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CITIZEN ADVANTAGE™:

ENHANCING ECONOMIC COMPETITIVENESS
THROUGH E-GOVERNMENT

A Deloitte Research Public Sector Study

The second of a two-part series on IT value in the public sector

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EXECUTIVE SUMMARY

One reality of globalization is that businesses can move their operations more easily than ever before. This is forcing cities, states, provinces, and countries to compete more vigorously in a host of areas to attract and retain businesses and knowledge workers. Tax laws, the legal system, and the regulatory environment, are critical to a company's decision on where to locate. Other factors such as the quality of life, education, and infrastructure also shape the view of how attractive the business climate is in a particular jurisdiction. The sum of how a government competes along these dimensions is a gauge of its economic competitiveness.

One critical area of competitiveness where governments have a defining role to play is regulatory compliance. When Boeing announced its decision in 2002 to move its headquarters from Washington State to Illinois, it cited burdensome construction, zoning, and land use regulations in the state as a prime factor for its decision. It should come as no surprise then, that many governments have made regulatory streamlining a top priority.

One of the most powerful ways to reduce compliance costs is through electronic government. Web-enabling and streamlining permitting, licensing, and reporting requirements can save businesses and citizens considerable time and money as these examples demonstrate:

- **The State of Oregon's** one-stop process for building construction approvals, which includes online permitting and reporting, saves the construction industry 10 percent, or \$100 million annually, in reduced delays and permit processing costs according to state officials. If governments at all levels were to follow Oregon's lead, the US construction industry as a whole could save between \$15 to \$20 billion per year.
- **The US Small Business Association's** Business Compliance One Stop Web site, saves businesses about \$526 million a year by helping them find, understand, and comply with regulations.
- **In Canada**, the province of British Columbia's OneStopBC Web site cuts down on government paperwork costs for businesses by making it possible to apply for federal, provincial, and municipal business license registrations online in one place, rather than having to file with each level of government. The cost savings to businesses from having such a Single Business Number registration number are estimated to be in the range of \$14 million to \$27 million annually.

Unfortunately, such benefits are rarely reflected in the evaluation of government IT investments. Most government Return on Investment (ROI) and business case methodologies don't measure the very real and quantifiable benefits that accrue to citizens and businesses from e-government investments. This needs to change.

The value of a government investment has to be measured not only by its direct return to government but by its return to the people on whose behalf the investment is actually made—the citizens government represents and the businesses that citizens work for and invest in. ROI should take into account, to the extent feasible, the complete spectrum of economic, social, and cultural benefits and costs of each individual element of an IT investment. This model of ROI—which we call Citizen Advantage™—measures the benefits to government as well as to businesses and citizens, providing decision makers with a fuller picture of the costs and benefits associated with IT investment opportunities.

Constituent Costs and Benefits

The costs that government rules and regulations impose on citizens and businesses generally fall into three categories:

- 1) **Finding** which rules and regulations are needed for compliance.
- 2) **Understanding** what the regulations mean and figuring out how to comply with them.
- 3) **Complying** with rules and regulations (typically the biggest cost driver for citizens and businesses).

E-government isn't usually the first thing that comes to politicians' minds when they're debating what government can do to enhance constituent value, make compliance with government rules and regulations easier, or create a favorable business climate. However, by minimizing the amount of time and effort it takes to comply with government red tape and complete government transactions, e-government can have a positive impact on both business productivity and people's quality of life.

INTRODUCTION

Technology is making the economy more global, more interdependent, and more decentralized. With capital, including human capital, more mobile than ever before, companies and individuals unhappy with their current situation can vote with their feet and move to a jurisdiction that will better address their needs. In this environment, cities, states, provinces, and countries that provide a climate congenial to wealth creation will prosper; those that don't will stagnate.

Many factors come into play in determining what constitutes a healthy business climate: infrastructure, education, quality of life, tax and regulatory structures, the legal system, labor and energy costs, the proximity to top-notch research institutions, and so on. The sum of how a jurisdiction matches up against others in these areas represents what's often called its economic competitiveness.

Government can't affect every factor that goes into assessing its economic competitiveness—for example, there's not much it can do about the weather, often a major consideration in quality of life. However, for most of these categories, government has a major—and sometimes defining—role to play. It can improve the quality of life by reducing crime; lower labor costs by reforming workers compensation; enhance mobility by building more roadways or reducing congestion; and ensure the supply of a skilled workforce by providing a strong educational system.

Another area where governments have a central role to play in economic competitiveness is in the regulatory environment. Doing just about anything today involving commerce entails complying with a host of regulations at all levels of government. It's estimated that complying with regulations costs between two and four percent of a typical company's receipts.¹ In the US, manufacturers spend an average of \$2.2 million per company just to comply with federal workplace regulations.² All in all, federal regulations cost citizens and businesses in the US \$843 billion annually.³ Adding state and local regulations brings the costs of regulation to nearly 17 percent of US national income, or one out of every six dollars produced in America.⁴ In Canada, regulatory compliance costs are estimated to total about 12 percent of GDP.⁵

There is no shortage of strategies that governments can use to ease regulatory compliance burdens: cost-benefit analyses, regulatory impact assessments, sunset reviews, performance standards, and deregulation are just a few of the options. One of the least understood—but most powerful—weapons available for reducing compliance costs is information technology. The strategic application of IT—particularly e-government—has the potential to radically reduce the amount of time and money that businesses and citizens must spend to comply with rules and regulations. It can do so in five ways: 1) providing information in one easy-to-access location; 2) simplifying and streamlining reporting requirements; 3) reducing the number of forms; 4) making

transactions (paying fees, obtaining permits) easier; and 5) helping businesses understand what regulations apply to them, and how to comply with them.

Together, these capabilities could have a significant impact on a business' bottom line. For example, several years ago, the State of Oregon embarked on a major effort to streamline building permitting processes as part of a broader program to improve the state's business climate. The end result was a one-stop business process for obtaining approvals for building construction. Oregon officials estimate that the streamlined review process, complete with online permitting and reporting and a preapproval process for special construction projects, saves the construction industry 10 percent, or \$100 million annually, in reduced delays and permit processing costs.⁶

Oregon's efforts caught the attention of many businesses. One of them was Intel. While the state was busy streamlining its building permit process, the chip maker was searching for a place to build a new factory. One of Intel's major considerations was compliance costs. At the time, anywhere from \$14-16 million of the \$2 billion it cost to build a large chip facility was the result of complying with myriad state and local regulatory requirements—permitting, plan reviews,

reporting, inspections, etc. Intel was understandably anxious to shave these costs.

After looking closely at a number of states, Intel selected Hillsboro, Oregon, a city of nearly 75,000 people, for the site of its new chip plant. Oregon's streamlined permitting process played a major factor in the decision to build the plant, which employs 2,000 Oregonians at full production and took only 18 months to complete.⁷

Unfortunately, the Oregon example is still something of an anomaly. Most politicians and business people have no idea what a significant impact IT could potentially have on economic competitiveness. The first step in enlightening them is to change how government officials define information technology's Return on Investment (ROI)— the subject to which we now turn our attention.

BROADENING THE BUSINESS CASE

With governments at all levels struggling with huge budget deficits, robust business cases have become *de rigueur* for all new information technology outlays. While a few of these efforts have yielded impressive results—the State of Iowa’s Return On Investment methodology is one notable example—most government ROI and business case methodologies suffer from at least one major flaw: a failure to measure the very real and quantifiable benefits that accrue to citizens and businesses from e-government investments. According to an official from the US Office of Management and Budget (OMB), of the hundreds of e-government business cases the agency reviews each year, only a tiny fraction even attempt to calculate the potential benefits to businesses and citizens.

This represents a significant hole in the business case analysis because information technology’s ROI can’t be measured only by direct return—by being more efficient for efficiency’s sake, or even only for the sake of generating cost efficiencies. Both are vitally important, and should play a central role in ROI calculations, but neither is sufficient; government competes not for its own benefit but for the benefit of a wide range of stakeholders with different needs and priorities. In private industry, value is defined ultimately by the value to the shareholders. Similarly, the value of a government investment has to be measured not only by its direct return to government but by its return to the people on whose behalf the investment is actually made—the citizens government represents and the businesses that citizens work for and invest in.

Clearly, we need to expand the definition of information technology’s ROI to include how the investment enhances value throughout the entire value chain of government investment. To the extent feasible, the complete spectrum of economic, social, and cultural benefits, and costs of each individual element of an IT investment or e-government program should be taken into account. This model of ROI, which we call Citizen Advantage, rigorously measures benefits to government, businesses, and citizens. By defining, capturing, and measuring benefits associated with e-government that aren’t currently accounted for in most ROI calculations, this model provides decision-makers with a fuller picture of the costs and benefits associated with information technology investment opportunities.

Consider one relatively simple example: When the government of Pennsylvania enhances access to recreation facilities in the state—by improving the process for obtaining camping licenses, for example—the ROI can’t simply be measured by the impact of an incremental amount of new camping license fees flowing into the state treasury. In this case, true ROI should also take into account the economic benefits to citizens—improved access to recreation facilities leads to increased tourism, which doesn’t just increase tax revenues for the state government but also increases new business opportunities, which, in turn, creates new wealth for the state’s citizens.

But even that is not the end of the value chain. The most important impact of Pennsylvania's improved process for obtaining camping licenses may not be just the economic development it generates for citizens but what it allows citizens to do—how it contributes not only to their standard of living but to their overall quality of life.

This is only one example of how Web-enabling an interaction with government, in this case a licensing application, can provide additional value in a number of unforeseen ways. The same will generally be true for each of the other principal interactions businesses and citizens have with government: registering, permitting, reporting and paying. (See box.)

Principal G-to-B and G-to-C Interactions:

- **Registering.** Legally forming and operating a business requires registering the business with multiple government agencies across multiple levels of government. For citizens, countless activities also require registering with the state, from getting a license plate to obtaining unemployment benefits.
- **Credentialing/licensing.** Many occupations require obtaining a license or credentials from government, including architects, land surveyors, barbers, lawyers, real estate brokers and taxi drivers. Citizens are required to obtain licenses for everything from going fishing to driving a car.
- **Permitting.** Governments require citizens and businesses to obtain permits for thousands of different activities, ranging from building an addition onto a house to transporting nuclear waste.
- **Reporting.** Every citizen and business face some level of reporting burden to government. For most citizens the bulk of this burden lies in the tax returns they must file each year, while businesses must file reports on everything from environmental impacts to compliance with labor rules.
- **Paying.** The largest number of transactions people have with government fall in this category. Payments, of course, will often overlap with one of the other four categories.

In addition to being the right thing to do, measuring and quantifying the value of e-government to constituents is also politically shrewd because it helps IT leaders build a more powerful, multi-faceted case for funding. Politicians' eyes tend to glaze over when discussions turn to the internal benefits of technology projects. Demonstrating the value of digitization as an economic competitiveness tool, on the other hand, would resonate with them because it helps a very important constituency: the business community.

This gives CIOs an opportunity to enlist a new ally in the fight to get e-government projects funded. The business community has long been on the front lines in battles to fight off new regulations or get rid of existing ones. However, when it comes to promoting e-government—potentially a powerful means of reducing compliance costs—business has been AWOL from the debate. Why? Because most companies don't have even the slightest conception of how e-government would affect their bottom line—no one in government has ever tried to make this case to them.⁸

“IF YOU WOULD LIKE A TIME REBATE, PRESS 5...”

E-Government is not about putting thousands of government forms or reams of information online. Rather, it is about government making better use of technology to better serve citizens and improve government efficiency, cutting government's time to make decisions from weeks or months to hours or days.”

—President George W. Bush's Management Agenda

The late 1970s saw the launch of a tax revolt sparked by California's Proposition 13. Similarly, the first decade of the 21st Century may see the emergence of a *time* revolt, as people grow increasingly frustrated with standing in line to get their driver's license renewed or waiting on hold to talk to the IRS.

The old saying that “time is money” has never seemed truer. In the midst of time-saving technologies, people feel their day is stretched thinner than ever. Marianne Lewis, an assistant professor of management at the University of Cincinnati, calls it a “vicious cycle.” Says Lewis, “The more we supposedly save time, the more we intensify the need for speed. We're constantly intensifying.” Ironically, technology is often seen as the villain in the time wars, as consumers of both commercial and government services chafe at how long they spend completing seemingly simple transactions.

Just as government has faced the demand for tax cuts by issuing tax rebates, government may now need to address a growing public desire for a “time rebate”—a single-minded

focus on cutting down the time it takes to comply with government regulations and complete transactions. The challenge is to employ technologies more widely and more effectively by looking at government systems and processes from citizens' and businesses' points of view.

One of the most unpleasant experiences an individual can have with government is having to reregister their car or truck after moving to a new state. This seemingly simple transaction can be enormously frustrating and time-consuming, involving considerable research, endless phone calls, hours on hold, multiple letters, and several trips to the department of motor vehicles. One Maryland resident who went through this process said it was the most difficult, frustrating process she has ever been through. Each time she called the Department of Motor Vehicles she received a different answer to her questions about what information she was required to bring with her to the DMV office. All in all, the process of changing her plates and driver's license ate up more than 10 hours of this professional's time.⁹

What if a streamlined process and a Web-based application could cut this time by 90 percent? How much would such a “time rebate” be worth to this busy executive whose time is worth \$200 an hour, or to the school district that won't have to pay a substitute teacher for the day away from the classroom that their newly recruited out-of-state teacher must spend handling her own DMV transactions?

The same kinds of questions can be asked about all kinds of interactions with government. Consider a medium-sized business trying to get a permit to expand their operations. How much time and money could be saved by not having to hire lobbyists and consultants to navigate their way through a maze of multiple agencies? What are the savings in paper and postage that result from not having to fill out and mail multiple forms? Or to take another example: What would the value to a pharmaceutical company be if the Food and Drug

Agency (FDA) were able to use information technology to cut the time it takes to approve a new drug by one-third?

Is it possible to quantify such savings? Yes. Can the same metrics be used to determine the benefits as those used for traditional ROI calculations for government? No. Evaluating the savings to business and citizens requires a new approach and a different set of metrics. The first step is figuring out the costs of doing business with government.

IMPETUS FOR REFORM: PAPERWORK REDUCTION ACTS

A major impetus for many IT-driven efforts to trim compliance costs are the paperwork reduction acts passed in recent years in several industrialized countries. These laws typically require agencies to reduce paperwork burdens and make government forms and transactions available online.

Australia. In 1997, the government of Australia launched “More Time for Business,” a major initiative aimed at reducing the paperwork and red tape imposed on small businesses. More Time for Business required agencies to cut the burden of statistical collections on small businesses by 20%; instituted a provision to abolish outdated regulations and make new ones affecting businesses subject to a sunset clause; and called for a single point of access for business information across all levels of government. It further committed to streamlining business licensing and approvals and merging similar licenses into single, common licenses over the next four years. The goal was to turn registering a business Down Under from a nightmarish maze involving a dozen or more agencies that administered over 6600 different licenses into a one-stop registration process at the Australian Business Register. The Business Entry Point (BEP) Web site came online in July 1998 and now has a number of resources available, including an online application for a tax file number and a Business Registration Process number. The site gives each Australian business one “business number” that identifies them to each of the 5000 different government entities they might encounter in Australia.

Canada. The Business Paper Reduction Act was passed in 1998 in response to a series of initiatives by the federal government to make Canadian businesses more

competitive. A 1994 survey by the Canadian Federation of Independent Business (CFIB) revealed that more than 70 percent of their members identified government paperwork as a serious problem.¹⁰ While the burden hours on small businesses had dropped from a high of 803 hours in 1978 to 183 hours in 1995, the federal government believed the paperwork cost to small businesses was still unacceptably high. The government’s Treasury Board teamed with CFIB in a Joint Forum on Paper Burden Reduction to address 100 “information burden irritants” that small businesses had identified. Among other things, the government responded by reducing the frequency of payroll reporting, streamlining the cumbersome Record of Employment form, accelerating payments to suppliers, test marketing new government forms, surveys, and audit manuals and offering electronic filings and payments.

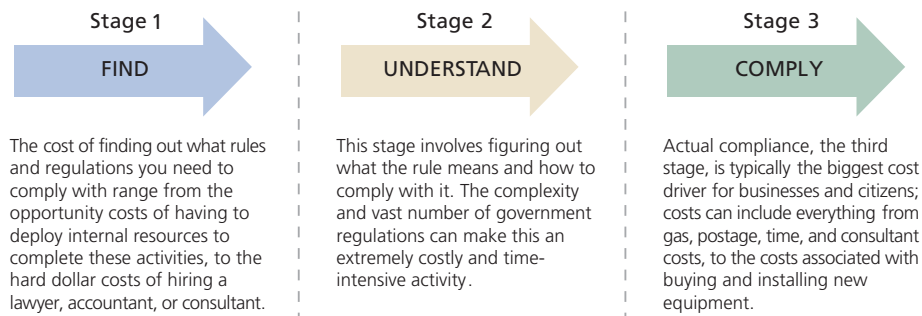
United States. In 1995, Americans spent close to seven billion hours on federal government paperwork.¹¹ This translates into roughly 26 hours per person. In an effort to reduce this burden, Congress passed the Paperwork Reduction Act, forcing all federal government agencies to review the forms they require of the public. The goal: reduce the total information collection burden for fiscal years 1996 and 1997 by ten percent, and by five percent for 1998 through 2001. In effect, the Act has compelled many federal agencies to streamline their forms and better coordinate with other agencies in order to improve the collection, use, and dissemination of the information required of the public. According to the Office of Management and Budget, the act has caused federal agencies to reduce the “hassle factor,” simplify content, and work towards identifying and collecting only information that is actually needed and used.

HOW MUCH IS YOUR TIME WORTH? DETERMINING THE BURDEN

The costs that go into doing business with government—whether it’s applying for benefits, paying a parking ticket or complying with government rules and regulations—can be broken down into roughly three main categories:

- **Find.** The discovery cost of simply finding out what rules and regulations you need to comply with are often extremely high. These range from the opportunity costs of having to deploy internal resources to complete certain activities to the hard dollar costs of hiring a lawyer, accountant or consultant to carry out more complex interactions. We typically think about such costs mostly in terms of their cost to businesses, but they can also be quite high for citizens, even for fairly simple transactions.
- **Understand.** After finding the rule or regulation that applies to your situation, you still have to figure out what it means and how to comply with it. While this sounds relatively straightforward, the vast number of government regulations and their complexity can make it extremely costly and time-intensive. The Occupational Safety and Health Administration (OSHA), for example, issues over 4,000 detailed regulations that cover everything from slippery floors to proper railing height. Without help from a consultant or lawyer, it’s nearly impossible for the average small business owner to understand, never mind comply, with all these regulations. “Most businesses will try to do the right thing, but they don’t even know which rules apply to them or how to comply,” says OSHA economist Ed Stern.

FIGURE 1. DETERMINING THE BURDEN



SOURCE: DELOITTE RESEARCH

■ **Comply.** Actually complying with rules and regulations—including paying fees and user charges—is typically the biggest cost driver for businesses and citizens. The costs of compliance can include everything from gas, postage, time, and consultant fees, to the expense associated with buying and installing new equipment and hiring more people. Thomas Hopkins, the Dean of Rochester Institute of Technology’s Business school in Rochester, New York, estimates that in 2000, the costs of complying with federal laws alone exceeded \$843 billion—or more than \$8,000 per household!¹²

All three categories should be considered when measuring the burden of government. Generally, the burden of finding and understanding which rules and regulations apply to your situation tends to be much higher for those less familiar with the sometimes Byzantine workings of government. Usually, because they lack a stable of lawyers to help them navigate the public sector, each of the three stages is proportionately more costly for individual citizens and small businesses than for larger companies.

UNIVERSITY OF TEXAS SYSTEM’S UNIVERSITY LANDS ONLINE ACCOUNTING SYSTEM

Donna Klein is an accountant at J. Cleo Thompson & James Cleo Thompson, Jr., a small Texas oil and gas producer with 20 full-time corporate employees and two field offices. As part of her job, she’s stuck with the unenviable task of filling out all the government paperwork that allows the firm to go about its business without running afoul of the law. To do her job well, Klein has had to learn on her own something she was never taught in accounting class: the art of navigating government red tape. Each month she fills out 11 different forms for four separate state agencies—and that’s not even counting the federal paperwork. “I spend about one week of my time each month just doing government paperwork and reporting,” she says.

One of the reports is for the West Texas Operations of the University of Texas System’s University Lands Accounting Office. The reports are required of all oil companies that operate oil and gas leases on Permanent University Fund lands in oil-rich west Texas. Under the old paper-based system, she spent three full work days each month filing reports and amendments to the University Lands office. Not anymore. Thanks to two new Web-enabled systems, called ERS and e-CARE, that allow companies to submit reports and payments online, Klein now spends only four hours a month completing the reporting requirements.

Over the course of a year, this reduces the amount of time she must spend on paperwork from 288 hours to only 48 hours—a difference of a factor of six. This saves J. Cleo Thompson about \$12,000 per year—not an insignificant sum for the small company.

Equally important, the online system has given Donna Klein peace of mind. “I can anticipate the next report and go on vacation without having to worry about missing a payment,” she explains.

The cost savings to the University of Texas from Web-enablement amount to a little more than \$300,000 a year. While the University Lands office hasn’t officially calculated the savings to business, a back-of-the-envelope calculation makes clear that they dwarf the savings to the state itself. Extrapolating from the \$12,000 in savings realized by J. Cleo Thompson to the 225 other oil and gas companies now filing electronically rather than with paper, would yield a very conservative \$2.7 million in savings (Since many companies have more leases than J. Cleo Thompson and therefore would have to devote more effort to the government paperwork, the actual savings are likely to be much higher.)

CAPTURING CONSTITUENT BENEFITS

Depending on the nature of the interaction and the type of Web-based solution employed, e-government could potentially impact all three cost categories—find, understand, and comply—for each of the five common types of transactions citizens and businesses have with government—registering, licensing, permitting, reporting, and paying.

Find

For any entrepreneur trying to start a business, deal with a network of vendors, or do business with a state or federal agency, navigating the bureaucratic backwaters of government regulations can dim even the brightest dreams. Fortunately, the cost of finding the applicable rules and regulations needed for compliance can be reduced by Web portals, search engines, and expert advisor systems that inform a business of exactly what rules and regulations apply to them, based on their answers to a series of questions. Governments worldwide have begun to set up one-stop shopping sites for businesses that incorporate many of these capabilities. The U.S. Small Business Compliance one-stop shop portal, discussed in more detail later, has more than 20,000 links to federal, state, local, and legal organizations organized around 39 topics ranging from licensing and permitting to exporting.¹³

FIGURE 2. THE CITIZEN ADVANTAGE FRAMEWORK



SOURCE: DELOITTE RESEARCH

In addition, the State of Michigan created a one-stop shop on its eMichigan site for everything from businesses surveying possible expansion options to small business start-ups and vendors seeking to sell goods and services to state agencies. The site even games out common questions from typical small business users. (See below).

Starting a Business

“I want to open up a pizza place in Saginaw...what do I have to do? How many of these requirements can I fulfill at my computer?”

“I want to find out if the name Viji’s Pizza and Pasta is available or whether someone in the State is already using it.”

“How do I trademark my product or service with the State?”

“Do you have any information about available commercial or industrial property in Michigan...I’m considering expanding/relocating in the State.”

“Is Michigan an attractive location economically for my small business?”

Understand

Expert systems, as well as other forms of artificial intelligence, can trim the costs involved in understanding regulations by diagnosing how rules apply to an individual business or citizen. OSHA, for example, has built ten expert systems, termed “Expert Advisors,” that provide online or downloadable customized compliance assistance for various OSHA regulations. Based on answers to a dynamically-created series of questions, the expert advisors explain exactly what needs to be done to comply with a particular regulation. For example, in 10 to 15 minutes the Hazard Awareness Advisor can interview a restaurant owner, analyze her workplace based on her answers, and write a customized, five-to-twenty page report on probable hazards.¹⁴ Typically, such a report would require a very knowledgeable professional a day for a visit and another day or two to write the report. OSHA estimates savings to small businesses from just this single expert advisor to amount to between \$40 and \$83 million a year, depending on the number of users.

Other ways that e-government can reduce the costs of understanding regulations include: posting detailed answers to frequently asked questions; prepopulating forms; and hosting bulletin board discussions about the regulations.

TABLE 1. SAVINGS OPPORTUNITIES FOR CONSTITUENTS FROM E-GOVERNMENT

Indirect Costs
<ul style="list-style-type: none"> • Opportunity Costs (time savings for business compliance and filing) • Time to Market (a company can go to market more quickly thanks to a reduction in the number of days it takes to receive a permit and license)
Direct Costs
<ul style="list-style-type: none"> • Postage • Printing • Gas/travel • Professional fees (lawyers, accountants, and consultants) • Personnel (fewer people needed to engage in regulatory compliance) • Regulatory savings via transition to compliance from enforcement

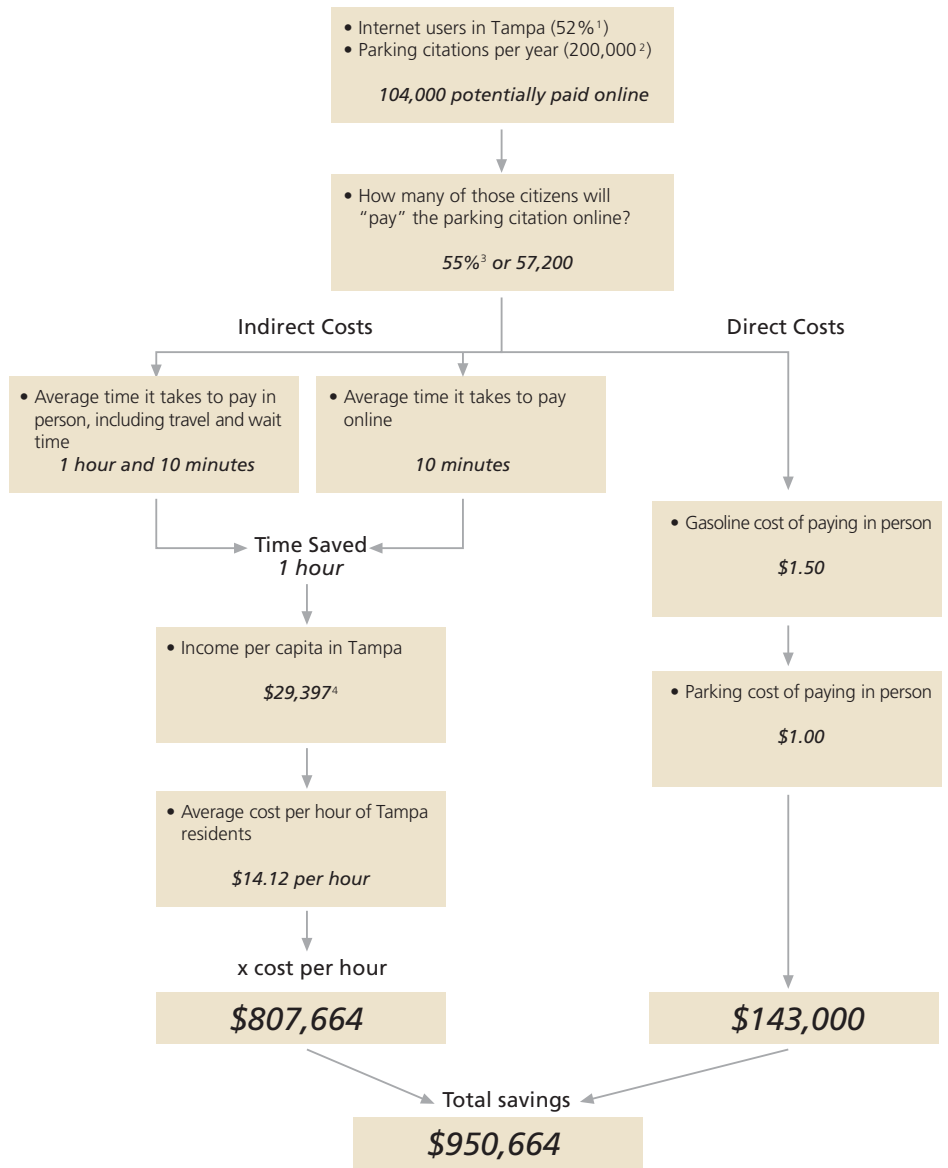
SOURCE: DELOITTE RESEARCH

Comply

Just as compliance constitutes the largest government-imposed cost driver, it is also the area where savings from e-government are potentially the greatest. Gas, postage, time, and resource savings are all possible from providing Web-enabled forms and transactions.

To illustrate, the city of Tampa has developed a tool that allows a citizen to calculate the cost savings of doing business online versus traveling to government offices for several of the services offered by the city. The e-government savings include variables preloaded to reflect common conditions of the average time it takes to complete a variety of transactions, such as business tax renewals, express permits, parking citations, and the parking lot monthly renewals payments.¹⁵ Information needed to make this calculation includes travel distance to the city agency, average car miles per gallon, cost per gallon of gasoline, parking meter or lot fee, and the value of the individual’s time per hour. Based on this information, the calculator will estimate the savings to the constituent of doing business with the city online instead of in line. (See Figure 3 on page 13)

FIGURE 3. TAMPA SAVINGS CALCULATOR
Savings from Paying Parking Citations Online vs. in Person



¹ National Telecommunications and Information Administration (September 2001)
² American City Business Journals (July 2001)
³ Pew Internet and American Life Project, Government Web Site Survey (September 2001)
 SOURCE: DELOITTE RESEARCH AND THE CITY OF TAMPA

Compliance savings are also possible when governments use common data standards and middleware technology to merge forms and applications, thereby enabling businesses and citizens to do one-stop shopping online instead of filling out multiple forms with the same information for multiple agencies. The State of Pennsylvania's "PA Open for Business" Web site, for example, allows a business to enter all the information needed to register with the state in one place,

instead of having to go to five different agencies. A process that once took days or weeks has been reduced to one hour. If 50 percent of all new businesses in the state used PA Open for Business and each saved four to six hours per company per year, it would translate into a one-year opportunity cost savings in the range of \$7.4 million to \$11.1 million for Pennsylvania businesses.²⁰

DIGITIZATION AT THE FDA: SPEEDING THE TIME TO MARKET

Few areas demonstrate the potentially powerful effects that IT can have on reducing compliance costs better than the FDA's drug and medical device approval process. No manufacturer can market a drug or medical device, alter its manufacturing processes, or propose a new use for it without the approval of the US Food and Drug Administration (FDA). The average time it takes for a drug or medical device to go through the FDA's review process is about 400 days, over twice the statutory limit of 180 days (this is about a 100 percent improvement from just a few years ago).¹⁶ This is important because every day that their product is kept off the market costs medical device manufacturers and pharmaceutical companies anywhere from one to four million dollars.

While information technology alone can't "fix" this situation, it can play a big role in improving it. "A standardized electronic reporting and submission process would increase our efficiency, enhance our ability to review safety data, and help us communicate better with industry," asserts Dr. Randy Levin, Director for the Office of Information Management in the Center for Drug Evaluation and Research at the FDA.¹⁷

Some experts believe that digitization of all the FDA's processes could ultimately cut the average time it takes to approve a new drug by one-third to one-half.¹⁸ According to Tufts University's Center for the Study of Drug Development, a 25 percent reduction in the time it takes to approve an application would reduce the average costs of developing *each* new drug by a whopping \$100 million. Cumulatively, this would translate into billions of dollars in savings to the pharmaceutical industry.¹⁹

There are three major ways that digitization of the FDA's approval process could save businesses time and money:

Reduced paper and postage costs. Each new drug application represents about 500,000 pages worth of information. The FDA receives hundreds of these giant applications each year, along with thousands of phone book-sized post-marketing safety reports from industry. This costs companies tens of millions of dollars in printing and mailing costs. Electronic submission could slash these costs dramatically.

One way technology can do this is through e-submissions: moving the new product application and follow-up reporting into an electronic framework. The FDA receives thousands of submissions each year—many containing hundreds of thousands of pages worth of information. Applications that come in on paper can take an FDA reviewer at least two weeks just to go through a single segment of the clinical trial section of the submission. Why? Because she has to wade through volume after volume of data sets manually, not to mention cross-referencing all the relevant information. E-filing shaves this process to two days because the computer does most of the searching. The FDA has made some progress moving applications to e-filing—the average number of paper volumes has fallen by half and about three-fourths of drug applications now have at least an electronic component. However, still only a small fraction of applications are submitted *entirely* electronically.

TABLE 2. KEY FDA ELECTRONIC INITIATIVES

Electronic Submissions
<ul style="list-style-type: none"> • New Drug Applications (NDAs) • Abbreviated New Drug Applications (ANDAs) • Investigational New Drug Applications (INDs) • Biologic Licensing Applications (BLAs) • Individual Postmarketing Safety Reports (ICSRs) • Drug Master Files (DMF) • Postmarketing Adverse Events Reporting • Drug Advertising Material
Electronic Review
<ul style="list-style-type: none"> • Electronic Document Room • Secure Email • Division Files System

SOURCE: U.S. FOOD AND DRUG ADMINISTRATION CENTER FOR DRUG EVALUATION AND RESEARCH

Reduced risk exposure for FDA through better data capture. When the FDA gives tentative approval to manufacture a drug or medical device, it is contingent on a year-long monitoring effort of thousands or millions of patients. This stage is called post-marketing surveillance. Previously, due to concerns that it will be much harder to pull the plug on the drug once it's actually out on the market, the FDA has been very reluctant to move to this stage until they are absolutely sure the drug is safe. Real-time data analysis could significantly reduce the FDA's risks in moving drugs more quickly to this stage. "If we had better post-marketing surveillance we could comfortably move the approval process up, and we would not be in the position where we're uncomfortable with the approval because we're not sure we have all the data and we're not sure we'll ever get it. So people sit on their hands and do nothing, or keep putting off the approval," says FDA expert Alistair Wood, President of Vanderbilt's College of Medicine. "If we had a process that we had a high level of comfort with, we could approve drugs more rapidly with an information technology plan in place that better captured data from tests."

A pilot project launched by the FDA would create a shared electronic repository where companies would submit their clinical trial data to a trusted third party who would host the secure site. Instead of having to wait months and months

to get tens of thousands of pages worth of statistics that require a team of FDA scientists just to decipher, the FDA would be able to look at the clinical trial data in real-time. The agency would then be more comfortable approving drugs on a trial basis. "The way we can access information and communicate with industry would be greatly improved with this capability," says the FDA's Levin.

Improved collaboration and communications between the FDA and industry. Improving collaboration and communications between FDA and drug companies is also critical to speeding the approval process. Getting the FDA and a manufacturer to agree on labeling for a drug can be extremely time-consuming; each tiny label is packed with lots of scientific and intellectual content. Often the label will go back and forth many times before agreement on its wording is reached. Even today, this process is often conducted by mail, fax, and phone. "Nothing kills more time than getting a single question answered," says Jim Benson, the former Vice President of AdvaMed, the trade association of medical device manufacturers. "Days or weeks might pass as the FDA or the company waits for an answer to a simple question." AdvaMed and other trade associations are pushing for an access-protected secure chat room where a company could submit part or all of the application online, allowing companies and FDA reviewers to go back and forth in real-time. "It would save an enormous amount of time," Benson says.

Better knowledge-sharing could not only speed up the label approval process, but by fostering a deeper understanding between the FDA and a drug manufacturer about a given application, it could also help to avoid delays later in the process caused by a lack of shared understanding of protocols and review processes. Recognizing this, the FDA has embarked on several projects to speed and improve information exchange between industry and FDA reviewers, ranging from secure e-mail to creating a shared electronic repository where companies would submit their applications to a trusted third party who would host the secure site.

Even greater benefits are possible when governments use Web-based technology to share information across state or provincial boundaries and across levels of government, enabling a business operating in multiple states or provinces to reduce the paperwork it has to complete with each different jurisdiction. In Canada, the province of British Columbia's OneStopBC site makes it possible to apply for federal, provincial, and municipal business license registrations online in one place. Also available on the site are applications for a Single Business Number registration, Worker's Compensation Board registration, and a proprietorship or partnership business name registration. The cost savings to Canadian businesses from the Single Business Number registration alone are estimated to be in the range of \$14.52 million to \$26.76 million annually.²¹

The US federal government is also seeking to reduce the time and resources businesses and individuals have to expend complying with paperwork across levels of government by creating a registry and repository that would enable the sharing and reuse of electronic information across both federal government agencies and federal, state, and local governments. The key technology enabler is XML, a more information-intensive variant of the hypertext markup language (HTML) used to code most Web pages. XML lets Web users exchange data between different devices running all sorts of applications, even if they use different platforms and languages. By standardizing data formats in XML and linking government systems, the centralized system would allow the federal government to collect information once and use it many times. This would eliminate the need for businesses, individuals, and different levels of government to file the same information over and over again.

STREAMLINING BUILDING REGULATORY PROCESSES THROUGH IT

The National Conference of States on Building Codes and Standards estimates that the construction industry could save between \$15 to \$20 billion per year if governments at all levels in the US were to streamline their compliance processes through the use of information technology. The cost savings estimate is based on actual experiences in state and local governments:

TABLE 3.

Jurisdiction	Project	Results
State of Oregon	One-stop business process for building construction approvals.	10% savings to the state in building permit processing costs; 10% savings to the construction industry through reduction of delays. In 2001, these savings were \$7.5 million and \$100 million, respectively.
Los Angeles, California	Redesign of the building regulatory process involving online permitting, IVR inspection request system and electronic plans submittals.	Reduced median wait time at the permit center from 2 or 3 hours to 7 minutes; reduced plan check time from 10 weeks to 10 days; reduced inspection wait from 4-5 days to 24 hours for 99% of inspections. Savings to the private sector are in the tens of millions of dollars. The city handled an 88% increase in construction activity with only a 1.5% increase in staff.
Fairfax County, Virginia	Online permitting processes and inspection request systems	County services available online anytime; \$1.5 million operational savings to the city in 2001.
San Diego, California	Process 2000-Speeds up the permitting process and fast tracks plans reviews and tracking through IT.	60% reduction in regulatory processing time and \$10 million savings to the city over 4 years; \$3.4 million savings to the industry in direct time labor.
Savannah, Georgia	Follows San Diego's Process 2000 model	Savings of 19 days in direct building department staff time; savings to the industry of 60% reduction in time for regulatory review and over \$1,000 in permit fees.
Commonwealth of Pennsylvania	Adoption of a uniform statewide building code, effective April 2004. Applies uniformly across 2,600 local jurisdictions.	State legislation passed in 1999; code to go into effect April 2004.

SOURCE: NATIONAL CONFERENCE OF STATES ON BUILDING CODES AND STANDARDS

PUTTING IT ALL TOGETHER

Every year 4,000 regulatory changes are introduced by the U.S. federal government.²² Lacking a stable of in-house lawyers to help them navigate the regulatory maze, small businesses are the hardest hit by the regulatory tsunami. They spend about \$500 billion a year, or \$7,000 per employee, complying with federal government regulations, according to the Small Business Administration (SBA).²³ “The smaller the business, the greater the relative time to comply,” explains Ron Miller, the SBA’s Assistant Administrator for E-Government.²⁴

Miller works for an agency whose main job is to advocate on behalf of small businesses. A big part of that mission is seeking to reduce their compliance burdens. In recent years, the agency has become convinced that e-government has a critical role to play in achieving this objective. “We believe we can save small businesses significant amounts of money that they are now devoting to compliance by building tools to make the current regulatory burden less onerous,” says Miller.

TABLE 4. SBA’S BUSINESS COMPLIANCE ONE STOP

Phase I Business Law.gov “Library”	Phase II Business Compliance One Stop “Librarian”	Next Phase Industry Portals Spin-offs
<i>Services include:</i>	<i>Helps to answer questions:</i>	<i>Services planned:</i>
Resource guides on 39 business topics	What laws and regulations apply to me?	Industry specific: test pilot is trucking industry with rollout to health care, food, mining, and chemicals
Answers to common questions	Where do I find them?	Specialized resources
Links to over 20,000 state and local government sites	What do they mean?	Compliance assistance tools
Information on the latest legal and regulatory changes	What do I need to do to comply?	Streamlined data collection and dissemination to appropriate agencies
Compliance assistance tools	How can I do it online?	Online transactions
Limited online transactions, such as registering for an Employer Identification Number (EIN).	Where can I get additional assistance?	

SOURCE: U.S. SMALL BUSINESS ADMINISTRATION

Towards that end, the SBA has built a Business Compliance One Stop Web site for small businesses (www.BusinessLaw.gov). The site, which will eventually become the federal government's business gateway, helps businesses find, understand, and comply with regulations by providing resource guides on 39 business topics, answers to common questions, links to over 20,000 state and local government sites, information on the latest legal and regulatory changes, personalized compliance assistance tools and various online transactions, such as registering for an Employer Identification Number (EIN).

All in all, SBA estimates the Business Compliance One Stop saves businesses about \$526 million a year by reducing the amount of time and money they must spend finding the regulations that apply to them, understanding their meaning, and then ultimately complying with them.²⁵

The next phase of the SBA's electronic compliance assistance project will take this concept a step further by providing industry-specific compliance capabilities. The test pilot is the heavily regulated trucking industry. Today, just to operate a rig, a trucker might have to fill out up to 38 forms from a jumble of federal and state agencies. According to the trucking industry, this costs the average trucker about \$500 in lost time.

The SBA is working with industry and the Department of Transportation to streamline this process by standardizing federal and state information collection requirements and employing interactive, electronic "smart" forms and expert advisor or Wizard tools. The goal: allow truckers to fill

TABLE 5. MOTOR CARRIER ONE STOP
Potential Cost Savings to the Trucking Industry

Regulatory Burden in FY2002	SBA's Reduction Target	Cost Savings
\$836 million x	40%	= \$334 million
Based on 20.9 million burden hours multiplied by \$40 per hour rate	SBA is focusing on streamlining 12 out of 38 required forms, representing 99% of the burden.	

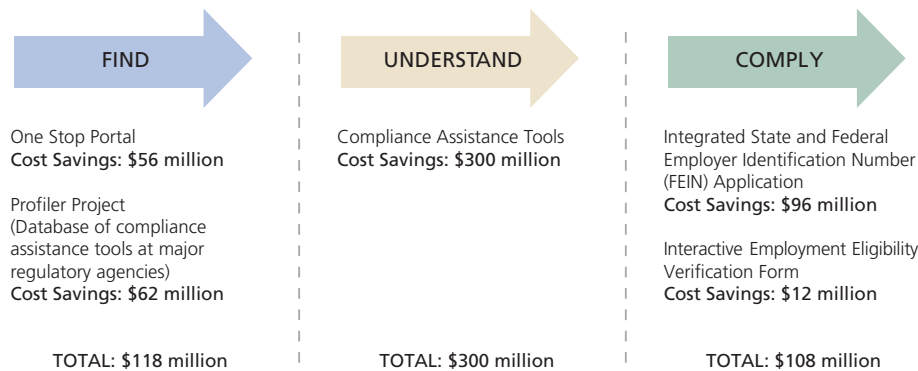
SOURCES: U.S. SMALL BUSINESS ADMINISTRATION AND OFFICE OF MANAGEMENT AND BUDGET

in all the necessary information once, in one place. This would reduce the amount of time each trucker spends on government paperwork by 40 percent, according to SBA, saving truckers approximately \$334 million annually.²⁶

The trucking portal is projected to be up and running sometime in 2004. If all goes well, other industry portals, including those for health care, chemicals, food, and mining are planned. Cumulative projected savings to industry, according to the SBA: \$2 billion.

The maximum benefits to economic competitiveness from digitization will materialize when government agencies begin to offer end-to-end digital transactions that walk businesses and citizens through each phase of the compliance process. This is the end goal at the Department of Labor and OSHA, where policymakers eventually hope to build electronic compliance assistance advisors for every major regulation. The idea is that an employer would log onto the Web site, answer a number of questions—the size of his business, the

FIGURE 5. SBA'S BUSINESSLAW.GOV AND BUSINESS COMPLIANCE ONE STOP ESTIMATED ANNUAL COST SAVINGS



SOURCE: U.S. SMALL BUSINESS ADMINISTRATION

state it is located in, whether it has government contracts, etc. The program would then tell him exactly which regulations applied to his business, list specific advisors relevant to the firm, and suggest the best order for using them. Every business would be able to get a complete list of all the health, safety, and labor requirements it had to comply with by law, as well as videos and other tools that explained how to do so. All reporting and payment requirements would also be offered online.

Conclusion

E-government isn't typically the first thing that comes to politicians' minds when they're debating what government can do to enhance economic competitiveness. But that doesn't make it any less potent as a tool for doing so. By minimizing the amount of time and effort it takes to comply with government red tape and complete government transactions, e-government can positively impact both business productivity and people's quality of life. Not only is this good for citizens and businesses, but ultimately it will also be good for the government treasury. "Savings to businesses can be reinvested," explains SBA's Miller. "Reinvestments can lead to productivity enhancements and job creation which, in turn, can increase revenues to government coffers."

Endnotes

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- ⁶ "The Business Case for Streamlining the Nation's Building Regulatory Process Through the Effective Use of Information Technology," National Conference of States on Building Codes and Standards, available online at www.ncsbc.org.
- ⁷ *Ibid.*
- ⁸ One reason the business community does not know how e-government could help them is that regulatory impact analyses typically do not reveal the time and cost of finding out which rules apply to specific factual situations. In fact, these costs are in the billions of dollars.
- ⁹ Labor economics theory holds that when working, the individual is paid a wage of "w" dollars per hour, in which the wage measures the opportunity cost of leisure. Surveys find that most people value their leisure time about half their wage rate. See: Avinash K. Dixit, Barry J. Nalebuff, With Barry Nalebuff, *Thinking Strategically: The Competitive Edge in Business, Politics and Everyday Life*, New York: Norton, W. W. & Company, Inc, 1993.
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- ¹⁶ Roger D. Feldman and Mark V. Pauly, "American Health Care: Government, Market Processes and the Public Interest," Independent Institute Website, Oakland, CA.
- ¹⁷ Dr. Randy Levin, interview with the author, May 2003.
- ¹⁸ These estimates come from various interviews with industry experts, academics, policy analysts, and FDA staffers.
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- ²⁰ The calculation is based on the assumption that 118,759 businesses, which represent 50% of the total, saved between

four and six hours each by using e-government services in the State of Pennsylvania (one hour saved is equivalent to \$15.60 dollars, based on hourly average salary).

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