A well conceived IT strategic plan can help governments make the most of their technology investments. This article describes the factors to consider in developing such a plan.

Strategic Planning for Technology Investments

By Ronald J. Raumer

The looming recession is putting downward pressure on the budgets of both governments and businesses everywhere. Although total IT spending in the United States has not yet declined, it is growing at a much slower rate than years past.[1] Capital spending for hardware and software has actually fallen in the past year, while funding for e-business, e-government, and Internet initiatives has been especially hard hit.

As a result of the changing economic and political environment, the IT function must again demonstrate how it adds value to the overall organization. Technology initiatives that have been rubber-stamped in recent years must now be justified empirically before funding is approved. As such, governments need to be able to answer several key questions about their IT efforts:

1. Are we doing the "right" things?
2. Is our IT spending consistent with our mission?
3. Are we getting our money's worth from IT investments?
4. Do we have the requisite resources (i.e., people, processes, skills, tools, technologies) to accomplish our goals and objectives?
5. Are these resources organized and managed appropriately so as to maximize efficiency, effectiveness, and accountability?
6. Are we properly managing risk?
7. What should we do going forward to improve services and to anticipate and prepare for change?

A well conceived IT strategy can help answer each of these questions.

What is an IT Strategy?

An IT strategy defines how information technology is to be used across an organization in the future. It describes how information technology will support the organization's mission, goals, and strategies, thereby aligning IT with the organization's overall direction (Exhibit 1).

An IT strategy considers the internal and external changes an organization is facing and the potential opportunities for using IT to adjust to those changes. The opportunities for using IT are weighed against the strengths and weaknesses of IT capabilities—both technological and organizational—to measure the gap between current capabilities and the desired future position. The IT strategy lays out the broad strategic directions that must be pursued to close the gap and balance information technology capabilities with opportunities and risks.

EXHIBIT 1: IT STRATEGY FRAMEWORK

An IT strategy defines the future IT architecture and the initiatives and projects necessary to close the gap. A strategy also determines the degree of change that will be required of the IT organization in terms of its mission, culture, structure, staffing, skills, and processes.

IT Strategy Example

To illustrate the development of an IT strategy, consider the simplified example of a regional park authority, one that has sufficient funding for acquisition and development of new parks, but limited funding for operations and maintenance. One relevant external factor is that the regional population is growing rapidly, creating greater demand for park services. The park authority has set a goal to develop additional parks, while holding the line on spending for park operations and maintenance.

In formulating its IT strategic plan, the park authority would first identify opportunities to use IT to support its goal. Opportunities might include automating park maintenance processes or implementing an e-government park reservation system. The IT strategy might include plans to enhance existing systems to facilitate the increased efficiency of park maintenance workers or to deploy self-service Internet-based systems to reduce the administrative costs of the park reservation activity.

These strategies and opportunities would be subsequently weighed against the current IT capabilities available to implement them. It might be determined that existing servers would need upgrading to support the new systems or that the IT organization would need new skills to support the e-government technology. Based on this assessment, the organization could then make plans to implement the new technology and the changes to the IT organization.

Strategy as Partnership and Process

Some IT organizations have tried to develop IT strategies in isolation from the rest of the organization. Usually, the result has been a strategy that is neither accepted nor implemented. Too often a strategy imposed is a strategy opposed.

Strategy development and IT alignment is more frequently successful when it is developed as a collaborative effort between IT and users, with both having equal weight in decision-making. This can be achieved by forming a cross-functional council or committee to assume the responsibility for developing and maintaining the IT strategy.

Strategy is a process. When strategy is a one-time event that produces a static document, the strategy soon becomes outdated and useless. When strategy is an ongoing process, however, it promotes alignment between IT and the organization, and ensures that IT is doing what the organization needs now and in the future.

Aligning IT with the Organization

Alignment is defined as the degree to which IT supports organization-wide mission, goals, and objectives. The greater the degree of alignment, the greater the value of IT to the organization. Alignment is especially important in today's environment, as many organizations are shifting resources to high-value activities and eliminating low-value activities and related staff.

Aligning IT to the organization requires understanding the organization's future direction. In some organizations, the direction is well understood and documented. In others, it is not documented but is implicit in the plans and actions of the enterprise. In still others, it must be constructed. A clearly articulated and understood organizational direction drives the entire IT strategy.

Identifying Opportunities

With a clearly defined organizational direction, opportunities for using information technology in support of the organization's mission can be identified. Opportunities might include implementing new information technologies or e-government applications. They might also include efforts to protect IT data and assets from security risks or to enhance existing hardware such as networks, servers, and desktop computers.

It may be beneficial to periodically survey IT industry trends and to benchmark with similar organizations in order to keep abreast of new and emerging technologies. Another important part of the opportunity identification process is an assessment of current IT application systems and infrastructure. The application systems and infrastructure components that do not meet the organization's requirements become candidates for improvement. The best improvement opportunities are those that best support organizational goals and objectives, thereby offering the greatest degree of alignment.

Prioritizing Opportunities

For most organizations, the opportunities for using IT far outweigh the resources available to fund them. So which opportunities should be considered first? In the absence of an IT strategy, organizations often permit individual departments to proceed with IT projects on a piecemeal

basis so long as there is enough money to pay for them. In other organizations, potential IT projects are evaluated on a cost/benefit basis. The degree to which an opportunity supports organizational objectives is rarely explicitly considered.

To achieve alignment, however, opportunities must be prioritized based not only on their cost-effectiveness but, more importantly, on their degree of alignment with the organization. The opportunities that can make the greatest impact on the organization's overall success should be given highest priority.

Prioritizing IT opportunities requires the establishment of strict evaluation criteria. The criteria should reflect the decision-making values of executive management in regard to non-IT investment decisions. Although criteria may vary from organization to organization, they should typically include the following: alignment, value, and risk. Alignment is the degree to which an opportunity contributes to the organization's ability to achieve its mission, goals, and objectives. Value is the extent to which the opportunity's benefits exceed its costs. Risk is the organization's ability to mitigate the opportunity's risks. To reflect the relative importance of the criteria, organizations may want to weight each criterion.

Making the Business Case for IT Investments

A clear and compelling business case is usually necessary to secure the approval needed to proceed with IT projects. This is especially true during periods of economic downturn and budgetary pressure. Senior executives and elected officials will want to know how a project will benefit citizens/taxpayers, how much it will cost, and what impact it will have on the organization.[2] Managers and key staff members must be prepared to answer these questions in order to justify expensive IT initiatives.

The business case should define the project's objectives, scope, approach, and organization. It should also include a cost-benefit analysis to determine whether the project's benefits are greater than its costs. A typical cost-benefit analysis involves the following four steps: (1) identify all costs and benefits, both tangible and intangible; (2) convert all costs and benefits into a monetary value; (3) discount future costs and benefits to their present value; and (4) sum the costs and benefits to calculate the total cost and total benefit. Performing an accurate cost-benefit analysis is easier said than done given the difficulty of converting intangible costs and benefits into a monetary value.[3]

A total cost of ownership (TCO) approach may also be used to develop the business case. TCO calculates the total cost of acquiring, implementing, operating, maintaining, and disposing of the IT asset. The TCO is usually more than the acquisition cost—sometimes several times more—because of the "out-year" obligations that specific technologies impose on cost drivers such as staffing.

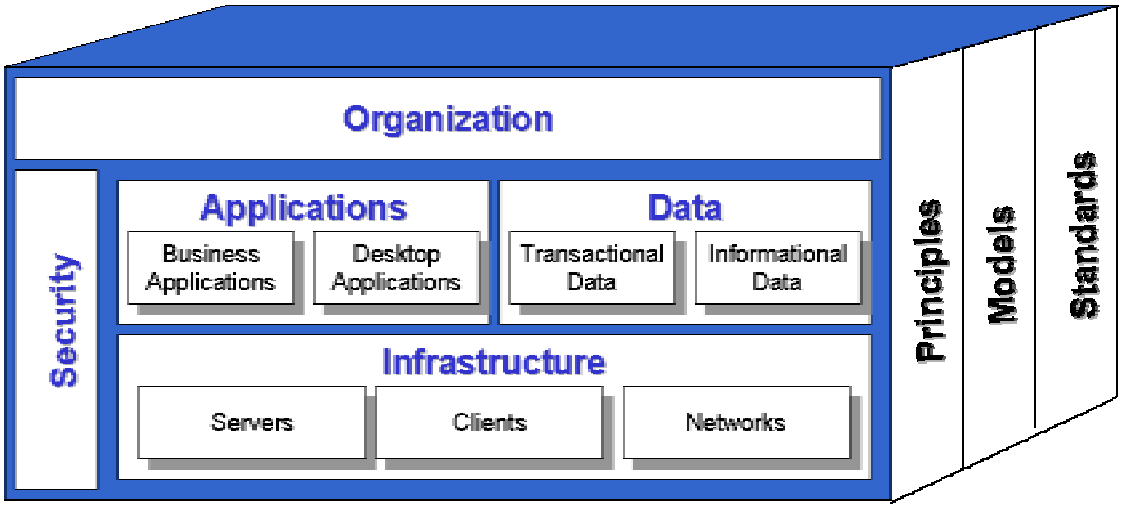
By setting priorities and developing a business case for each opportunity, organizations can identify those opportunities that will facilitate the achievement of their goals and objectives. Once IT opportunities are identified, they must be weighed against IT capabilities to measure the gap between current capabilities and the future desired state. Strategy options and scenarios can then be formulated. If, for example, IT capabilities are not sufficient to implement opportunities

within the desired timeframe, plans can be made to either augment them or to acquire outside resources. Alternatively, opportunities could be implemented over a longer timeframe. The possibilities are only limited by the analytical and creative abilities of the strategy team.

Technology Architecture

Architecture serves as a blueprint for the future deployment of IT systems, databases, and technologies in support of the IT strategy. Architecture is often thought of in terms of a network diagram or a graphic depicting various applications and their interfaces. But architecture is much more than this. Architecture can be defined as a set of values and preferences used to guide decisions in the selection, acquisition, deployment, and management of information technology. A technology architecture consists of the IT organization, applications, data, technology infrastructure, and security (Exhibit 2).

EXHIBIT 2: ARCHITECTURE



Architecture can be embodied in a set of principles, models, and standards. A principle describes the values and preferences for decision-making. For example, an organization might adopt a principle to only deploy technology that has been used by other organizations for at least six months. A model is a graphic illustration of a principle. Examples include network diagrams, database diagrams, and configuration diagrams. A standard is a detailed specification such as the decision to use TCP/IP as the WAN protocol or Microsoft Outlook as the e-mail system. Although principles are fairly constant, standards tend to evolve with technological advances.

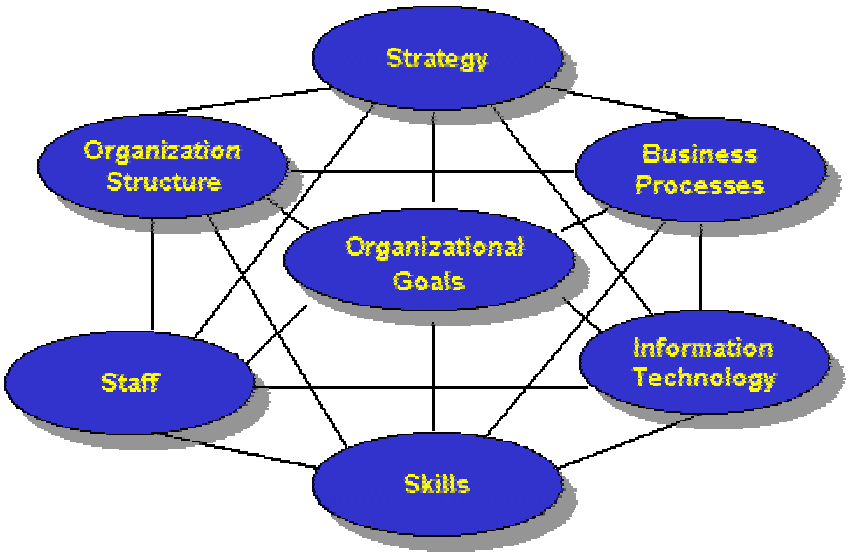
Although principles, models, and standards should be adhered to in making technology investment decisions, occasional exceptions are justified. A rigid technology architecture can cause frustration and resistance to implementation. As such, the architecture should be flexible enough to accommodate reasonable exceptions. As the organization, technology, and external environment evolve, so too will the architecture.

Organizational Alignment

An IT strategy will typically require changes to an organization's technology environment such as the replacement of servers, wider bandwidth for LANs or the WAN, or implementation of new e-government applications. But an IT strategy also requires changes to the organization itself. Although these changes are just as important to the successful implementation of an IT strategy as changes to the technology environment, they are often overlooked.

Exhibit 3, adapted from the 7-S Framework developed by Waterman, Peters, and Phillips, illustrates how a change to any one of the seven organizational elements can impact the others.[4] For example, a change to strategy may require a revised organizational structure and/or revised business processes. New information technology may require new skills and staffing levels.

EXHIBIT 3: ORGANIZATIONAL INTER-RELATIONSHIPS



The actions required to implement the IT strategy should be identified in an organizational alignment program. These actions may require changes to the IT organizational structure, staffing levels, skill sets, levels of outsourcing, business processes, or even IT values, mission, and culture. Coupled with the organizational alignment program is a change management plan. The purpose of the change management plan is to communicate change to those most directly impacted by it and to involve those individuals in the change process. This helps stakeholders absorb the change, minimizes resistance, and builds support and momentum for the successful implementation of the IT strategy.

Strategy Implementation Roadmap

Finally, an IT strategy should include a roadmap that lays out the initiatives, projects, and resources necessary to successfully implement the strategy. Strategy is focus and emphasis. The roadmap breathes life into the strategy and focuses efforts on the organization's most critical activities. The prioritized initiatives and projects are scheduled over a planning horizon that might be 18 months, two years, or longer depending on the organization's needs.

Conclusion

To make the most of technology investments, governments must understand what they need and how to get it. This is best accomplished through an IT strategy—a comprehensive, dynamic planning document designed to ensure that technology supports organizational objectives. By developing a technology plan through a systematic process such as the one outlined in this article, governments can take much of the mystery out of information systems procurement and implementation and receive a positive return on their technology investments.

An IT strategy aligns IT capabilities with organizational needs and provides a useful framework for prioritizing IT initiatives. It determines which IT capabilities need to be augmented and which can be reduced to cut costs. It ensures that risks are considered and managed. And it facilitates an ongoing process by which organizations can maintain alignment and capitalize on opportunities to use IT to achieve their goals.

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[1] James Browning, "Smart IT Actions for Tough Times," Gartner, Inc., October 17, 2001.
[2] S. Ashbaugh, R. Miranda, and D. Schenk, "Making the Business Case for ERP Systems," in *ERP and Fiancial Management Systems: The Backbone of Digital Government* (Chicago: GFOA, 2001).
[3] Greg Michel, "Advanced Decision Tools," in *Decision Tools for Budgetary Analysis* (Chicago: GFOA, 2001).
[4] R. Waterman, Jr., T. Peters, and J. Phillips, "Structure is Not Organization," *Business Horizons* (1980).