade

	1994	2004
Time Overruns	164%	84%
Cost Overruns	180%	56%

Source: The Standish Group, 2005

ments, projects are still coming in, on average, 56 percent over budget and 84 percent behind schedule.

There is no recent comparable data for the public sector IT community but it is reasonable to expect project teams in government would be as likely to incorrectly estimate the time needed to complete a project or to be flat wrong about cost estimate. In main public and private project teams, both lack the expertise and discipline to understand the degree to which change costs money, and the number of ways it costs money. Neither sector funds most projects sufficiently so they take longer. Both sectors are change adverse in different ways and end up spending money to avoid change or to accommodate it.

7. Track Value

Tracking system uptime is a potentially useful measurement but performance rates are now so high that, for the most organization, there are routinely a sufficient number of 9s behind the decimal point to reliably support even mission critical systems. Users tend to notice IT organization only when things are not working. That is why most IT shops keep stats on things such as availability, because 99.99 percent uptime performance provides context for defending against attacks from users whose perception has been shaped by an isolated e-mail outage.

The more interesting numbers to track are those that measure improvements in organization performance against metrics that matter to its mission. For example, a real-time dashboard integrated into supply chain systems offers an at-a-glance view of key metrics — from inventories and inventory levels and outstanding orders to the savings realized through contracts (compared to market prices).

8. Report Value

Dashboards provide a readily available means for tracking value by using modern tools to report and extract data that was previously only available when it was too late to be useful to assign blame or give rewards. In addition to its role in business intelligence, these same technologies can also help enforce the discipline of accountability through report cards. Then the value of having the report card is that everyone prepares to get the grade and then the grade ends up not really mattering. It is the preparation for getting the report card that ends up changing all the behaviors and causes all the learning and the activity. The report card is an afterthought, but it is what drives everybody to put in the work.

9. Redirect Value/ Reprioritize

The ability to use the disciplines of harvesting value to reprioritize spending assumes that it is possible to reverse the budget system's perverse incentives. The standard budget treadmill penalizes agencies or managers for reducing spending money one year, because they do not get it the next, which means they cannot spend savings because they are clawed back. Even within single fiscal years, there are often legal barriers to transferring available funds to a higher value purpose.

Even within those constraints, it may be possible to build a *Value Budget*.³⁴ As conceived, building a Value Budget brings with it the compelling prospect of planning to spend money an agency or program saves — when and if it was actually saved. Under the plan, the entity actually appropriates that money based on a set of triggers. If a revenue trigger is reached, then the savings would be earmarked for a prioritized purpose. As the coffers filled with savings or reversions, it would trigger subsequent prioritized spending. Under such a plan, government actually identifies those things that it values and creates an incentive-based system for funding them by realizing value through strategic investments, changes, improved processes or technology.

Short of that, a growing number of state and local governments are taking a priority- or results-based approach to budgeting — focusing on delivering the results that citizens want at a price they are willing to pay. This is an ideal opportunity for IT investments to shine, but either IT leaders are not stepping up to prove the value of IT in changing the way the public's business gets done, or IT spending is buried in an overhead category. It should stand out as the one tool in government that is uniquely able to radically change the cost structure of doing the public's business and deliver on the priorities across the many functional areas of government. Instead, IT is hiding in the data center basement or it is lumped in with steam tunnels, roof repair and the heating bill.

The new budgeting approach also exposes the shortcomings of the conventional approach to determining ROI in the public sector — namely, government has been pretty bad at it. As with many government efforts, the good intent of ROI processes was often buried under an onerous labor-and paper-intensive process of predicting a Return on Investment. Without additional resources to do the job right or secure that data that proves the ROI (see item 10 later in this section) — as often as not — ROI processes ended up stopping or slowing

projects rather than propelling the good ones forward. Over time, the act of demonstrating potential positive returns became more important than actual results. In an era when results matter, a new model of ROI must use more feasible and effective ways to prove which IT projects are worth doing and demonstrate results when they are done.

10. Performance Management

There are eight key questions for measuring and managing performance:

1. What are your objectives?
2. What is observable about your objectives?
3. How can you turn what is observable into data?
4. Is such data available or acquirable?
5. What are the relevant relationships or formulas between the data elements?
6. What is the minimum and optimum value of the metric formula?
7. Was the value achieved?
8. Did the achievement of the value actually contribute to the objective?³⁵

These are harder questions to answer than it may appear. Most department heads and managers can get through the first three. At step 4, they realize that the data to support what they are doing is either unavailable, the owner (usually another government entity) is unwilling to share, or it will cost money to gather. Then they get stuck. At this point, some will even go back and change their stated objectives to something they can afford to measure. Because government is penny wise and pound foolish in this regard, performance management is not giving us the substantial benefits that it could be delivering. If this process is given proper resources and used well, it can tell us when we are making progress, the effects of resource reductions on outcomes, and when additional investment does or does not yield additional returns.

At its core, the purpose of managing performance is determining if we made the right decisions, if it is going as expected and why or why not, and who or what is causing any deviations. This information is fed back into the process so better decisions can be made and the process loops on from there in iterative cycles. To that end, consider how to use proactive (in advance) and reactive (after the first decision is made) decision making as follows:

Proactive Decision Making

- Do this:
 - Mine data and experiences of employees and customers to determine:
 - Issues
 - Trends
 - Causes
 - Effects
- Ask these questions:
 - What are the related pieces of the puzzle?
 - What is the nature of their relationship?
 - How do they fit together?
 - In short: what decision do we make now?

Reactive Decision Making

- Do this:
 - Mine data and experiences of employees and customers to determine:
 - Performance and outcomes
 - Deviations from expectations
 - Errors, complaints, failures, negligence and crimes
 - Emerging issues
- Ask these questions:
 - Are the decisions being carried out properly?
 - Are there problems in implementation?
 - Who or what is messing up the system?
 - What is new and is there a reason to make a different decision?
 - In short: what was wrong with the decisions made?³⁶

If a proper performance management program is followed, it will provide many of the missing pieces needed to guide IT investment as well as system requirements and features.

>> Don't Prove IT, Just Do IT

Despite the theme of this paper, many in the public and private sector have already proven a number of IT initiatives over and over again, so proving it (or them) again is just silly. Where the payback is clear and already proven by others, the emphasis in planning and documenting the project should be on:

- Determining the resources needed to do the project
- Proper sponsorship and leadership
- Clarity, alignment, and commitment on the objectives

The nominees for a Just Do It³⁷ list are as follows:

Government Infrastructure, Connectivity and Integrity

- Pool IT Funding
 - The surest way to spot redundancy, standards issues, overlap, missed opportunities for collaboration, and so on is to see all your technology spending in one view presented in the same format. Even better is to manage and approve the spending of the money from this virtual or actual fund so that sound technology decisions are made in the first place. Finally, only pay out of the fund when expenses related to previously-approved projects are incurred. This tends to save about 10 percent per year as it negates self-protective budget padding and prevents creative discovery of uses for funds that are questionably or not at all related to the project.
- Consolidation – IT Operations, Servers, E-Mail, and so on
 - Unless you plan to leapfrog to GAAS and save the political capital and good will you spend in getting everyone on economy of scale platforms, the payback is clear.
- Shared Services
 - This is the only way to keep the consolidation/decentralization pendulum from swinging with changes in leadership or service problems.
- Security Products and Services
 - No naked computing should be allowed in government. If you do not have a basic security suite, get some clothes on now.
- Converged Networks (including VoIP/ IP Telephony)
 - Convergence is here, ready, and cheaper than any of the old ways (and even the phone companies know it). IP for everything needs no justification.
- Software Production, Source Code Management, and Module Reuse
 - It is a foundational component of ITIL, COBIT, CMM, ISO, and any other best practice schema and must be done if you make or manage software. The reuse is also easier when properly documented and managed.

Government as Information Manager and Decision Maker

- Data Warehouse/Mart, Enterprise Content Management and XML Gateways
 - If you have data, and you do, you have to have a meeting point to publish it straight to the Web where appropriate, mine it, manage it, reuse it, and extract value from it. If it is worth saving it is worth being able to find it again without the help of the state

archeologist. There are millions of untapped dollars in optimizing your programs, data reuse, knowledge capture and stopping fraud, waste and abuse — just waiting for you to find them.

- Business Intelligence
 - Do not let the corporate sounding name dissuade you. This is an essential tool for government to go after the data mentioned above and in performance management. Furthermore, if you are managing government, you need to know what it is doing and you cannot know without a tool like this. Get a tool with a customizable dashboard feature and everyone will be able to understand what is going on and what they need to know to do their job.
- E-Forms and E-Signature
 - Everything starts and ends with a form and every paper form processed costs \$154 more than an electronic one. We have a federal, state, and common law that says an electronic signature is legal, so why is someone in your government still allowed to tell you it's not, especially when it kills the chance to submit the form electronically and negates the savings? Yes, you can sign online.
- Intake Management (Imaging and Scanning)
 - If you are not yet brave enough to make them submit it electronically, then you must make it electronic when you receive the paper. Without this step, electronic workflow, electronic case management, parallel processing and a host of other advantages are not possible. The result: organizations remain stuck with sneaker nets and documents that gather dust in someone's in box.
- Records Management and Compliance Storage
 - It is mandatory under law, so what is the need for a business case?
- Collaborative Tools
 - The primary role of government is to make decisions, yet modern tools for making collaborative decisions (such as *groupsystems.com*) sit on the shelf even though they allow you to get to a better decision in a fraction of the time with better buy in. Others like Instant Message replace trips down the hall just to see if someone is there and allow for better teamwork for little cost. (By the way, an IM is a public record subject to disclosure, although you would never know by the nature and tone of some of the traffic.)

- Channel Management and Migration
 - Making people line up at a counter for service is far more expensive for them and you, so getting them to cheaper channels such as phone or online is, well, cheaper.
- Electronic Intake, Work Flow, Process Completion
 - The insurance industry and many others wrote the book on why this saves a ton and if doubted, send out a paper work flow memo and see how long it takes to get back to you.
- Case Management
 - You probably already own or have made a few dozen of these in your jurisdiction and a few hundred or a couple of thousand of them in your state. While you may want to consolidate them, you know you need workers to do the work more efficiently.
- Print Management
 - Most printing is done on expensive desktop printers that cost a little to buy and a whole lot to run. Giving workers the tools to use more cost effective options without killing convenience are available and the printing looks better too.
- Desktop Management
 - A three-year replacement cycle, group purchasing, and managed configurations unquestionably reduce support and total cost of ownership.

If you have additional nominees for the Just Do IT list, please let the authors know.

>> Conclusion: The Promise and Perils Ahead

“Don’t get stuck on stupid.”

— Lieutenant General Russel L. Honore

“Don’t let yourself be lulled into inaction.”

— Bill Gates³⁸

This is not the time for complacency, nor excuses. Government will always face finite resources and infinite demand. It will remain the subject of intense scrutiny. It will be resented until the moment that it is needed. It will always seem to be moving so much slower than the rate of technological change.

Government modernization has never been about being current and cool but being competent and credible. To that end, government needs a robust and nimble technological infrastructure to adapt to the changing needs and expectations of the society it serves. It must be able to prove the value of what it does and how it does it. That’s where the disciplines discussed here come in as government moves forward iteratively and, importantly, harvesting value as it goes.

Understanding the costs of delivering services and reaching agreement on the hard- and soft-dollar benefits remains the unpaid bill of the public sector IT community, and government in general. These disciplines can be imposed from above or from without — but their sustainability will require taking root as they have in Clark County, Nevada, the state of Indiana, Seminole and St. John’s counties, Florida, and a growing critical mass of public entities across the country.

Harvesting value allows government to meet current obligations more efficiently. It also frees up scarce resources to fund new priorities; that is, the things government leaders and the public care about.

The future comes with both upside potential and downside risk. As a recent *USA Today* headline declared, the “Internet to ask, ‘How may I serve you?’” — a question that goes to the heart of public service.

Government can choose to:

- Risk irrelevancy by not daring to ask that question of contemporary society.
- Keep asking it with a view of providing answers through traditional means.

- Ask and answer the question in concert with the Internet and the communities of value such as Government-as-a-Service (GAAS) that swarm around it.

Consider, for example, the available capacity in the private sector that could be brought to bear for public purposes in collaboration with government. The world record for completing a financial transaction is 2 nanoseconds. By way of context, the blink of an eye is 350,000 nanoseconds.³⁹ Why would government think it could keep up and why would it want to try? A more sensitive question might be, could government do it by itself at all? If government gets the answers to these questions wrong, it is at risk of becoming so irrelevant and so incapable of doing the obvious things that everyone else can do in the blink of an eye. Government's epitaph could become, "An eye blinked at the end" as a fitting digital update of a penetrating yet simple observation about an emperor of legend — "'But he has nothing on at all,' said a little child at last."⁴⁰

If that challenge is not enough, consider the rise of an online civil society that has no qualms about displacing government institutions with community-based solutions that are more responsive and relevant to the way people live their lives.

According to Jeff Jarvis, Internet content entrepreneur and associate professor at City University of New York: "If the government doesn't do it, maybe we can. What we have to do as a people is not just demand better from government but demand from ourselves. We have to show the way. We have to lead the government and not wait to be led. [We need to] bring smart people together and start to swarm around standards and efforts, and that's what the Internet also does well."⁴¹

Simply put, if government does not begin to think in new ways about using the technology, not only will it be just implementing the past or just trying to finish little bits of what it started, the public sector will be missing all the value opportunities that occur as the capacity curve of government-as-a-service rises straight up from the top of P.K.'s ladder.

>> Endnotes

- ¹ <http://www.csls.ca/data/ict.asp>, Chart 16.
- ² Generally, see <http://www.iowa.gov/itd/eip/index.html> for a variety of reports and follow up proposals from the project. For a copy of the financial and consolidation analysis, see http://www.iowa.gov/itd/eip/docs/EIP_Assessment_IT_Consolidation_Impact_Study_120104.pdf.
- ³ Bill Gates with Nathan Myhrvold and Peter Rinearson, *The Road Ahead*, New York, Viking Penguin, 1995.
- ⁴ See Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Boston, Harvard Business School Press, 1997.
- ⁵ See Andrei Cherny, *The Next Deal: The Future of Public Life in the Information Age*, New York, Basic Books, 2000.
- ⁶ As in the original, it bears reminding, "This is not to discount the vital role of government in maintaining sovereignty and codifying, implementing and enforcing laws, only to suggest that much of that activity results in the delivery of a service of one type or another." See Paul W. Taylor, *Pay IT Forward: Doing the Public's Business with Digital Technologies While Reducing Pressure on the General Fund*, Folsom, CA, Center for Digital Government, 2003.
- ⁷ Ray Kurzweil, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (New York: Penguin Books, 1999) and *The Singularity Is Near: When Humans Transcend Biology*, (New York: Viking Penguin 2005).
- ⁸ Moore's Law is named for Gordon Moore, founder of Intel, who noted that the number of transistors on a computer chip doubled on average every 18 months making them exponentially more powerful at the same price point in a relatively short period of time. Innovations have sustained his analysis and prediction and are projected to continue to do so for at least the next 20 years. Kurzweil argues that when one looks at the speed/power/capability/cost changes in computers, the actual doubling time is now 13 months and has been speeding up. He also sees no end to the exponential increases. See *The Singularity Is Near*, 41-42.
- ⁹ Metcalf's Law, postulated by Robert Metcalf, is that the value of a network is best understood as the square of the number of connections on that network, not the additive total. We see this in the Internet when great value is realized because of the various patterns of connections between people and machines. Things that a hundred million people cannot do together can be done through a hundred million squared connections and corresponding relationships and interactions between them. For example, a hundred million people cannot efficiently dispose of their surplus property to each other, but put them on a network, and you get E-Bay which can.
- ¹⁰ Jacques Ellul, *The Technological Society*, (New York, Vintage Books, 1964), discusses the theory of Technological Determinism which holds that technology in large part determines how we live and work. Often we adopt technologies blindly and in that adoption, choose the values expressed in the way that technology functions. The adoption of various agricultural tools and techniques changed the face of many countries, their environment, cultures, and societies; and how their society was organized (for a complete treatment of this topic see Jared Diamond, *Guns, Germs, and Steel*, (New York, W. W. Norton & Company, 1997). The mechanization of these techniques has depopulated the rural areas of the U.S. farm belt and left whole towns gasping and grasping for a reason to be. We adopt global transportation technology and we get two World Wars and numerous other far-from-home conflicts. Did the technology cause the German Blitzkrieg? Many argue that is too simplistic. But without planes, massive ships, tanks, and trucks no war like that had ever been fought and none could have been so fought. Ellul also points out that we rarely if ever refuse to adopt a technology that functions and delivers some kind of value even when we can see in advance some great evil lurking in its design, such as nuclear power/weapons and genetic engineering.
- ¹¹ The basic proposition is that whatever can go wrong, will go wrong and sometimes it is stated with MacGillicuddy's Corollary: at the most inopportune time. The point here is that while the technology improves and gets more powerful, the kinds of errors that can occur get better (more complex and sometimes easier to do) and more powerful in their effect as well. Murphy's Law seems especially prophetic when we see errors that come from system interdependencies that are not well understood or managed. See <http://www.murphys-laws.com/>, which exhaustively covers the history of the law and its many variations. For example and applicable here, it cites various Murphy-like technology laws including "Whenever a system becomes completely defined, some damn fool discovers something which either abolishes the system or expands it beyond recognition."

- ¹² *USA Today*, November 15
- ¹³ GAO, 2004
- ¹⁴ McKinsey & Company, 2005
- ¹⁵ Joi Preciphs, "Tossups Draw Focus In Midterm Elections: A Handful of House Races in '06 May Hinge on Voter Dissatisfaction with Washington," *Wall Street Journal*, July 26, 2005.
- ¹⁶ David Osborne and Peter Hutchinson, *The Price of Government: Getting the Results We Need in an Age of Permanent Fiscal Crisis*, New York, Basic Books, 2004.
- ¹⁷ See Paul W. Taylor, *50 Years of Digital Government*, 2005.
- ¹⁸ Kurzweil, *The Singularity Is Near*, 13, 97, and 103.
- ¹⁹ Extracted from the Digital Counties survey data from the Center for Digital Government.
- ²⁰ Compiled from Bill Gates, *Business @ the Speed of Thought: Succeeding in the Digital Economy*, New York, Warner Business Books, 2000 with additional data from Gartner and the Government of Australia.
- ²¹ See also *The Sawyer Principles*, Op cite. pp. 17-19
- ²² As used here, Government as a Service is a framework for re-thinking conventional approaches to e-government developed by Richard J. H. Varn.
- ²³ As is detailed in the Center's *Sawyer Principles*, such models reflect a renewed understanding of the core competencies of government and those of their partners and brethren in the private sector and non-governmental civil society. Core competency is the center of concentric circles that help sort the components of public service delivery into three types of activities — those for which government sets rules, those that government is uniquely able to provide directly and must syndicate for itself, and those important support activities that are already provided by others to which government can subscribe and leverage. See Paul W. Taylor and Richard J.H. Varn, *The Sawyer Principles: Digital Government Service Delivery and the Lost Art of Whitewashing a Fence*, Center for Digital Government, 2005.
- ²⁴ See <http://en.wikipedia.org/wiki/Yottabyte> which explains the naming of computer bit blocks and the math formulas for them including the definition of the largest named unit as follows: A yottabyte (derived from the SI prefix *yotta-*) is a unit of *information or computer storage* equal to one septillion (one long scale quadrillion) bytes or 10 to the 24th power. See also *Yottabytes Are a Lotta Bytes* by Stephen Beck at <http://www.whitman.edu/mathematics/number-prefixes.html>.
- ²⁵ Kurzweil, *The Singularity Is Near*, 205-298.
- ²⁶ *Ibid*, 111-142
- ²⁷ Music by Elton John, Lyrics by Bernie Taupin, *Philadelphia Freedom*, released as a single in the United Kingdom in 1975.
- ²⁸ The game is also known as *Chutes and Ladders* but the original British name conveys a greater downside hazard from making the wrong choices.
- ²⁹ Yoda, the ancient and revered Jedi Master, a fictional character created by George Lucas for *Star Wars*.
- ³⁰ Sharon S. Dawes et al, *Making Smart IT Choices: Understanding Value and Risk in Government IT Investments*, Center for Technology in Government, University at Albany, SUNY, Second Edition, April 2004.
- ³¹ Adapted from State of Washington Information Services Board Portfolio Management policies and practices. See Washington State Information Services Board (ISB) Information Technology Portfolio Management Standards (Policy No: 101-S1) Adopted May 20, 1999, Revised April 2002 (<http://isb.wa.gov/policies/portfolio/101s.doc>)
- ³² Multipliers are predicated upon a domino theory of economic change. They translate the consequences of change in one variable upon others, taking account of sometimes complicated and roundabout linkages. Multipliers are aptly called estimators of the 'ripple' effect." In more 'technical terms', they are numerical coefficients that relate a change in (a component of aggregate) demand (or employment) to a consequent change in total income (or total employment). <http://faculty.washington.edu/~krumme/207/inputoutput.html#multiplier>.
- ³³ Dan Tynan, "Use metrics to prove your IT project's worth: Is your IT project a dog or a delight?" It all depends on how you measure it — and who's doing the measuring, *InfoWorld*, November 21, 2005.
- ³⁴ For the purposes of this white paper, value budgets reflect a model originated by Richard J. H. Varn.
- ³⁵ For the purposes of this white paper, the Eight Questions of Measurement and Performance Management reflect a model originated by Richard J. H. Varn.

- ³⁶ For the purposes of this white paper, the Proactive and Reactive Decision Making Model reflect a model originated by Richard J. H. Varn.
- ³⁷ An unambiguous call to action that is also a registered trademark of the Nike Corporation.
- ³⁸ Bill Gates, *Business @ the Speed of Thought: Succeeding in the Digital Economy*, New York, Warner Business Books, 2000.
- ³⁹ From a presentation by Dr. Jeff Wacker, EDS Fellow and the EDS Futurist at the State Government Affairs Conference, Miami, Florida, November 20, 2005.
- ⁴⁰ Hans Christian Andersen, *The Emperor's New Suit*, 1837.
- ⁴¹ Interview transcript with Jeff Jarvis, a serial Internet content entrepreneur and executive and associate professor and director of the new media program at City University of New York's new Graduate School of Journalism. "Not Dot Gov" from *On the Media*, National Public Radio/ WNYC. September 9, 2005. (http://www.onthemediamedia.org/transcripts/transcripts_090905_dotgov.html)

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