

IT Outsourcing: A Primer for Public Managers



Yu-Che Chen
Visiting Assistant Professor
School of Public and Environmental Affairs
Indiana University, Bloomington

James L. Perry
Associate Dean and Chancellor's Professor
School of Public and Environmental Affairs
Indiana University, Indianapolis

IBM Endowment for
**The Business
of Government**

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F O R E W O R D

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On behalf of the IBM Endowment for The Business of Government, we are pleased to present this report, "IT Outsourcing: A Primer for Public Managers," by Yu-Che Chen and James L. Perry.

One of the emerging technology trends in recent years has been the practice, in both the public and the private sectors, of outsourcing information technology activities to contractors outside the organization. Examples of information technology services that are now being outsourced include the management of networks, data center services, call center services, web hosting, and application services. This important report by Professors Chen and Perry describes the reasons for this trend and provides a five-phase process model that government executives can use in making, and then implementing, the decision to outsource IT activities.

While this report focuses specifically on IT outsourcing, it also describes the changing nature of the procurement process in the federal government. In the past, government has used the traditional procurement model in which they buy equipment or services and then use a "command and control" approach to the procurement. Under the new model described by Chen and Perry, government moves toward a partnership in which equipment or services are leased, and the service is managed, not the goods. This approach will require a dramatic change in the behavior and training of government procurement executives.

We trust that executives throughout government will find this report both informative and useful as they consider the option to outsource any of their information technology activities. We also trust that this report will continue to expand our understanding of new approaches to procurement throughout the federal government.

Paul Lawrence
Co-Chair, IBM Endowment for
The Business of Government
paul.lawrence@us.ibm.com

Ian Littman
Co-Chair, IBM Endowment for
The Business of Government
ian.littman@us.ibm.com

EXECUTIVE SUMMARY

Information technology (IT) outsourcing is an emerging phenomenon. With the increased use of IT to secure the nation and deliver public information and services, public managers look for innovative ways of quickly and effectively meeting the needs of the nation. IT outsourcing meets those needs by providing skilled IT personnel, state-of-the-art applications, cost-effective infrastructure, and quick deployment. Although it carries potential benefits, IT outsourcing also comes with risks such as loss of control over service quality.

This report provides public managers with information about scope, trends, and development, and with tools to meet the challenge of managing and succeeding at an IT outsourcing project. IT outsourcing is broadly defined as the utilization of external organizations for the production and provision of IT services. Managing an outsourced IT service becomes more complex when agencies are heavily involved in its production and provision. Recent market trends show signs that IT outsourcing is maturing and that established government contractors and integrated solution providers are emerging as winners. Recent developments have marked security (information assurance) as a prominent concern for public agencies and a preference for the partnership model for IT outsourcing.

Knowledge about costs and benefits of IT outsourcing allows public managers to critically evaluate their options and later think creatively about the best way to achieve their goals. Benefits include access to advanced technology, meeting the demand for skilled IT personnel, quick deployment,

flexibility in choosing appropriate technology, cash flow management, and cost savings.

On the other hand, there are also costs/risks. The most significant of these include loss of control over service quality, security vulnerability, disruption of services, management complexity, lengthy procurement process, union pressure, and budgetary uncertainty. With in-depth knowledge about costs/risks, public managers can manage IT outsourcing projects more effectively.

The tools offered by this primer include guidelines and the process-oriented way of effectively managing IT outsourcing. To be successful, public managers need to shift their focus from procurement to service and relationship management. Moreover, resource input into the IT outsourcing relationship should be provided and sustained throughout its life cycle. Another critical success factor is the development and upgrade of contract and service management capacity. In the management of a service contract, frequent quality communication needs to be in place to foster partnerships and cope with changing service needs.

The process model for managing an IT outsourcing project consists of five phases: (1) determining a sourcing strategy, (2) analyzing sourcing needs and the operational relationship, (3) selecting a vendor and negotiating contracts, (4) making the transition to the service provider, and (5) managing the performance of the service provider. Each phase flows directly from the previous one. The specific guidelines for each juncture of decision making are detailed in the section on recommendations.

IT Outsourcing: Opportunities and Challenges

Background

IT outsourcing has recently emerged as a popular means to meet the demand for e-government services. Government IT outsourcing is expected to be the fastest-growing segment of the overall federal IT market. The growth rate is estimated to be about 16 percent per year between fiscal year 2001 and 2006, reaching \$13.2 billion.¹ One of the most recent visible IT outsourcing projects was the recent Navy-Marine Corps Intranet (NMCI) contract. The \$6.9 billion NMCI contract, awarded in October 2000, was the biggest technology outsourcing contract ever.² Other large outsourcing opportunities are also on the horizon. The \$4 billion HUD Information Technology Services program and the \$2 billion communication infrastructure for the state of Georgia are two examples (Wait, 2002).

The continued push for federal IT spending is the result of the confluence of several factors. First, the Bush administration has continued and expanded the emphasis on e-government projects. In a 2001 count, there were 1,371 unique federal e-government initiatives (GAO, July 2001). The e-government initiatives are expected to grow due to legislative mandates for the reduction of paperwork and regular reviews of information and security practices.³ Second, the use of information technology is regarded as a critical element in protecting homeland security. Due to the war on terrorism, our nation's cyber critical infrastructure is at greater risk. As a response, the federal government has taken some initial actions to improve federal information system security. However, more needs to

be done to deal with the growing threat of computer-based attacks according to the General Accounting Office (GAO, July 2002). Therefore, information assurance—the protection of sensitive information systems and networks—is likely to be at the top of the administration's agenda for the Department of Homeland Security.

The aforementioned two factors coupled with the need for quick deployment and a shortage of IT workers in government make IT outsourcing an attractive option. Quick deployment is critical in dealing with security threats. The recent upgrade of information technology at the Federal Bureau of Investigation illustrates the importance of quick deployment to address security threats. Technology companies are generally better equipped to deploy technology solutions more quickly because of their IT capabilities. The shortage of in-house IT talent to handle the complexities of government IT projects forces government to embrace IT outsourcing. To counter this shortage, the government has made various efforts to keep IT talent in government (National Academy of Public Administration, 2001).

IT Outsourcing

IT outsourcing is the utilization of external organizations for production/provision of information technology services. Network, desktop, application, and web hosting are examples of commonly outsourced IT services.

This report introduces public managers to IT outsourcing. It consists of three parts. The first defines IT outsourcing and discusses recent trends and developments. Against that background, the next part examines the benefits and risks associated with IT outsourcing. Knowledge about the costs and benefits can empower public managers to make an informed decision to realize the full potential of IT outsourcing. The third part presents a practical methodology for thinking systematically about management issues and strategies related to IT outsourcing, including the evaluation of costs and benefits. The proposed methodology is process oriented. This process is composed of five phases—starting with aligning IT outsourcing to organizational strategies and ending with the management of its implementation. Examples and illustrations are provided.

Defining IT Outsourcing

IT outsourcing is the utilization of external organizations for provision of information technology services. A wide range of services is available from IT vendors. Currently, the information technology services outsourced by federal agencies include network services, data center services, desktop, call centers, web hosting, and application services.

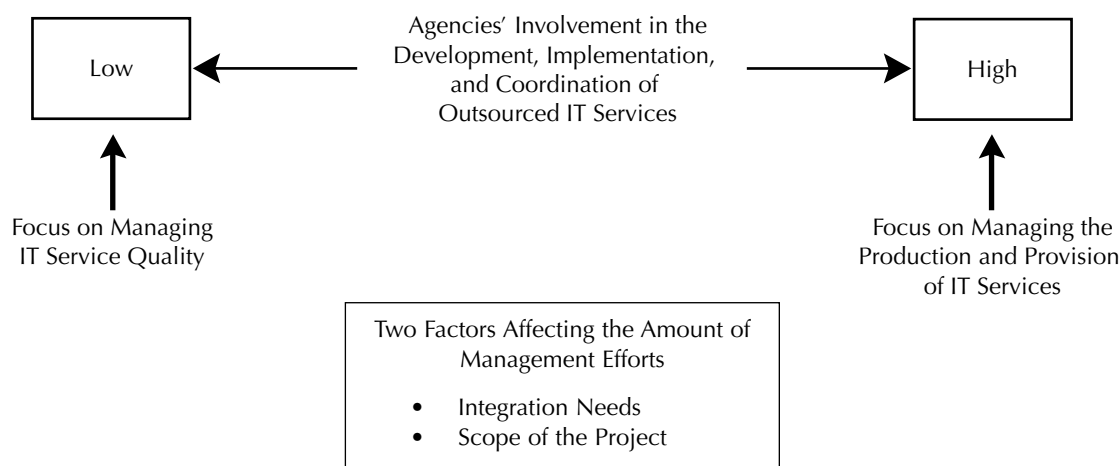
Although the types of IT services outsourced are easy to understand, they do not dictate a proper management strategy. Application services, for instance, are not necessarily more difficult to man-

age than web-hosting services. A more productive way of looking at an IT outsourcing arrangement is to examine the entire spectrum of relevant management tasks (see Figure 1). At one end of the spectrum, client agencies outsource the development, implementation, and coordination of IT services. For instance, if an agency wishes to automate and put its recruiting process on the web, it uses a vendor who has already developed the software program for that purpose and owns the facility to host the site. The agency's tasks are to provide content and monitor the service performance.

At the other end of the spectrum, the client agency is heavily involved in the development, implementation, and coordination of IT service. This service is then usually highly customized to the needs of the client agency. In addition, the client agency is left responsible for support and maintenance of the IT services as well as the integration of hardware, software, information, people, and support. As agencies move toward this end of the spectrum, they usually face longer timeframes for development and deployment and higher costs for coordination and support.

In addition to the extent of outsourcing, the management challenge continues to grow with the integration needs and the scale of the project. Information technology services involve the use and management of hardware, software, people, information, maintenance, and support. The more comprehensive and integrated the services provided by a vendor, the less work on the side of the client

Figure 1: Spectrum of IT Outsourcing: A Managerial Perspective



in bringing different components together. For example, if the network service providers offer only the hardware installation and upgrade, the client organization needs to pick up the software and support. Cross-functional integration of information systems may further strain agencies' resources. The outsourced IT service is more easily managed when it can function independently or interface easily with the rest of the information systems. If this is not the case, the client organization, at the very least, needs to play the role of system integrator. As a result, the organizational resources required to carry out the integration can be overwhelming.

The scale and complexity of the IT outsourcing arrangement also have bearing on the management effort. The larger and more complex an IT outsourcing arrangement gets, the more resources there are involved in coordinating, preparing for transition, and monitoring later on.

Trends and Recent Developments

Public managers need to understand trends of IT outsourcing to manage outsourcing effectively. Both the IT outsourcing marketplace and the client organizations' utilization have seen significant changes over the past few years. The IT outsourcing market has gone through a shake-out period and become more mature. The most visible example is outsourcing application services. Initially, a large number of new and established companies entered the market for application services in late 1999. After over two years of severe competition and market change, only a small number of vendors remain in the market. The successful vendors in the federal outsourcing marketplace are those well-established major contractors of government services who have established new IT service areas to meet the changing needs of their federal customers. After the shake-out period, the IT outsourcing market has become more mature. The vendors who provide value to customers and have a sound business model are able to survive and prosper.

Two types of vendors have become the main forces in the IT outsourcing market. The first type is the total solution provider, who offers an integrated solution for network or other services. It acts as a single service point for all IT service needs that an

organization is willing to outsource. These total solution providers integrate various information systems, providing hardware and software, and training and support. The second type of vendor includes those that are highly specialized in one type of service and have the capability of integrating with all remaining systems.

Two recent developments in the federal IT outsourcing marketplace are the emphasis on security services and the move to a partnership model. Information technology has taken on an important role in defending the country against terrorist threats. The use of biometrics for authentication and advanced encryption-standard codes for secure transmission of information are just two examples. The projected growth in IT security spending is evidence of this development. Out of \$15 billion allocated for IT in the current administration's 2003 budget, \$4 billion is earmarked for IT security projects.⁴ Moreover, the emphasis on security matters is also seen in some traditional government contractors that wished to capture some piece of the market.⁵ Government contractors have added security features that analyze the vulnerability of every part of IT services provided.

The other development is the growing popularity of partnerships between government and the technology industry. The administration, in its effort to combat terrorism, is creating public-private partnership models to protect the nation's critical infrastructure.⁶ This partnership model has been fueled by its success in e-government efforts. The quick deployment of the General Services Administration's electronic payment systems for government is a case in point. Partnership models also provide a wide range of financial options for the Interagency Public Key Infrastructure.⁷

Two Recent Developments of IT Outsourcing

- Growing emphasis on security (information assurance)
- Move to a partnership model of outsourcing

IT Outsourcing: Web Hosting as a Case Study

By Ranapratap Chegu, Principal Consultant, IBM Business Consulting Services

One type of IT outsourcing that has become popular in recent years has been web hosting. The following are types of web hosting that have emerged.

1. Virtual or Shared Hosting

In this model, the Internet Service Provider (ISP) provides the hardware, network, and, in some cases, database software for their clients on a lease basis. The managed services such as network management/monitoring, backup/recovery, operating system, server hardware, firewalls, and database administration are provided fully by the ISP staff. The clients are given limited access to the servers to maintain the application code and the website metrics data.

Advantages:

- Typically this solution is popular because it is cost effective.
- Customers do not need to integrate the infrastructure as well as maintain it.
- Leasing the infrastructure is always easier than procuring it.
- For the public sector, this is an effective solution for the unclassified type projects with limited budgets.

Disadvantages:

- Performance is a major issue as the servers and the network are shared among many clients.
- Security is also another big concern as the firewalls and web/application servers are shared.
- Configuration management becomes complicated.
- May not pass government security audits if the servers that host government applications are shared with non-governmental clients.
- Not a suitable solution for mission-critical applications as the system uptime is dependent on many shared activities.
- Risk of exposure if the ISP goes out of business.

2. Dedicated Hosting

In this model, the ISP provides the dedicated infrastructure—i.e., firewalls, servers, backup—on a lease basis. The managed services such as network management/monitoring, backup/recovery, operating system, server hardware, firewalls, and database administration are provided by the ISP staff. Clients are given limited access to the servers to maintain the application code and the website metrics data.

Advantages:

- Superior system performance as the infrastructure is dedicated.
- Better configuration management and security.

- Customers do not need to integrate the infrastructure as well as maintain it.
- Leasing the infrastructure is always easier than procuring it.
- For the public sector, this is an effective solution for the unclassified as well as sensitive but unclassified type projects.
- With performance-based contracts, government can closely monitor the quality of the services provided by the ISP.
- Guaranteed uptime is achievable.

Disadvantages:

- This solution is expensive as the infrastructure is dedicated.
- Risk of exposure if the ISP goes out of business.

3. Co-Location Hosting

In this model, the ISP provides only physical space, bandwidth, power, and limited managed services. Clients bring their own server hardware, operating system, software, and database. Clients' staffs install and maintain their systems by themselves. In some cases the clients may use the shared backup and network monitoring/management services of the ISP to make the solution more cost effective.

Advantages:

- Superior system performance as the infrastructure is dedicated.
- Better configuration management and security.
- For the public sector, this is an effective solution for the unclassified as well as sensitive but unclassified type projects.
- With performance-based contracts, government can closely monitor the quality of the services provided by the ISP.
- Guaranteed uptime is achievable.
- Easily can pass government audits.
- The system can be transferred to another location easily if the ISP goes out of business.

Disadvantages:

- This solution is expensive as the infrastructure is dedicated.
- Longer government procurement cycles can delay the project deadlines.
- This solution is for clients who have bigger budgets as well as their own staff to maintain their systems.

(Interagency Public Key Infrastructure is a federal effort to provide the hardware and systems, standards, and policies necessary to secure electronic transactions across federal agencies.)

To cope with the changing IT market and service needs, a growing trend among client organizations is the use of large integrated service providers or system integrators as their vendors. This use is prompted by the risk associated with merger and acquisition, or sometimes even bankruptcy, of small vendors. Another advantage of working with large system integrators is the flexibility in using most advanced technologies. System integrators are not bound to any technology, and they integrate various technologies as they help improve services. A complementary strategy is to build management capability to scan the market horizon and understand developments in technology and service needs as they arise.

An understanding of the recent developments and trends makes public managers aware of emerging issues. However, deciding on and managing an IT outsourcing project is a complicated undertaking. A thorough examination of value propositions and potential drawbacks is critical for determining the utility of outsourcing. Therefore, the next section offers public managers comprehensive lists of advantages and disadvantages of IT outsourcing to facilitate an informed decision.

Benefits and Costs/Risks of IT Outsourcing

The successful management of IT outsourcing arrangements requires an understanding of their benefits and the associated costs/risks. Realizing the full potential of IT outsourcing involves maximizing the benefits and minimizing the risks. As a result, this section examines both the advantages and disadvantages of IT outsourcing. The rapidly changing landscape of the IT outsourcing market poses challenges to public managers, which requires long-term planning.

Benefits

IT outsourcing, if properly managed, has several advantages over in-house provision of services. First, IT outsourcing gives client organizations access to experienced advanced technology and experienced personnel. Client organizations usually start to consider an outsourcing arrangement when planning a significant upgrade of IT services. The advanced, proven technology available from vendors can assist client organizations in accomplishing their missions. Client organizations are likely to get the best-of-the-breed technology services.

IT outsourcing also addresses one of the main problems facing federal agencies in carrying out large IT projects—the shortage of IT personnel. Because vendors have a specialized IT workforce for the services they provide, they are able to meet the demands for skilled IT personnel.

Quick deployment is regarded as another advantage of IT outsourcing over in-house service provision. As far as new and significantly expanded IT services are concerned, outsourcing has an advantage over

Benefits of IT Outsourcing

- Access to advanced technology
- Greater ability to meet the demand for skilled IT personnel
- Quick deployment
- Flexibility in the choice of technology and modules
- Improvement of cash flow management
- Cost savings

in-house provision. In-house provision requires hiring a large number of new IT personnel, integrating old and new systems, establishing the IT infrastructure, and making procurement decisions for various components that go with the new services. This can be a daunting task. In comparison, vendors can provide a packaged solution that comes with personnel, infrastructure, integration services, and support. If the vendors are experienced in particular types of services, many systems are tested and potential problems are better anticipated. The deployment time can often be less than half of the time required for in-house provision. Moreover, deployment is critical when new IT capabilities need to be acquired quickly. For example, some IT systems and infrastructure need to be quickly updated to ensure security.

IT outsourcing also provides client organizations with flexibility in the choice of technology and modules. One of the biggest drawbacks of in-house IT service provision is the fixation on the purchased technology. The large capital investment in IT equipment for in-house service provision sometimes forces the continued use of obsolete technology due to financial reasons. Given the fast-changing nature of technology, outsourcing allows for better risk management. The risk is shifted to vendors because they are responsible for technology upgrades.

In addition, outsourcing usually helps client organizations with cash flow management. An outsourcing arrangement typically charges client organizations on a fee-for-service basis, and client organizations subsequently do not need to make a large initial capital investment.

Cost savings are another reason for IT outsourcing. Economies of scale may allow vendors to provide services at a lower rate than that of in-house provision. Multiple client organizations may share the same IT infrastructure as the vendor. The cost of maintaining a specialized support crew is also shared by a number of client organizations. The cost savings are especially significant when acquiring a highly specialized service, which is usually expensive.

Costs/Risks

IT outsourcing can expose client organizations to a number of costs/risks. One of the primary concerns is the loss of control over service level and service quality. Once an IT service is outsourced, the project scope, technologies, costs, and IT direction of the client organization are some of the factors that may be beyond the direct management control usually available to in-house service provision (Ware, 2002). Control is particularly difficult when a large gap exists between the client organization's knowledge of services and the vendor's. Client organizations have difficulty validating any claims that vendor organizations make, because they may not have access to critical information possessed by the vendor for claim validation.

Security is another risk factor. Critical data may be stored in a facility outside the client organization.

Costs/Risks of IT Outsourcing

- Loss of control over service quality
- Possibility of compromised security
- Possibility of service disruption due to instability of vendors
- Increased complexity of managing and monitoring the outsourcing contract
- Prolonged procurement process
- Union pressure and budgetary uncertainty

The network-connected information systems of the client organization and those of the vendor may be subsequently subjected to security threats. If the main technology infrastructure of vendors is shared by multiple client organizations, there can be multiple sources of security threats. Security can also be an issue when security practices are problematic. Personnel training and background screening of IT personnel are important in addressing security threats.

The stability of vendors is considered by many client organizations as a major risk factor. Unlike public organizations, the survival of vendors is dictated by the rules of the marketplace. Vendors that provide IT services may go out of business without clear warning signs. When that happens, client organizations may need to start the outsourcing process all over again. Merger and acquisition also pose problems for client organizations. It is commonplace in the information technology industry to go through an initial boom and then shake-out period. Merger and acquisition are ways of restructuring the industry. If there are no terms and conditions specified in the outsourcing contract, client organizations may find themselves renegotiating them.

Managing and maintaining an outsourcing contractual relationship poses some risks. After the contract is negotiated, client organizations need to transfer their technical and personnel resources to the vendor. Client organizations, if not properly prepared, will likely run into problems of poor service quality or a mismatch between organizational needs and

Key Features of Pennsylvania's Data Center Outsourcing Contract

- No need for restructuring or disrupting current IT workforce
- Service-oriented contract with flexibility and benchmarking
- Use of service-level agreements
- Services for making transition from the state to the vendor
- Disaster recovery as a priority

IT outsourcing is even more complicated in the public sector when union pressure and uncertain budgetary support are present. The treatment of IT personnel involved in an IT outsourcing deal has a great impact on the success of the project. The importance of this issue is reflected in several recent IT outsourcing projects. The state of Pennsylvania's outsourcing project, for example, guarantees that nobody will be laid off (Tungate, 2002). An additional example is NMCI, which has a transition program to help their employees change from the public sector to the private sector work environment.

service delivered by vendors. The complexity of relationship management is usually underestimated. If the transfer of knowledge about the existing system or needs for a new system at various levels of the organization is neglected or done poorly, the IT outsourcing arrangement may function efficiently but not in alignment with the organization's strategic goals. Lack of proper monitoring of service level by the client organization may put it at risk of running into major service disruption. Poor communication and lack of a joint problem-solving mechanism may cause missed opportunities for early problem detection and continuous improvement.

In addition to the aforementioned ones, two additional risk factors are relevant to public sector IT outsourcing projects. Compared with in-house provision, government outsourcing must go through the procurement process. Complex rules and procedures could drain a client organization's resources. Another complication associated with the lengthy procurement process is the possibility of changing technology and leadership. The key piece of technology identified in the initial contract may have to be reexamined and some of the service terms may need to be renegotiated. Leadership may change if the procurement process takes a long time. This all adds to the challenge of maintaining a working relationship with vendors. Moreover, complex rules and procedures can create entry barriers and limit the selection available to client organizations.

A Tool for Managing IT Outsourcing: A Process Methodology

IT outsourcing usually goes through various stages from the initial decision to evaluate the viability of IT outsourcing to the implementation of an outsourcing contract. A process model can help in three ways. First, it is comprehensive enough to capture operational and management issues that could otherwise be ignored. For example, if managers think through the transition and management involved in an outsourcing project, they will have a better chance to succeed. The other advantage is the general applicability of the model. Despite the fact that situations may be different for various client/vendor arrangements, the process model is able to capture the management issues that are common for all IT outsourcing arrangements. For example, the need for organizational input in transition management is probably the same for all

arrangements. Lastly, a process methodology is adaptive to change. The main process remains relatively stable over time. The new service priority, such as security and business continuity, can be included as items, for example, in the service contract.

The recent development of IT outsourcing highlights the need for a shift in perspective. Traditional IT procurement should be replaced with service-based relationship management. A comparison of the old and new models is detailed in the following section.

Shift in Perspective

A successful IT outsourcing arrangement requires a shift in perspective. Traditionally, an IT outsourcing arrangement has been treated as a procurement

Table 1: A Comparison of Traditional and New Approaches

	Traditional Approach (Procurement Model)	New Approach (Outsourcing Model)
Methods of Obtaining Equipment and Services	Buy	Lease
Management Relationships	Directing and Commanding	Partnership
Objects of Management	Goods	Services

deal. With this approach, it is the equipment or software that a client organization is getting. Most of the efforts go into crafting contracts, finding an appropriate vendor, and negotiating contracts. There seems to be little effort put into what happens after the contract is finalized and equipment delivered.

However, to fully realize the potential of an IT outsourcing arrangement requires a different perspective. It is no longer the IT equipment but the service that is the center of management. As a result, the new direction should be on a relationship management that secures the quality and level of services provided by the vendor.

A partnership approach to relationship management becomes an imperative when the risks and uncertainties are high (Ware, 2002). A partnership helps both parties stay on the course of mutual benefits, and the long-term perspective helps find win-win solutions to risks and uncertainty. Contracts are probably unable to anticipate all contingencies. Given the possible disparity between client organizations and vendors regarding specific knowledge about an IT operation, client organizations need to rely on vendors to be forthcoming about potential problems or better solutions. In this case, a partnership can go a long way.

Another imperative is the integration of security concerns in the IT outsourcing arrangement. Security should not be treated as an afterthought. Rather, it should now be the centerpiece of IT outsourcing arrangements. As a result, the process model presented here will incorporate information assurance concerns at every phase. This should be done in a partnership approach. Client organizations and vendors need to work together to identify all

security risks and jointly develop measures for minimizing them.

Critical Success Factors for the Process Model

Strong management support and involvement throughout the entire life cycle of an outsourcing arrangement is key to the success of this process model. IT outsourcing is a process with integrated steps and components. To properly address these interrelated issues at various stages, management support needs to be there at every stage of the process. A recent GAO report on desktop outsourcing has confirmed the importance of high-level management support (GAO, March 2002). Top management involvement is particularly helpful in the transition from existing in-house service provision to a vendor. At minimum, there should be a management team that oversees the entire process of the outsourcing arrangement.

Moreover, management should allocate enough time and sustain resource input for all stages of the outsourcing process. One of the common problems for IT outsourcing is underestimating the time and resources involved. A successful outsourcing project requires an intensive analysis of organizational needs, which is time consuming and resource intensive. The subsequent contract negotiation, transition, and implementation are equally demanding for time and resource input if the goal is to have a structured contract with smooth implementation. Moreover, public sector outsourcing, due to procurement requirements, may take a long time and require budget approval. Another time- and resource-consuming stage of the process is the transition from in-house to vendor service provision.

The IT outsourcing management team needs to have strong procurement and relationship management skills and knowledge. IT outsourcing demands that the management team has the appropriate knowledge and skills about vendor selection, contract negotiation, and contract implementation. The relationship-based nature of successful outsourcing requires a partnership perspective. The outsourcing of desktop services has demonstrated this point (GAO, March 2002). A management team needs to update its knowledge and skills continuously. For example, an IT outsourcing management team

Two Imperatives for the New Managerial Perspective

- Partnership approach to managing service outsourcing arrangement
- Integration of security concern throughout the IT outsourcing life cycle

Critical Success Factors for IT Outsourcing

- Top management support and involvement
- Ample time and resource input
- Strong procurement and relationship management skills
- Continuous learning and service benchmarking
- Frequent communication between agencies and their service providers

needs to learn about the implementation and update of Circular A-76 to do a successful outsourcing procurement.

The fast-changing nature of technology forces the management team to constantly learn about the best service model and adapt to it. Managers at various agencies have been developing new management tools, such as flexible payments based on service use. Given that, utilizing a learning network through professional organizations is a good way of keeping the management team updated. For example, human resource staffs across federal agencies can learn from one another about best practices in IT outsourcing for HR services. This is particularly the case in the information assurance area, which has a short history of development. With a new understanding of security vulnerabilities, public managers need to devise a better service management strategy.

Frequent communication of technical and management issues should occur at all phases. This is critical for maintaining a partnership that hinges on a common understanding of the long-term mutual benefits. The constant exchange of vital information helps manage the IT outsourcing relationship. Moreover, frequent communication is the main mechanism to address changes in priority and service needs. Information assurance was not a priority of information technology service a few years ago, but it is a top priority today. Service needs may change significantly in about a year and may warrant a refinement of the performance matrix

(Dorobek, 2002). Since change is the only constant, frequent communication is required for agencies and vendors to work together to focus on results that are responsive to new needs. Although the focus may be different at different stages, the main principle stays the same—frequent and open communication.

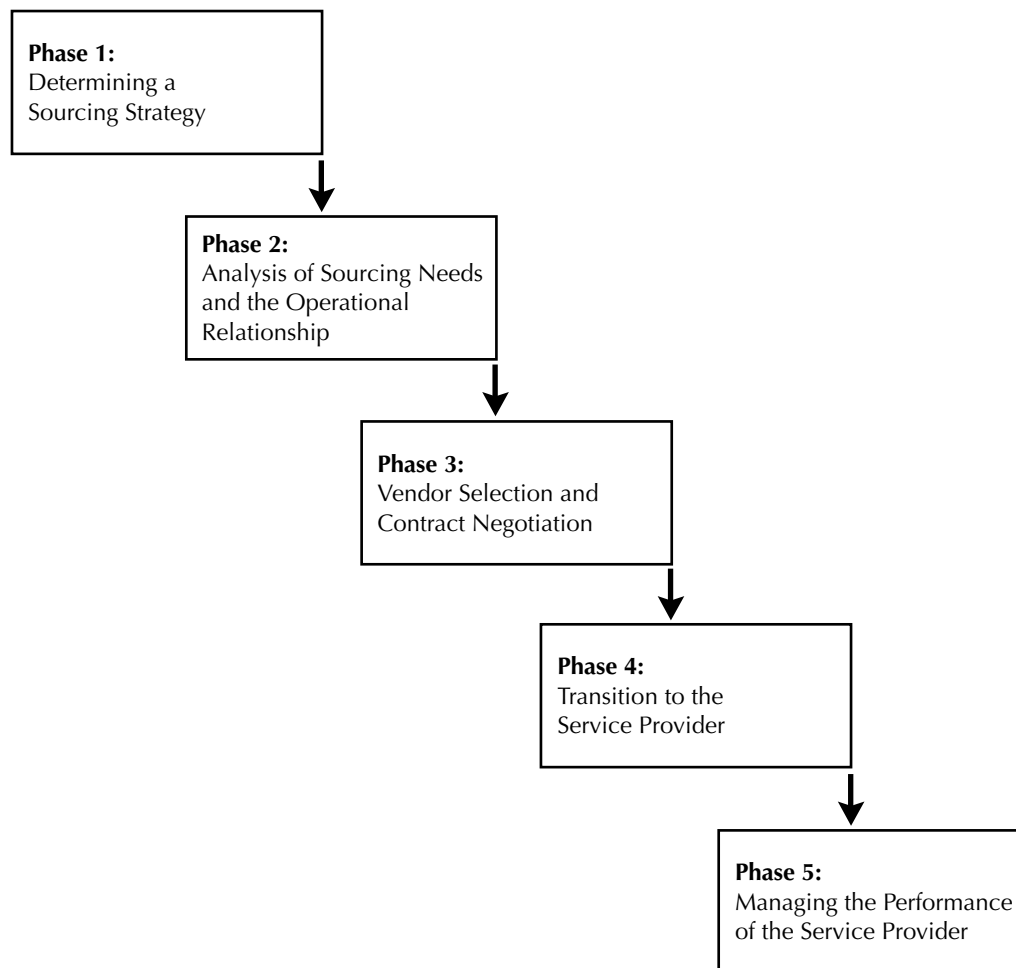
A Process Model

A process-oriented model is an effective tool for public managers to manage IT outsourcing from start to finish. A graphic illustration of the model is captured in Figure 2. The process begins with a clear definition of organizational goals and how a sourcing strategy would help achieve these goals. Within that framework, in Phase 2, sourcing needs are analyzed and the operational relationships are designed to meet those needs. Phase 3 follows and focuses on vendor selection and contract negotiation. In the process model, there is a strong emphasis on analysis and design of service needs and the contract because they lay the foundation for actual implementation. The fourth phase is the transition to the external service provider, and the last phase is the management of service performance. There could be an overlap between the last two phases when the transition is done incrementally.

Phase 1: Determining a Sourcing Strategy

When is a good opportunity for government agencies to consider IT outsourcing? There are four plausible scenarios. First, the existing IT outsourcing contract is up for renewal and the service level is unsatisfactory. An agency is probably going to continue using IT outsourcing but needs to look for a vendor with a better fit. Another opportunity is the major upgrade of the existing IT infrastructure. This is usually a good time to think about the advantages and disadvantages of outsourcing IT infrastructure. The third possibility is a mandate from Congress to quickly acquire new capabilities that are very difficult to acquire with existing in-house personnel. The last main scenario is when an agency is planning on reengineering its business process and may try to take advantage of capabilities available at vendors.

The sourcing decision should be in alignment with the organization's long-term strategy. Client organizations need to integrate IT outsourcing into their

Figure 2: An Illustration of the Process Methodology for Managing IT Outsourcing

strategic goals (McIvor, 2000). IT outsourcing should not be treated as an afterthought or last-minute solution to an immediate problem, but should be an integral part of organizational efforts to achieve long-term strategic goals. A strategic intent can be the improvement of existing IT services or acquisition of new service capabilities for business impact.

Strategic alignment is the extent to which the proposed outsourcing arrangement helps achieve the strategic objectives. For example, one of the main strategic goals behind the Federal Aviation Administration's (FAA) decision to outsource part of their cost-accounting system was to gain specific cost-accounting information on each of their four main service areas. The alignment of a proposed outsourcing arrangement, then, is whether it is a good fit with what the FAA wanted.

Another common strategic goal of outsourcing is to focus resources on core competence. When an in-house IT service is not central to the organization, outsourcing it can help free up IT personnel to focus on the core. Network and application support, for instance, may not be central to a human resources department. In this case, it is of strategic value to outsource network and application support to a vendor and transfer in-house IT personnel to assignments on core business activities.

The process of deciding a sourcing strategy should also be thorough. A useful strategy is to go through the lists of benefits and costs associated with IT outsourcing mentioned in the previous section. In the list of benefit and cost items, emphasis should be placed on security and business continuity. For public managers, one main question is whether vendors have a stronger capability than their agencies

Issues Related to Sourcing Decisions

- Strategic Objectives
- Extent and nature of organizational change
- Labor implications
- Management capabilities

in meeting stringent security requirements for IT services to be outsourced. An IT outsourcing project is justifiable only when security concerns can be properly addressed. Business continuity should also be one top item on the strategic evaluation of an outsourcing project. The preparedness for disruption or changing priorities should be factored into an outsourcing project. Without a contingency plan, government may be compromising its mission of serving its citizens.

Lack of thoroughness in checking all the cost/risk items may have serious consequences later on. One common problem is the underestimation of resource needs for managing an IT outsourcing relationship. Monitoring service performance, collaborating on service problems, and negotiating for changing service needs all require management and IT resources. A useful way of mapping main benefits and cost items is to think through the cost of the entire IT outsourcing process, even the cost of ending the contract (Bendor-Samuel, 2002).

A careful analysis of sourcing strategy should go beyond checking the value proposition based on the advantages and disadvantages of IT outsourcing to address the full range of organizational implications. Organizational change, personnel change, and management capability are three main implications of IT outsourcing in the public sector. An IT outsourcing arrangement usually implies a particular organizational change, such as closing an existing office or establishing a team working with vendors. Continuation of an existing outsourcing project with a different vendor does not involve a major shift of organizational culture or resource allocation. In comparison, outsourcing a service currently done within the organization may be a

greater challenge due to the need for management practice and personnel changes.

Another outsourcing concern is labor. Government needs to abide by civil service rules that govern the hiring and firing of civil servants. For a public sector project, for example, job security for existing IT workers is usually a main issue that needs to be addressed. A sourcing plan should include a clear strategy for managing the IT workforce. One way to deal with labor concerns is to ensure job security for current IT employees. For example, the state of Pennsylvania's outsourcing project has a provision for job guarantees for the existing IT workforce. In general, public managers can either restructure the responsibilities of their IT employees or help them make the transition to the private sector.

Building the management capability should be an integral part of a comprehensive sourcing strategy. Government agencies need either to rely on their in-house expertise for evaluating IT outsourcing arrangements or to work with an IT consultancy when they need advice. At any rate, a strong base of technical knowledge and management know-how should be formed at this phase to carry out the tasks delineated at the second phase.

A related management effort for public managers is to gauge or gain organizational support. Public managers should get key stakeholders involved in the process. Stakeholders include the affected IT employees, top management, interest groups, and Congress. These stakeholders should be involved even at the early stages in the outsourcing process. They will offer great insight into the strategic fit of the IT outsourcing project, labor issues, and the level of support.

The deliverables of this phase include a preliminary assessment of the strategic fit of proposed IT

Key Strategic Goals

- Service improvement
- Security
- Business continuity

outsourcing arrangements and the formation of a management team. The assessment should address security and business continuity. Moreover, it should also explore the labor and political implications of the proposed project ideas. The formation of a management team is the first step for committing organizational resources. This commitment is necessary for a thorough analysis of both sourcing needs and the operational relationship, which will be discussed next.

Phase 1: Best Practices

- *Achieve alignment of sourcing decisions to the strategic goals of the organization.* The main justification for an outsourcing project should be its strategic importance.
- *Anticipate and manage the organizational change implied by the outsourcing decisions.* Labor issues are paramount.
- *Build management capability and organizational support.* These are important organizational preparations for entering the next phase of IT outsourcing decision making.

Phase 2: Analysis of Sourcing Needs and the Operational Relationship

The primary objective of this phase is to develop a more detailed analysis of sourcing service needs and the operational relationship structure for meeting those needs. The identification of sourcing needs should be an elaboration of the strategic role of sourcing options, and organizational concerns should therefore be at the center of the analysis. For agencies that begin an IT project, having help from veteran IT outsourcing agencies is critical. A client organization, when crafting an operational relationship, should first consider a partnership model, which is a preferred method for addressing risks and uncertainty in the area of information technology.

Analyzing sourcing needs

Sourcing needs go beyond their conventional meaning as a set of functionalities of IT services. Service needs should include a quality aspect. Government should formulate its service need

assessment based on strategic concerns. Security, business continuity, reliability, service integration, and other indicators are the main areas of service needs in addition to specified functionalities.

The need for security has become the central concern of IT outsourcing projects due to the protection of homeland security. The security need is high when mission-critical or high-security information is exposed by the proposed IT outsourcing arrangement. For instance, a defense network outsourcing contract is likely to command a high-security requirement. In contrast, an agency that is not involved in any of the critical information infrastructure may not need to meet stringent security requirements.⁸ There are naturally variations in security needs for an IT service within an agency. Desktop support probably requires less security measures than application services for a personnel information system holding confidential information.

Business continuity should also be a top item on the list of sourcing needs. Business continuity is usually measured by uptime—the percentage of time that a particular service is available. Common examples of uptime are 99.99, 99.9, or 99 percent. The other aspect of business continuity is about providing uninterrupted service either by the creation of redundant service units or by immediate backup-and-restore services in the face of major disruptive events. Again, the level of business continuity required for a particular IT service may vary with the service needs. A communication network that supports a defense agency has no allowance for any downtime. Built-in redundancy may therefore be a requirement. In comparison, an e-mail service system for a transportation agency may not be as critical. The preparedness for disruption or changing priorities should also be factored into an outsourcing project.

In addition to security and business continuity, reliability is another main service criterion. A reliable service provider is responsive to agencies' service requests and meets them in a timely manner. In analyzing an agency's sourcing needs, the agency needs to determine the level of reliability required. One complaint of outsourcing agencies is that vendors may give a service request a low priority. If not specified contractually, a service request may take

Areas of Sourcing Needs

- Specific functionalities of proposed IT service
- Security
- Business continuity
- Reliability
- Service integration

days or weeks to be filled. Moreover, reliability means that the vendor anticipates potential risk factors and addresses them. Vendors need to have mechanisms for analyzing vulnerability in the service and a scheduled plan for addressing potential problems.

Service integration is the final important criterion of service quality. It is the level of collaboration between client organizations and vendors for service production and delivery. A client organization may outsource their desktop services. However, client organizations must make clear how much integration between them and the vendor is required to cover all service needs. For example, a desktop service may include the hardware, software, maintenance, and help-desk support. Vendors may be responsible for all of these aspects of general software programs. However, they may not wish to support a more specialized software program. In that case, client organizations and vendors need to have a service integration plan to provide seamless service, where all service needs are met regardless of who bears the major responsibility.

Analyzing the sourcing needs involves a thorough cost/benefit analysis. Meeting the service criteria stated above comes with a price tag. Public managers need to determine the proper service level by conducting a financial analysis of service needs. Public managers need to specify a level of service quality and service integration while balancing financial and service concerns. A slight increase in service quality may incur a significant cost. For example, to improve server uptime by .1 percent (i.e., from 99.99 to 99.999 percent uptime), an agency may need to pay as much as 5 percent

more of the total project cost. This may not be financially justifiable for a personnel management application.

Security also comes with a price tag. For instance, a dedicated network, although more secure physically, usually costs more for the agency than a network infrastructure shared by multiple agencies. Whether the additional cost is justifiable depends on how important security is to the proposed network. With respect to the level of service integration, agencies also need to perform a balancing act between cost and performance. Agencies need to specify how integrated the service provider should be and how much they are willing to pay for a higher level of integration.

What further complicates the analysis of sourcing need is change. Service needs will probably change over time as well as the financial condition of the outsourcing agency. Managers should explore a wide range of service scenarios to map possible service needs. In addition, managers need to adopt a mechanism to monitor, anticipate, and address changing service needs. Failure to anticipate a possible change in service needs may result in a service-level contract that has very limited flexibility. To cope with change, a scalable IT service infrastructure is preferred, and a provision in the contract to address change is necessary.

Mapping operational relationships

After clarifying the sourcing needs, an outsourcing management team needs to develop a plan for an operational relationship. The mapping of an operational relationship should keep its focus on partnership opportunities. The relationship should be consistent with the client organization's long-term strategic direction and proper allocation of human resources outlined in the first phase. This operational relationship needs to delineate the working relationships among different units involved in the delivery and use of IT services (GAO, November 2001).

The composition of the management team should include key members of both the client organization and the vendor. At the client organization, an IT department and functional user groups are natural candidates. An IT department is able to bring in its knowledge of current IT operations and the

technical components of the transition. User departments, such as a human resources department, can communicate their service needs to the vendors. Vendors are then responsible for the actual production and provision of IT services.

In addition to determining the departments or units involved, a management team needs to decide the level of organization that is appropriate for the joint effort and the appropriate team members. If the IT services support the entire organization's IT function and serve multiple departments, a high-level manager should be a member of the IT outsourcing team. The appropriate level of management is usually a function of the services outsourced.

One key management task at this phase is to assess the resource requirements. An IT outsourcing project team needs to estimate the human and financial resource requirements for operational tasks. Taking a process-oriented and holistic view of IT outsourcing helps cover all potential resource requirements. Public managers need to think about the resource needs beyond the first two phases of determining sourcing strategies and needs. They need to budget resources for all remaining phases of IT outsourcing. Building and maintaining an operational relationship involves intensive vendor selection, service agreement negotiation, transition, maintenance of ongoing IT service projects, and performance evaluation and service adjustment. Moreover, the management team at this phase should continue involving key stakeholders, particularly the user department and IT personnel.

The deliverables of this phase include a request for proposals (RFP), an internal operational plan, and the formation of an IT outsourcing project team to carry out tasks for the next phase. This proposal will have guidelines for the service requests developed in this phase and the criteria for appropriate vendors developed in the first phase. This detailed planning up front is necessary for a client organization to harvest the fruits of a strategic partnership with a vendor. An internal operational plan will give a clear indication of the organizational resources involved and the composition of team members in order to build a relationship with potential vendors. The formation of an IT outsourcing project team can then help oversee the vendor selection and subsequent intensive contract negotiations.

Phase 2: Best Practices

- *Cover multiple dimensions of sourcing needs.* Security, business continuity, reliability, and service integration needs are the main ones.
- *Determine the level of service needs.* A cost/benefit analysis is useful for assessing the proper level of service for each dimension.
- *Anticipate the change in service needs.* Public managers need to anticipate any possible change in service needs and usually prefer a scalable IT solution.
- *Build a team-based operational relationship that meets the sourcing needs.* Resource requirements as well as operational relationships should be clearly stated and aligned with sourcing needs.

Phase 3: Vendor Selection and Contract Negotiation

Vendors respond to an agency's request for proposals by submitting proposals. The agency then reviews these proposals and undertakes the formal procurement process. It should be understood that vendor selection sometimes interacts with the actual contract negotiation. During the contract negotiation stage, agencies may request more details about the service package provided by the vendor.

Both vendor selection and contract negotiation should follow the general guidelines and parameters established in phases 1 and 2. These guidelines and parameters should serve as the working framework in which the IT outsourcing team operates. For example, if security and improvement of current IT service are the top two strategic concerns of the outsourcing agency, then it should look for a vendor that has strong security measures for their IT services and that delivers a state-of-the-art service package for improvement of existing services within the agency. On the other hand, if an outsourcing agency operates in a relatively uncertain environment, the contract negotiated should have a provision dealing with that uncertainty of service needs.

Criteria for Vendor Selection

- Good strategic alignment between the agency and its vendors
- Appropriate skill set on vendor side
- Reliability
- Availability of security and information assurance package
- Ability to integrate various systems and deploy new technologies

Vendor selection

Several general criteria are important for selecting the right vendor. The first important one is the alignment between the business solution for the client organization and the vendor's business objectives (Embleton and Wright, 1998, p.1). The mutual long-term benefits will help sustain a long-term relationship. Since the specific type of IT service is the major strength of the vendor, the vendor is more likely to maintain its market position. As a result, the outsourced agency is more likely to have stable and quality service from the vendor.

Another important criterion is having the appropriate skill set available at the vendor for achieving the agency's strategic objectives. For most public agencies, the main reason for outsourcing is to gain an advanced IT capability that is not available in-house. Therefore, it is important to ensure that the skill set available at the vendor is appropriate for providing the advanced IT capability needed.

Reliability is also key to successful IT outsourcing (Ware, 2002). Client organizations should look for market leaders and established players to ensure some level of reliability. Public agencies need to validate the reliability claim made by the vendors competing for the IT outsourcing contract. One method is to conduct on-site visits with vendors to have them demonstrate the reliability of their services.

Moreover, a qualified vendor needs to have a good security package for the IT services it offers. A security package includes both technical and managerial

aspects. The hardware, software, and facilities that secure production and delivery of services are considered the technical aspects. For technical considerations, one good source of information on information assurance products is the information assurance directorate detailing the national policy regarding the evaluation of commercial information assurance (IA) products. The management system deals with a comprehensive vulnerability analysis, security warning system, and procedures safeguarding security. A vulnerability analysis establishes an inventory of sources of threat to the information system and/or network in question, including external and internal threats. The vendor should have an information security policy in place and documentation that such a policy is actually being followed.

To address the risks associated with market and technological changes, system integrators or providers offering comprehensive packages are preferred. System integrators are useful for cushioning against constant changes in technologies and are likely to be more independent in choosing the appropriate combination of software programs for their clients. Their independence is particularly strong when compared with software vendors who also play the role of service providers. System integrators are able to upgrade IT services based on what is available on the market because their business focus is on meeting client organizations' needs rather than pushing for a particular solution. Total solution providers are preferred because of their integrated services.

Contract negotiation

Successful contract negotiation needs to adhere to the following guidelines. First, negotiations should focus on finding win-win solutions (Foster, 1996). This is consistent with the spirit of strategic partnership, which fosters flexibility and cushions against risks and uncertainty. Open and frequent communication of service needs and organizational concerns are a prerequisite for crafting a win-win solution. Outsourcing agencies and vendors need to identify the areas of complementary skills and resources. Public agencies need to avoid a single focus on the lowest cost. This approach has proven to be problematic in pursuing long-term gain from outsourcing arrangements (Bendor-Samuel, 2002).

Second, flexibility is a premium in service contracts. As a result, scalable and modular solutions are preferred (Goldman, 1998). Flexibility is important for coping with changing service needs. One approach is to include a benchmarking provision in the service contract. This provision usually requires the vendor to benchmark best practices and constantly improve its service quality by taking advantage of new technology.

Third, the contract negotiated needs to have clauses that address the risk factors mentioned in the previous section. For example, the contract needs to include some safeguard for client organizations whose primary concern is lack of control. Some additional control can be achieved by offering warranty and liability, terms for terminating a contract, and dispute resolution mechanisms to the client organization (Lee, 1996).

Among all risk factors, security and business continuity need to be at the heart of a contract because they are government's primary concerns. In a service-level contract, agencies should require the statement of a security policy and practices that the vendor is going to take to maintain information assurance. One method is to set up incident reporting requirements, where the vendor must report incidents of security breaches in the information systems supporting IT services. In addition, to address the risk of unforeseen cost escalation, the service contract should also include pricing and payment terms for services (Lee, 1996).

Lastly, a properly drafted contract also needs to address transition and operational relationships, and the transfer of both assets and personnel must be specified. The operational relationship envisioned in Phase 2 needs to be part of the service-level agreement as well. Both parties should agree on a formal management structure that oversees the transition and contract implementation.

In this phase, the client organization has several ways of better managing the process. One is to continue utilizing a learning network to learn about innovative ways to address changing service needs and security issues throughout the entire phase. Managers need to budget time and resources for selecting vendors and subsequently negotiating items in the service-level agreement. Managers should

also require a demonstration of key capabilities such as business recovery (continuity) and security measures. A site visit should also be required before the client organization signs the agreement (Embleton and Wright, 1998).

Phase 3: Best Practices

- *Select vendors that can best meet the sourcing needs of an agency.* Public managers need to examine the alignment of business goals of the parties involved, the complementary nature of skill sets, the reliability of the vendor, and IT security.
- *Choose system integrators when available for minimizing risks.* System integrators have the advantage that they are flexible and also cushion against market instability.
- *Negotiate a contract in the spirit of building a long-term partnership.* It is better to seek a win-win agreement by engaging in open and frequent communication.
- *Produce a service-level contract that addresses risk factors and clearly delineates operational relationships.* The service contract needs to be specific and flexible, and operational relationships should be an integral part of the agreement.

Phase 4: Transition to the Service Provider

The transition of IT services from the client organization (or a previous vendor) to the contract winner is a demanding and time-consuming task. In addition to the general involvement of an organization in the development and implementation of IT services, the amount of transition effort depends on the scale of the project and independence of service units. The resource demand is high when the transition involves the servicing of a large number of units by the vendor. Transition is easier when the IT service in question is itself a more independent service unit.

Following some guidelines should help the transition. The overarching principle should be the building of a long-term relationship based on mutual interest. Information needs to be shared, and open communication should be the norm.

Ample resources also need to be allocated for carrying out the transition. The joint management team should provide financial and personnel support. The blueprint for the transition is outlined in the service-level agreement. The transition of the IT workforce involves both operational and labor components.

Information assurance should be a top item in the transition plan. When the information and IT service change hands, they are likely to be more vulnerable to security breaches due to the involvement of multiple parties. Therefore, the management team, in making the transition, should first identify threats to information assurance in the transition stage. Threats may include, at a minimum, disgruntled employees, migration of data and documents, retirement of old IT equipment, and uncontrolled access to new threats.

Operational documentation is critical in smoothing the transition from in-house to an outside vendor. One of the main barriers to transition is lack of documentation of work procedure and inventory. Vendors need to have a good understanding of work procedure and user needs in order to provide services. Moreover, the inventory of existing information technology hardware and software related to the IT service in question is another critical document for the vendor. Another key piece of information for service provision is baseline data on past service performance. This will help document the performance improvement brought by the vendor.

The transition of the IT labor force is more critical for public sector organizations than for private companies. Job security for the transition period is very important. One way is to require the vendor to hire government IT personnel affected by the contract and to keep them for at least a year or two. During that transition period, client organizations should secure training programs for their affected IT personnel. These personnel should be trained in the new technologies and business processes brought in by the vendor. However, one problem with transition is the possible brain drain of the client organization. The client organization should make a conscious effort to keep some critical IT capability in-house to monitor the vendor's performance (Hurley, 2001).

A smooth transition also requires the constant attention of the management team that oversees the transition. Senior management members from both organizations need to remain committed through the entire process of transition (Goolsby, 2002). Sustaining the management effort is important, because projects may take several years to complete the transition.

The management team should foster communication between the two organizations about problems associated with the transition and ideas about managing the transition. The management teams need to ensure that, at all steps of transition, actions taken should be in alignment with their strategic goals.

Phase 4: Best Practices

- *Prepare proper documentation to smooth the transition.* Proper documentation is needed for the relevant information systems, service needs, and performance measures.
- *Devote resources to facilitating a transition.* Human and financial resources should be in place for a transition.
- *Help the transition of in-house IT personnel.* Public managers need to provide training and career help for the IT personnel displaced by the outsourcing project.
- *Manage the transition with a strong management team.* Strong leadership and management commitment are critical for the time of change.

Phase 5: Managing the Performance of the Service Provider

Service delivery is the ultimate test of the outsourcing project, and management is the key to the success of an outsourcing relationship. Two principles guide the management of an IT outsourcing project. First, both the client organization and the vendor should take a collaborative approach. Public managers need to know exactly what motivates the other party to provide service and proactively ensure that their mutual objectives are met (Goolsby, 2002). Second, both parties

should be open to changes. The vendor in particular should be in a position to continuously improve its service by benchmarking best practices. The client organization in turn should be prepared to reengineer its business process to address changing demands.

Performance management is the central theme of the working relationship between client and vendor. Previously ignored, information assurance is now a critical dimension of performance. The collection of reliable performance data, monitoring, and communication are three indispensable components of performance management. Performance data need to be collected based on the performance matrix developed in the service-level contract at the contract negotiation stage. Collection of data related to assurance information should include the documentation of security breach incidents, commonly referred to as incident reporting. Service uptime, response time, and user satisfaction are some good indicators of service quality.

Monitoring should be done at least on a daily basis. The outsourcing management team needs to monitor the key performance measures daily, including security performance. There should be some triggers in place to alert IT service managers of security vulnerability and poor performance. Quarterly and annual reports help identify trends and patterns. The team should measure performance against the level of user satisfaction. Periodic review of performance reports and the refinement of the monitoring mechanism should be part of performance management routines.

Frequent communication is another key to successful management of an IT outsourcing project. Client organizations and vendors need to communicate technical and management issues associated with the outsourced IT services. They can update each other in an ongoing effort to improve services or jointly resolve management concerns.

A management team and structure need to exist during implementation of IT outsourcing contracts. One common problem with IT outsourcing projects is the lack of management support in dealing with ongoing problems. The outsourcing arrangement needs constant management and input of resources. A management team needs to be in place to keep

the implementation consistent with the contract and to make sure the objectives are in line with the strategic goals of the organization. A stable management structure will help resolve any related technical and management concerns.

The deliverables in this phase are the performance review report and project plans for constant service improvement. A performance review should be done periodically with assessment of performance to see if a vendor is meeting service requirements. Project plans for service improvement include a service needs assessment project, methods to address service problems, and detailed steps to solve a service problem.

Phase 5: Best Practices

- *Take a collaborative approach.* A management system based on the principles of open communication and collaboration helps identify service needs and improve service quality.
- *Collect and monitor performance information.* A performance matrix needs to be in place, and the performance data should be communicated to the agency on a regular basis.
- *Be adaptive to change.* New service needs are likely to arise. Based on the collaborative model, public agencies and vendors can work together to turn change into an opportunity for service improvement.

Recommendations

IT outsourcing can be rewarding if properly managed. Recently, we have witnessed the growth of technology use in government for the delivery of information and services as well as for national security. IT outsourcing is emerging as a way of meeting the demand for the quick deployment of advanced technology. Access to skilled personnel, advanced technology infrastructure, flexibility, and cost savings are all driving forces for outsourcing. However, public managers face challenges when trying to fully realize the potential of IT outsourcing. Loss of control, instability of vendors, and complexity in managing an outsourcing contract are some of the barriers often cited.

The process model offered in this report gives public managers a framework for the informed management of IT outsourcing. This framework is designed to maximize the benefits while minimizing the risks involved, which can be accomplished by following both the general and phase-specific recommendations. General recommendations offer generic guidelines for the successful management of an IT outsourcing project from its very beginning. Phase-specific suggestions offer more in-depth guidelines for maximizing benefits.

Recommendation 1. Shift Focus to Service and Relationship Management

Public managers need to engage in a major shift of perspective to realize the full potential of an IT outsourcing project. Information technology needs to be treated as a service. As a result, public managers

need to develop a performance matrix to measure and monitor service quality and take appropriate actions when service quality is in question. Moreover, the outsourcing arrangement should be treated and planned as a partnership. Partnerships with industry leaders are the best way to stay current with service and technological changes. To make a partnership work, public managers need to focus on relationship management throughout the entire process.

Recommendation 2. Provide and Sustain Resource Input

Service and relationship management will not work without proper resource input. One of the critical success factors for an IT outsourcing project is top management support. This support is necessary to provide needed resources. A main problem associated with IT outsourcing projects is the lack of proper and sustained resource input. Every single phase of the IT outsourcing process requires a significant amount of resource input to do quality work. As early as the planning phase, the agency needs to devote time and resources to identify a project with a good strategic fit for the agency. The resource input needs to be sustained through the contracting and transition phases. The resources involved in the transition may account for a significant amount of the total resource input due to its labor-intensive nature. At the management phase, a dedicated performance management team is still needed. The resource input cannot stop right after the transition is complete.

Recommendation 3. Develop and Upgrade Contract and Service Management Capacity

Contract and service management capacity is critical for the success of IT outsourcing projects. The service contract governs the relationship between the agency and its vendors. A poorly written contract is a recipe for disaster. The contract and service management team should be keenly aware of regulations and policies surrounding the IT project. Currently, competitive bidding, information assurance, performance measurement, and cost accounting are the main issues with which this team should be familiar. In addition, this team should be able to craft a service-level contract with provisions for benchmarking, technological change, penalty for poor service, and termination. Most of the service management concerns should be addressed when a service contract is negotiated.

Project management is another critical aspect of this management capacity, which ensures IT services are responsive to agency needs. The contract and service management team needs to upgrade its capacity to cope with new development. For example, the team needs to learn about the information assurance products and requirements under development to address issues in the contract under negotiation or refine performance measures in the existing service contracts.

Recommendation 4. Maintain and Foster Frequent and Quality Communication

Frequent communication of technical and management issues is usually overlooked by agencies. However, this is critical for partnership and service management. Communication needs to be carried out on a regular basis. Daily or weekly reports of service status based on a pre-set performance matrix should be available to the agency. Weekly or monthly meetings should be institutionalized for addressing both immediate concerns and long-term planning. Moreover, when there is a major change in service needs or technology, agencies and their vendors should follow an established protocol to address it. The quality of communication also mat-

ters. The level of organizational involvement and the inclusion of relevant information are two main aspects. Communication should be done not only between low-level but also high-level managers when a major shift of focus is introduced. Service performance information should be kept in a central depository and decision-support modules should be in place for informed decision making.

Endnotes

1. This is based on the number by Input Inc., an information technology research and marketing firm.
2. For more detailed description about this project, see Murray (200).
3. Liza Porteus, "Legislation Driving Bush Administration E-Gov Efforts" *Government Executive*, April 2, 2002.
4. Liza Porteus, "Homeland Security Depends on New Technology, Rigde Says," *Government Executive*, April 24, 2002.
5. William New, "Tech Firms Look for Best Places to Pitch Security Products," *Government Executive*, April 1, 2002.
6. Porteus, *Government Executive*, April 24, 2002.
7. Bruce B. Cahan, "United States' Experience with Public-Private Partnership: Elements of Effective Public-Purpose Partnership," report prepared for OECD E-Government Project Seminar, June 21, 2002.
8. For a list of agencies that are considered lead agencies in protecting infrastructure, see General Accounting Office, *Critical Infrastructure Protection: Federal Efforts Require a More Coordinated and Comprehensive Approach for Protecting Information Systems*, Washington, D.C.: U.S. General Accounting Office, July 22, 2002.

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A B O U T T H E A U T H O R S

Yu-Che Chen is a visiting assistant professor of information systems and public affairs in the School of Public and Environmental Affairs at Indiana University. His current teaching and research center on e-government as well as the design and implementation of information systems. His particular focus is on the outsourcing of e-government services and its complex relationships with organizational innovations and performance.

Dr. Chen's broad research interest lies in the reinvention of government, particularly in the use of information technology and innovative policy instruments to improve performance. His most recent project examines the use of data warehousing and data mining to improve government decision-making capabilities. His work has appeared in peer-reviewed conference proceedings. He has published in such journals as *Public Administration Quarterly* and *Government Information Quarterly*. His articles deal with the use of application service providers and assess the potential of using an innovative policy instrument, voluntary programs, to better accomplish public agencies' missions.

Dr. Chen received his M.P.A. and Ph.D. degrees in public policy from Indiana University. He has been involved in developing and implementing e-government applications. His technical training includes both database management systems, such as Oracle and MS ACCESS, and development of information systems using CASE tools. Moreover, he has extensive experience in quantitative data analysis, such as logistic regression and panel data analysis.



James L. Perry is associate dean and chancellor's Professor in the School of Public and Environmental Affairs (SPEA) at Indiana University-Purdue University, Indianapolis. He has also held faculty appointments at the University of California, Irvine, the Chinese University of Hong Kong, and the University of Wisconsin, Madison. In 1992, he served as special assistant to the assistant secretary for personnel administration, U.S. Department of Health and Human Services. In 1999–2000, he was senior evaluator at the Corporation for National Service. He received an undergraduate degree from the University of Chicago and M.P.A. and Ph.D. degrees from the Maxwell School of Citizenship and Public Affairs at Syracuse University.



Dr. Perry directs the Institute for the Study of Government and the Nonprofit Sector, which is jointly sponsored by SPEA, the Indiana University Center on Philanthropy, and the Indiana University Center on Urban Policy and the Environment. His recent research focuses on public service motivation, community and national service, and government reform. His research appears in such journals as *Academy of Management Journal*, *Administrative Science Quarterly*, *Nonprofit Management and Leadership*, *Nonprofit and Voluntary Sector Quarterly*, and *Public Administration Review*. He is author and editor of several books, including the *Handbook of Public Administration*, second edition (Jossey-Bass, 1996).

Dr. Perry has received several national awards, including the Yodel-Honeymoon Award for innovative personnel research from the Society for Human Resource Management. He received two awards, the Charles H. Levine Memorial Award for Excellence in Public Administration and the Distinguished Research Award, given jointly by the American Society for Public Administration (APA) and the National Association of Schools of Public Affairs and Administration (NASPAA). He serves on the Executive Council of NASPAA, as a fellow of the National Academy of Public Administration, and as a commissioner for the Indiana commission on Community Service and Volunteerism.

KEY CONTACT INFORMATION

To contact the authors:

Yu-Che Chen, Ph.D.

Visiting Assistant Professor of Information
Systems and Public Affairs
Room 330
School of Public and Environmental Affairs
Indiana University, Bloomington
1315 E. Tenth Street
Bloomington, IN 47405-1701
Voice: (812) 855-0731
Fax: (812) 855-7802
e-mail: yuchen@indiana.edu

James L. Perry

Associate Dean and
Chancellor's Professor of Public and
Environmental Affairs
School of Public and Environmental Affairs
Indiana University-Purdue University, Indianapolis
801 W. Michigan Street, BS 3025
Indianapolis, IN 46202-0000
Phone: (317) 274-2016
Fax: (317) 274-5153
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For additional information, contact:

Mark A. Abramson

Executive Director

IBM Endowment for The Business of Government

1616 North Fort Myer Drive

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(703) 741-1077, fax: (703) 741-1076

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