

Underestimating e-government costs proves costly Traditional approaches aren't enough

Introduction

The costs of e-government 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 e-government effort.

Hardware and software are typically the least costly aspects of any 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 <http://www.nysfirm.org/projpubs/whitpapr.html>.

Approach to e-government 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 e-government initiatives by identifying the factors that influence them, they are better able to predict the resulting costs. Our research and practice has identified six factors that influence the complexity (and therefore the cost) of projects, but these were generally not accounted for in traditional cost models. These six factors were drawn from the projects conducted in The Using Information in Government Program at the Center for Technology in Government:

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