

## Insider's Guide to Using Information in Government



Strategy



Policy



Data



Cost



Skills



Technology

# Topic

**Underestimating costs proves costly**

*Traditional approaches aren't enough*

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## Underestimating costs proves costly

### *Traditional approaches aren't enough*

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The costs of information technology initiatives are almost always underestimated. Why? Two reasons. We tend to under-appreciate their complexity and we lack good models or guides for identifying all cost factors. The cost estimation models we do have usually capture the cost of dedicated staff and purchases such as hardware, software, and consulting services. These costs are certainly real, but they fall short of the full costs of engaging in a new information technology (IT) or services effort.

Hardware and software are typically the least costly aspects of a new information initiative. An astute observer illustrated this by contrasting an investment in dump trucks with an investment in an IT initiative. Buying \$20 million worth of dump trucks is a big investment. Research must be done to determine the best dump trucks to buy, who will provide the best warranty, the best maintenance, and the best deal. At the end of the day you will have \$20 million worth of dump trucks—even if one or two don't work and have to be returned for new ones. If you invest \$20 million in information technology initiatives, using the best cost estimation and planning tools, at the end of the day you may have nothing but \$20 million worth of bad press and ill will. Read the [full analysis](#), "Investing in Technology: Funding Options and Choices for the IT Champion in State and Local Government," for more details and recommendations.

#### Key Points

##### **When addressing costs, consider...**

- relationships internal and external to the project
- similarities of existing processes and technologies to desired ones
- dependencies among tasks
- the impact of integration
- the variations in needed data

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"An Open Letter to CEOs: How otherwise good managers spend too much on information technology" urges organizations to manage their IT like they manage other lines of business; to "put a stop to or just ignore the incessant techno-babble about IT" and to judge the performance of the IT departments in business terms.

## Approach to IT investments

Improving our ability to identify all cost categories and estimate specific costs is a growing concern in public and private sector IT. The increasing number of expensive and public failures has raised this concern to a leadership level. As a result, new tools and techniques are emerging to improve information technology investment planning and decision making. Several states have developed comprehensive new approaches to analyzing and selecting IT initiatives including, Arizona, California, Idaho, North Carolina, Pennsylvania, and Tennessee. Several Federal agencies have invested in the [Information Technology Investment Planning System](#) (ITIPS) to improve decision making and planning in information technology initiatives. Some counties and municipalities are also moving forward in developing approaches to deal with the challenges of IT investment. The City of Los Angeles, for example, has developed a project management methodology for IT projects. A recent study by CTG uncovered these factors as necessary to success:

- Formal support
  - in the form of legislation
  - from upper management
  - from the budget authority
  - from the highest level of government involved in planning functions
- A comprehensive statewide strategic plan to help judge how well a new idea fits with the government's larger goals
- Good communication between legislative, budget, and IT functions and between the IT oversight agency and the procurement office

## Complexity of costs

When agencies do a better job of breaking down the complexity of IT initiatives by identifying the factors that influence them, they are better able to predict the resulting costs. The *Using Information in Government Program* identified six factors that influence the complexity (and therefore the cost) of projects, but these were generally *not* accounted for in traditional cost models:

- building, maintaining, and managing relationships
- the similarity of existing processes and work to the envisioned ones
- the similarity of existing technologies to desired technologies

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- separability of tasks
- intended degree of integration in the final product
- variations in data sources

In short, complexity and degree of change influence total costs as much or more than any direct expense. The more complex the network of required relationships, the more costly it will be to establish, maintain, and manage. The more data sources and the greater their differences, the more it will cost to make use of them. The more interdependent the tasks in the workplan, the costlier the work will be—and the higher the risk of failure. All of these factors demand serious consideration in up-front analysis and cost estimation. The better we get at accounting for them, the more useful our cost models will become.

## Relationships

The network of relationships involved in a simple information initiative conducted by a single organizational unit is likely to be small and stable. As projects become more complex, involving multiple units, crossing organizations, levels of government, and program domains, these networks become large and dynamic. The number of different professions involved adds more difficulty and cost to relationship management. Understanding the character of an initiative, assessing and securing the necessary relationships, and managing those relationships to a successful outcome are often overlooked as tasks that incur heavy costs. Three kinds of relationships must be considered in estimating the relationships costs in a project:

**Relationships inside the project.** Managing the day to day working environment of a project team is real work for any project manager. Developing an environment that allows the necessary working relationships to develop, and maintaining that environment for the length of the project and beyond takes time and resources.

**Relationships with immediate project sponsors.** Keeping the boss informed has always been a necessary task of project managers, but we haven't always costed out the time spent doing so. As projects expand beyond single areas of focus to involve greater degrees of integration, this relationship becomes more complex and time consuming. Project sponsors may reside in multiple organizations, and are likely to have different visions and priorities. Attending to these sponsors and ensuring their ongoing support is a time consuming and resource-intensive activity that is underrepresented in most cost estimation efforts.

**Relationships with the larger environment.** The costs of managing relationships with the larger environment can be considerable. Cost estimates for IT initiatives rarely involve the time and resources necessary to build and maintain the necessary relationships at each level. Furthermore, they rarely account for the complexity that

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results when the domain of the project is beyond one unit or division. Identifying external stakeholders, securing strategic partnerships with them, and maintaining those relationships requires more time and money than most organizations recognize.

### Similarity of existing processes and work to the envisioned ones

Few of us have the luxury of engaging in even two similar IT initiatives. Very often, project teams are working on several different business problems, with new partners, using new management models. Fully understanding the breadth and depth of these new tasks is difficult. The more familiar the strategy and tasks involved, and the more the new process or program resembles the old one, the more likely accurate cost estimates can be developed.

### Similarity of existing technologies to desired technologies

The effort it takes to move from the familiar tried-and-true to the exciting new-and-different is a significant cost factor. These costs go well beyond the cost of training in new tools. This includes the opportunity costs incurred in the post-training productivity dip while staff work to assimilate new skills or tools into their day-to-day usable knowledge. The greater the gap between the current technologies and the ones in your vision, the greater the effort and time required to get there.

### Separability of tasks

Separating tasks and managing them as independent and potentially parallel efforts can keep a lid on the costs of new initiatives. Doing this effectively depends on the ability of the team to clearly see the tasks that must be attended to and the extent to which these tasks fit together or are independent of one another. Often, tasks are interdependent and a hold-up or problem in one has direct negative effect on others. Few projects build in enough slack resources (a cost of its own) to allow for these inevitable problems, so the costs of fixing (or ignoring) them is all the greater.

### Intended degree of integration

"Integration" is a slippery term. We often use it to mean systems that "talk" to one another, or data that is merged from several sources to create a new repository designed for different uses than the original sources. But it can also mean integrated business processes, organizational structures, and policy frameworks. Integration can take many forms. For example, several benefit programs could be highly integrated by combining eligibility assessments and service delivery, or they could be loosely



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integrated by co-locating offices and coordinating information dissemination. Data could be loosely integrated by co-locating data resources on a Web site, or they could be tightly integrated by transforming them from multiple sources to a single database. An understanding of the degree of integration in areas such as program goals, funding, staff, infrastructure, and data will improve the accuracy of project cost estimates. And, of course, the tighter the integration of formerly separate things, the higher the cost.

"Nothing eats time or blows budgets like a runaway data integration project," according to a recent *CIO Magazine* article "The Hidden Costs of Data Integration." The authors provide seven tips to help organizations protect their investments.

### Data differences

The differences among data resources in terms of form and format, definitions and standards, or accepted development practices are significant cost factors when developing new information resources. The staff costs related to integration of disparate data sources are significant—in particular, costs for the time of individuals who know the programs and services that underlie the data. If data resources are highly dissimilar or unfamiliar, the level of effort associated with using them increases. Experience has taught us that the cost of data transformation exceeds most other costs in a data integration effort. This includes the time necessary to develop business rules and deal with data quality problems, and the expensive staff time spent "eyeballing" the data because automated tools only go so far.

These six factors were drawn from the projects conducted in *The Using Information in Government Program* at the Center for Technology in Government. These projects provided a number of practical examples of the specific cost-related challenges organizations face when engaging in unfamiliar initiatives with new and varied partners.

### Practical examples

#### Investing in a new business model

The New York State [Department of Transportation](#) found that the technology application they investigated to assess IT investments was very expensive. To implement it would require extensive work by external consultants to develop the new model of analysis. They decided instead to invest in a new model of analysis using procedures that did not require new technology. As a result, the agency was able to make this transition to a new way of doing business and to defer without having to adjust to new technologies.

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## Identifying the task and resource implications

Understanding the cost implications of a change to a business process is difficult enough. When the business process is one that is carried out in hundreds of different places with many different approaches and priorities, it becomes seemingly insurmountable. The [Office of Real Property Services](#) (ORPS) undertook just such an analysis. ORPS worked to identify the staff and cost implications of a newly legislated initiative. They invested first in a simulation model that analyzed the staffing and cost implications of moving to a new way of doing the business of real property assessments.

## Sailing in chartered waters

The Central New York Psychiatric Center had the luxury of having an [effective process and a new network](#) in place; what they needed was a new approach to moving data through the system. Having these luxuries made their new initiative an easy win.

## High cost of transforming data into information

The process of data integration is receiving increasing attention as a significant cost factor in IT initiatives. We've all heard colleagues say something like this. "We'll just dump all that data in a warehouse, then we'll get a full understanding of our customers from every perspective." The [Bureau of Shelter Services](#) wanted to find out what was involved in "just dumping all that data in a warehouse" before launching a full-scale initiative. They developed a prototype, the Homeless Information Management System, as a tool for answering three questions: Can it be done? How much will it cost? And most importantly, should it be done?

## Cost links

### [Investing In Technology: Funding Options and Choices for the IT Champion in State and Local Government](#)

This white paper provides hands-on advice on how to get IT projects over the hurdles of the budgetary process. The paper details how IT projects run a high risk of falling through the grid due to their relatively high up-front costs as well as their distant-in-time returns or savings. A variety of methods for circumventing these classical pitfalls are discussed. The importance of stringent and convincing business cases, which thoroughly compare the costs with the financial benefits of any proposed IT investment are emphasized.

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### **Getting IT spending right this time**

The authors contend that cost pressures often lead companies to cut spending on IT initiatives aimed at improving performance. Though being the first to adopt new systems carries potential risks of dealing with immature system designs, well-targeted IT spending can make companies more productive when it helps them to innovate. Companies should identify and invest in the right productivity levers as well as time IT investments carefully, so that basic corporate systems are ready to benefit from them.

### **Arizona: Project Investment Justification Process**

Arizona has a formally stated Information Technology Project and Investment Justification, and Monitoring policy and procedure administered through the Government Information Technology Agency (GITA). Agencies proposing IT projects with development costs of \$25,000 or greater, are required to submit a "Project Investment Justification" (PIJ) document to GITA for review and approval.

### **California: Statewide Information Management Manual**

IT investments in California are reviewed by two agencies, The Department of Information Technology (DOIT), and the Department of Finance (DOF). California is currently revamping its processes. See Project initiation, approval, and change process to see how methods are being changed to make them less bureaucratic, and to facilitate speedier exchange of information within the system.

### **Pennsylvania: The Office for Information Technology**

Under the Investment Review Program, projects that cost \$500,000 or greater, or those that are under \$500,000 and in certain specified areas (i.e. electronic commerce, GIS, etc.) are required to submit information such as a project description and financials (including a cost benefit analysis) for review. Project managers are required to update the project monitoring section as the project progresses. This helps the Office of Information Technology staff to keep track of project progress and raise flags of potential problems.

### **Tennessee: Information Systems Planning Review**

Tennessee has evolved a comprehensive process to deal with information systems planning. For projects with costs greater than \$100,000, a project proposal is submitted, along with a detailed cost benefit analysis as part of the Information Systems Plan to the agency's Management Advisory Committee. The information in the proposal is used to prioritize projects and recommend funding as well as monitor costs and benefits during project implementation. The Information System Plans are then reviewed, evaluated by a committee (OIR/Budget Review Committee) consisting of budget and technology specialists within the Tennessee Department of Finance and Administration.



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### [Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity](#)

In 2000, the United States General Accounting Office published an exposure draft of Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity (ITIM). The framework provided a method for evaluating and assessing how well an agency is selecting and managing its IT resources. This new version updates the exposure draft to take into account comments that GAO has received; GAO's experiences in evaluating several agencies' implementations of investment management processes and the lessons learned by these agencies; and the importance of enterprise architecture (EA) as a critical frame of reference in making IT investment decisions.

### **City of Los Angeles: Project Management Methodology**

The City of Los Angeles has developed a Project Management Methodology that provides guidelines for project management activities, responsibilities, and deliverables for IT projects. The methodology, based on many sources including best practices of government agencies and industry, provides guidelines to the City's information technology development projects. It looks at projects from three dimensions: the project life cycle, project management processes, and project management responsibilities.

### **The Hidden Costs of Data Integration**

Data integration is about new operating efficiencies and improved business processes—neither of which are inexpensive to accomplish. This article from the May 1999 issue of *CIO Magazine* discusses seven tips for protecting your investment.