



CHILD CARE ADMINISTRATOR'S IMPROPER PAYMENTS INFORMATION TECHNOLOGY GUIDE

PART II: INFORMATION SYSTEMS PROJECT AND PROCUREMENT GUIDANCE

Prepared for:

Administration for Children and Families
Office of Child Care
370 L'Enfant Promenade SW, 5th Floor
Washington, DC 20447

Under Contract Number HHSP23320095656WC
Task Order Number HHSP23337001T

Prepared by:

Walter R. McDonald & Associates, Inc.
12300 Twinbrook Parkway, Suite 310
Rockville, MD 20852

May 3, 2011

TABLE OF CONTENTS

I.	Introduction	1
II.	Conceptualizing the Information System Project:	1
	Agency Vision, Goals, and Project Objectives	2
	Financial and Organizational Resources	4
	Project Governance	4
	Business Processes and Organizational Change	5
	Technical Considerations	6
III.	Project Planning Activities	7
	Performing a Needs Analysis	7
	Defining System Requirements.....	8
	Assessing Solution Alternatives.....	10
	High Level Information System Solution Options	10
	Enhancing the Legacy System	10
	Adopting Functionality from Other State Systems.....	11
	Purchasing a COTS Product	12
	Transferring Another State’s System.....	13
	Develop a New System.....	14
	Blended Solution Approaches.....	14
	Process for Evaluating Solution Alternatives.....	14
	Meeting the Business Objective and System Requirements.....	15
	Legal Analysis	16
	Technical Analysis.....	16
	Evaluating the Constraints	17
	Analyzing and Tracking Risks.....	17
	Cost Benefit Analysis.....	18
IV.	Initial Project Planning	20
	Major Project Activities	20
	In-house versus Contracted Services for IT Projects	22
	In-house.....	23
	Contracted Project Services	24

V. Developing a Request for Proposal (RFPs)..... 25

 RFP Overview 26

 Key Success Factors 26

 Establishing an RFP Development Team 26

 Developing a Procurement Management Plan..... 27

 Establishing an Online RFP Document Library 27

 Writing the RFP..... 28

 Establishing Acceptable Terms and Conditions 29

 Avoiding Common Mistakes..... 29

 Evaluating Proposals 31

 Best Value..... 32

 Summary 33

VI. Additional Resources 33

I. INTRODUCTION

Part I: Inventory of State Childcare Information Systems of the *Child Care Administrator's Improper Payments Information Technology Guide (IT Guide)* examined the status of automation as it is implemented by the States to support their childcare programs. Part II: Information Systems Project and Procurement Guidance provides guidance for States considering the implementation of new information systems or major enhancements of existing systems. This document is completely advisory in nature. The information contained herein should not be interpreted as requirements of the Office of Child Care, but instead is provided to help States as they deal with the complex issues related to identifying information system needs, examining options, and procuring the needed products and services.

Part II of the *IT Guide* provides information about the activities that States can use to prepare for a new childcare information technology (IT) project. These activities include clarifying the agency vision and its desired business processes, defining system requirements, performing feasibility and alternatives analysis studies, and issuing procurements for services and/or products required for the project.

The alternatives analysis discussion includes information about the various technology approaches that can be employed by States for their childcare IT project, depending on the objectives of the project. Although the *IT Guide* addresses some of the attributes, advantages, and disadvantages of various technology approaches, it deliberately avoids referencing any specific products or vendors in the childcare information system field. States can learn more about these products, and the performance of vendors, through research and consultation with other States that have pursued projects similar to their planned efforts. Part I: Inventory of State Childcare Information Systems of this *IT Guide* provides useful information for readers who may wish to identify States that have undertaken projects similar to those they may be considering.

The *IT Guide* in general, and Part II specifically, is written for childcare administrators and program staff who may be involved in planning IT projects to support their programs. Although some material may be of interest to technical staff, the *IT Guide* is written so that readers do not need technical knowledge to understand the material presented.

II. CONCEPTUALIZING THE INFORMATION SYSTEM PROJECT

There are a number of high-level considerations that States should consider examining once it has been determined that an IT investment may be needed to address the replacement or enhancement of existing automation for the childcare program. The State childcare agency, typically, with the assistance of their IT staff, would discuss and document the high-level vision and objectives that underpin the planned IT project. Addressing the following questions will set a context for the project and will ensure that all involved parties understand and are invested in the effort.

- What is the business vision for the childcare agency as it relates to the new automation, and what goals and objectives are to be met by the automation?
- What financial and organizational resources are available to support the project?

- Who will be ultimately responsible for the project and who should be involved in overall project governance?
- How will the new automation affect the organization and its business processes?

Agency Vision, Goals, and Project Objectives

One of the most important first steps for a new IT project is to clearly define what the project is to accomplish. This should be anchored in a clear understanding of the business objectives to be met by the new automation. Projects can succeed technically, yet still fail to accomplish improvements to business operations, simply because the vision and objectives were not understood from the beginning and by all involved parties. This step defines the reason for the IT effort and states the business case for acquiring the new automation.

When undertaking a major initiative, such as a new information system, it is useful to begin with a strategic analysis of the agency. The strategic analysis begins with the articulation of the agency vision, which forms the basis for identifying information needs and specifying system requirements. The business vision may be related to specific problems that the State childcare agency has identified (e.g., high incidence of improper payments or the need to implement a waiting list) or to a more global vision for systemic improvements in the childcare program. Objectives for the IT investment typically fall into one or more of the following categories:

- Reducing costs
- Increasing productivity and efficiency
- Reducing errors and fraud
- Improving service delivery and enhancing customer satisfaction
- Improving service outcomes

Although the vision may relate to the childcare program alone, States may want to consider the overall vision of the umbrella organization of which childcare is a part (departments of human services or education, depending on the structure of a State's services). As States face shrinking budgets, there often is an initiative to increase the efficiency of State government agencies—finding ways to achieve the same or better outcomes with less money and fewer personnel. Some States may be examining the potential for consolidating services and, in most States, there is interest in better integrating the services of existing programs (e.g., childcare, TANF, SNAP, employment programs, and child support). From an IT perspective, this may lead to an interest in developing an “enterprise” information system that supports all or most of the programs of the umbrella agency. If the State is moving toward integrating human services programs, and especially if an enterprise information system is being considered, the childcare program should be sure that all necessary parties are involved in the initial stages of conceptualizing the IT project.

The process of clarifying and articulating the childcare agency's vision and goals helps to keep policy and program at the center of project planning. It is important that the project be driven by the program's objectives so that the implementation of technology supports, rather than defines, the way the program will operate. While there is necessarily some give and take among the various parts of the project, in the end the system should be responsive to and meet the information needs of the agency's program.

The agency's and State's programmatic and technical strategic plans can provide important insight into current and future plans for service delivery and technical support. This discussion may bring to light opportunities for enterprise investment, organizational changes that can create efficiencies and improve effectiveness, and constraints that the project will face. For example, if one State agency is moving forward with a technology that could be adapted to meet a childcare function, there may be an opportunity to leverage staff and resources to implement that technology for the childcare program. In addition to surfacing opportunities to leverage existing State technology, examining IT strategic plans may identify important constraints, such as the movement away from a particular outdated software or hardware.

At the outset of planning for the project, the State should determine how it wants the business process to change in the childcare program and what specifically will be addressed by the new automation. If the State is considering a new replacement system, or a major enhancement of the existing system, a high-level visioning activity is an opportunity to make significant practice changes. The definition of required functionality in the new or enhanced system must be consistent with the way the agency wants its staff to work, rather than letting the design of these functions dictate how they must work. Although this is a general rule, administrators should recognize that, if they choose to implement an existing product or to transfer a system from another State, some amount of adaptation of business process to fit the system probably will be required. Even so, the State should be clear about how it wants practice to change with the new automation. Doing so will ensure that the selection of a software product, or the design of new automation, will fulfill the program's objectives.

If the project is aimed at addressing isolated features, such as enhancing current automated eligibility or adding a new licensing function, the new functionality may not have major implications for the operation of the childcare program. Although the vision for practices in the childcare program may not change, the objectives of the automation should still be clear.

The following is an example of the types of issues that a State may wish to explore from a program perspective before defining the objectives of an IT project:

The childcare staff determine childcare eligibility manually and this has resulted in many errors, and eligibility determinations are often late. The vision for new automation is that the system will track cases from initial application to the completion of eligibility and the system will automatically determine eligibility based on the information entered by the workers. The system will require evidence that workers have acquired all necessary documentation before an eligibility decision is approved. The project's business-related objectives are

- *consistent eligibility determinations for all childcare applicants;*
- *performance of eligibility determinations within required timeframes; and*
- *basing each eligibility determination on the State's criteria and documenting it according to policy.*

Although the objectives in this example are relatively straightforward, there are specific issues that impact the way the objectives can be achieved with automation. For example, the State should consider issues such as the following:

- *What data are required for an eligibility determination?*
- *What are the current timeframes and can/should these be altered based on the efficiencies gained from automating the process?*
- *Will workers be allowed to override the decisions of the system?*
- *If overrides are allowed, do these require approval or may workers use their own judgment?*

The above is a limited example but suggests the type of program decisions that will guide the development of new automation. Such decisions are rooted in policy mandates and practice preferences defined by the State's childcare program.

The initial goals and objectives formulation will set the stage for the specific identification of system requirements for the new automation.

Financial and Organizational Resources

The amount of funding available, and the number and capabilities of in-house staff members who can work on the project, will impact both the scope of new automation that can be implemented, and whether the State can perform the project in-house or will have to purchase services or products from the private sector. It is recommended that the State identify the fiscal and personnel resources that are available to support the project early in the process. State, Federal, and private funding might be a potential ways of providing fiscal support for the system.

The source of funding for the project may be the reallocation of existing Federal and State childcare program funding. Funds may be found through special initiatives or grants for technology improvements. Some of the recent childcare program IT projects have been funded by special programs, such as the American Recovery and Reinvestment Act of 2009 (ARRA). Opportunities such as the time-limited ARRA funding are rare. The amount of funding available for the IT investment is the major determinant of the scope of new automation that can be addressed.

Personnel resources to be applied to the project may be more difficult to identify and quantify. If a State has a consolidated IT division that includes a Project Management Office (PMO), the State is more likely to have the capacity to perform the IT project using its own IT staff. If technical and/or project management capabilities are limited, the State likely will have to seek outside assistance for all but the most limited IT projects.

All IT projects, whether conducted in-house or by a vendor, require the involvement of State childcare program staff. These staff will have to have knowledge about how practice is carried out within the agency, as well as what the essential needs are for the IT project. They may, and probably should, be asked to participate in requirements and design sessions and possibly to perform testing of the system before it is implemented.

Project Governance

The State agency always maintains ultimate decision-making authority regarding the IT project and the system that will be implemented. Selecting the State project management team and the project governance body is critical to the success of any major IT project.

It is common for a State's project manager to be a relatively high-ranking member of the agency IT staff or a high-level staff member from the childcare program. In some cases, the State may designate both a project manager and a technical project manager. Since these projects have both business concerns and technical considerations, both aspects should be addressed and remain in focus throughout the project.

Most large-scale projects require a governance committee to oversee and provide input to the IT project. For an IT project focused solely on childcare automation, the childcare program administrator is the likely chair of the project governance body (sometimes referred to as the steering committee). Senior program officials from all programs being supported by the new system should be active participants in project governance. Without such strong programmatic involvement, agency personnel are likely to view the entire effort as "just another IT project" and be unwilling to participate and support the project as effectively as they should to ensure that the system truly supports agency information needs.

An essential component of the project governance structure for the IT project is the assignment of decision-making authority. Many issues requiring prompt decisions arise during the course of an IT project. Having a clear line of authority for these decisions is critical to an efficient project. Many projects have been delayed, sometimes incurring additional cost, because decisions are not made quickly and with certainty as they arise. The plan for project governance should clearly specify who will make the final business-related and technical decisions during the course of the project. This may involve a hierarchical escalation structure so that minor decisions are made at lower levels and more critical decisions are presented to higher-level staff, or the governance committee itself, for final resolution.

Business Processes and Organizational Change

Implementation of a new system, and even major modifications to an existing system, provide opportunities for the agency to review the way it does business and to identify processes that could be made more efficient with automation. Even if the childcare program is not trying to change its business process significantly, the new automation is likely to cause changes in the way people work. One term commonly used for the assessment and implementation of changes to the business processes of the program is Business Process Reengineering (BPR). The overall project activities engaged to ensure that the users of the new automation are prepared and ready to use the system are typically referred to as "Organizational Change Management."

BPR typically entails two steps. First is a detailed examination of the way each component of the agency's business is currently conducted. This examination results in a description of the "As Is" business processes. Such a review often uncovers a variety of discrepancies in the way the same activity is performed in various parts of the State. Second, when the "As Is" processes have been detailed and the problems have been assessed, the desired way of operating, or the "To Be" processes, can be developed. That is, working with the full range of staff and agency stakeholders, administrators can determine the way they want business to be conducted in the future, in order to realize the agency vision and take advantage of the new automation. When this is clearly understood and consensus has been reached, the "To Be" processes form the basis for identifying the information system's functional requirements.

Making changes to the organization and its business processes can impact the existing staffing structure and the childcare program's policies and procedures. It is important to address the following considerations in order to implement the new automation.

- In some instances, the childcare program may have to request specific changes in laws or regulations or make changes to policies and procedures, in order to allow the implementation of the new automation. One obvious area is a requirement to submit forms or maintain documentation that the new system will now make obsolete. A State should consider the time required to issue regulatory and procedural changes so that the new provisions will be in place prior to the implementation of the new automation.
- The new automation may alter the responsibilities of organizational units or specific staff. In some cases, the job descriptions, reporting relationships, and/or responsibilities of specialized units change with the implementation of the new system. If the new automation makes certain tasks performed by staff obsolete, the program will have to consider whether this will impact the overall staffing requirement of the childcare program.
- Existing agreements with organizations or individual providers may have to be altered. Changes to provider contracts and interactions between providers and the childcare agency may require new procedures and/or the collection of baseline information (e.g., provider staff information, rates, etc.) to implement the new automation.
- If the new automation includes data sharing with other State information systems (i.e., system interfaces) interagency agreements generally are required to allow the exchange of information. This may require discussion with the other State program administrators to resolve issues related to information use, privacy, and security concerns.
- If the automation will create new groups of information system users, such as providers or State fiscal staff, a great deal of advanced planning is required. New system users have to be prepared for the new responsibilities, trained on the application, and provisions have to be made for their access and security rights.

Technical Considerations

In most cases, the State's IT staff will play a major role in determining the best approach and solution for implementing the new automation. The IT solution chosen must align with the technical standards determined by the State's IT staff and must be compatible with the hardware and network architecture within which it will operate. As important, many States have strategic plans outlining the future infrastructure and tool sets that the State wishes to use. The IT strategic plan may specify the methods and tools to be used for mobile computing, system security, document management, and other specific components of planned information systems.

The IT department also may have plans for the way that State systems will be supported and maintained, including the degree to which systems will be operated directly or outsourced to external entities for maintenance and operations. Any selection of a software solution should be

done with recognition of the State's future IT plans. The State's entity responsible for IT standards and planning should be involved at the earliest stages of project planning to ensure that decisions about scope, technology, and system implementation are consistent with the overall State plans and standards.

III. PROJECT PLANNING ACTIVITIES

Once the State has worked through the preliminary considerations and decided to undertake the IT project, there are a number of planning activities to be complete. These activities include

- needs analysis;
- requirements definition;
- alternatives assessment; and
- cost benefit analysis (CBA).

The discussion below examines each of these activities and presents some fundamentals of each activity. Readers should recognize that these are described from the context of a major IT project. If the State is planning a more limited effort, some of these activities may not be necessary, or may not be needed to the degree described here. However, the first activities—Needs Analysis and Requirements Definition—should be performed at a sufficient level to clearly define the IT project, regardless of the size and complexity of the planned project.

Performing a Needs Analysis

The needs analysis is based on the vision and objectives for the IT project. The assessment of needs as they relate to automation is necessary to ensure that the new system will support the planned business processes and to achieve the childcare program's goals and objectives. Even if the State executes all other aspects of the procurement project management process flawlessly, misstated needs can lead to a less than desirable outcome. The defined business needs form the basis for the definition of systems requirements discussed in the next section.

The needs gathering and assessment effort requires involvement by many different stakeholders so that the system functionality being designed will have the best chance of meeting the childcare program's needs. It generally is more effective for specific groups of stakeholders to focus on one or more broad areas that the system will address, pooling their specialized knowledge to define agency needs. The following are some typical groups that would meet to define needs related to specific areas of the childcare program:

- Childcare application, eligibility, and authorization
- Provider application, inspection, and licensing
- Provider contracts, billing, and payments
- Childcare reporting and quality assurance
- Technical and interfaces

Once the teams articulate their needs in these broad areas, a group of stakeholders representing all of the broad areas can collectively determine the priority for addressing each identified need. In this process, some needs identified in one or more areas may be consolidated, rewritten, or eliminated. When the needs have been identified and prioritized, a formal "statement of needs"

document can be created and used for reference throughout the project. A useful needs statement focuses on desired outcomes rather than specific functions, incorporates both short- and long-term goals and objectives for the requested solution, and defines the criteria on which the State will base its assessment that the need has been met.

Taking adequate time to define the business needs pays off in the long run. If the business needs are not articulated comprehensively, the system requirements are likely to be incomplete. If a critical need is missed in the analysis, this can have cost implications for the IT project. Failure to include a major area of functionality after the State has estimated costs, procured services and products, or designed the new automation will result in additional cost, as well as adding time to the IT project schedule.

Effective methodologies for assessing needs include structured group sessions, key informant interviews, job shadowing, and surveys. Group sessions are most productive when led by an experienced, skilled facilitator, and include enough stakeholders to be fully representative. In these sessions it is important for the facilitator to identify clear limits on the areas to be discussed. Otherwise it is easy for sessions to generate an uncontrolled “wish list” that is both duplicative across sessions and difficult to prioritize.

Key informant interviews may be effective for gaining needs analysis input from senior management such as the Chief Information Officer (CIO), the childcare administrator, and the umbrella department’s director, to help clarify their expectations and identify any planned policy, program, or technology changes that may affect the design and implementation of the system. For some particularly complex tasks for which system support is critical, it may be effective for a member of the project team to observe one or more workers performing the task. This technique is known as job shadowing.

Surveys can be used to capture input on the business needs from a wide range of staff and other stakeholders, such as providers. Surveys can be used to validate input from needs analysis sessions or even prior to the sessions to see the full range of possible automation that should be discussed in sessions.

Defining System Requirements

The needs analysis will result in a detailed list of the business needs that the new system or new enhancement functionality will serve. After the needs have been clearly defined, the next step is to transform these needs into system requirements. The system requirements will define the specific functions that will be implemented. Although the system requirements are detailed statements about what the system will do, they do not discuss how the system will implement these functions. In fact, prescribing how the system will function within the requirements can restrict the freedom of system designers to employ the best possible design approaches for implementing the required functions.

System requirements often are developed in group sessions similar to those described in the above needs analysis discussion. The requirements sessions may involve the same people who defined the business needs, possibly augmented by additional staff and other stakeholders. The requirements sessions will be most effective if led by an experienced facilitator, either from the agency or someone brought in from the outside. The purpose of these sessions is to identify the

functions that the new automation must include in order to fulfill the identified business needs. It is important to include staff members who are familiar with the business processes to be impacted, as they will recognize where automation can provide the greatest benefit.

Requirements statements should be carefully worded so that they clearly define all of the specific functionality for the new system. The system requirements are used by those responsible for designing the system to ensure that the new automation includes all of the functions the childcare program staff have defined as necessary. The requirements are used throughout the IT project to verify that the developers have created functions aligned with the requirements and that no required functionality is lost as the system goes through the various phases of development and testing. If a vendor is hired, the requirements are often used as the basis for determining that the vendor has fulfilled the obligations of the contract. The quality of the system requirements is paramount in ensuring that the new system (or new functions) supports the program's business objectives for the new automation.

The State should try to define requirements so that each requirement is clear and concise and states specifically what automated functionality is required. The following is an example of a requirement statement that is not sufficiently clear and is too prescriptive.

Emails should be sent when a case needs to be redetermined.

This requirement has various flaws. The requirement is not specific enough regarding who is to be alerted to the upcoming redetermination or to what type of redetermination this requirement applies. Although it may be implied, the requirement does not say that the system is going to generate the notification automatically, only that an email will be sent. The requirement also specifies that the method of alerting the user should be an email, which may or may not be the best way to alert a worker of the upcoming action.

A better way to state the same requirement is as follows:

The system shall automatically alert the assigned worker when a childcare eligibility redetermination is due.

Because the State may discover that the full set of requirements is too costly to implement and may need to be deferred, it is suggested that each requirement be prioritized, as some are likely to be more essential than others. Requirements that are absolutely essential to effective system functioning can be designated as "mandatory." If the requirement refers to a system action that is desirable, but not critical to effective functioning, it can be designated as "optional" or "desired."

Since the system requirements will be used for design and verification throughout the course of the IT project, the requirements should be assembled in a database that allows tracking of all changes, additions, and deletions to the initial set of requirements. There are software applications available for this but, depending on the complexity of the planned project, a State may begin by tracking the requirements through a relatively simple ACCESS database or even a spreadsheet. The key is that the tool for managing system requirements contains all of the information about each requirement (description, priority, area of functionality to which it applies, etc.) and that any changes to individual requirements are documented and tracked.

One final suggestion regarding system requirements definition is that a State may want to explore the availability of existing system requirements in other States. A State may save a great amount of time if it can obtain a core set of requirements from another State with similar business practices and automation needs. The State agency can then modify and augment the core requirements to address its own specific needs.

Assessing Solution Alternatives

There are various technical approaches for implementing new automation that meet the defined system requirements. This section examines the high-level solution approaches that can be used to implement new automation and the process for evaluating these options.

High-Level Information System Solution Options

For an accurate analysis of different technology solutions, it is helpful to understand the advantages and challenges of the various approaches. The options available to the State are to

- enhance the State's current system (referred to as the legacy system);
- adopt functions available in other State systems;
- purchase and implement prepackaged solutions (referred to as Commercial Off-the-Shelf or COTS products);
- transfer a system from another State; or
- develop and implement a new childcare information system.

There are advantages and disadvantages to each technical approach and the decision about which option, or combination of options, to pursue depends on many factors. These include the scope of functionality required to implement the new automation; funds and personnel available for the project; and the extent to which available technical options meet the State's current or planned standards for information technology. This discussion focuses on the attributes of the various technology options and the general advantages and disadvantages of each.

Enhancing the Legacy System

The lowest cost and often the quickest to implement are IT projects that involve retaining the legacy childcare system, but adding a module or two to expand the system's functionality. For example, a State might enhance customer access to childcare information by adding a Web-based portal through which the prospective customers can search for licensed childcare programs by ZIP code to find one near their home or work. The State might also replace its eligibility determination module with functionality in the portal that allows customers to enter their own data required to determine eligibility for subsidized childcare and receive a preliminary determination from the system. Such functionality would be expected to increase customer satisfaction and decrease staff time. These functions would be added to and integrated with the existing childcare case management system.

The primary advantages of this approach are its simplicity and relatively low immediate cost compared to more extensive system modifications or replacements. The major disadvantage is that the bulk of the legacy system will continue to operate as is. If the legacy system is using outmoded technology, the new modules would be added to a system that may be difficult to sustain over the coming years. The legacy system also may have high overhead and limited

potential for future enhancements. If functionality is added to the legacy system in such a way that these investments can be maintained even if the legacy system is replaced, the risk of enhancing an existing system is reduced.

The legacy system enhancement approach, assuming that the existing system is based on older technology, rarely can address the weaknesses of the fundamental system architecture. Although the enhanced modules might be reusable when the system eventually has to be replaced, over time the legacy enhancement approach might cost significantly more than a more complete system upgrade. States should consider not only what they want to accomplish with the upcoming IT project, but what will be required from the system in the long term.

Adopting Functionality from Other State Systems

The childcare program may have the option of adopting functionality that has been built into other States' systems. This may be done by using the design and program code (if compatible) of the other system's functions to build similar functionality into the childcare information system. For example, if other States' programs have automated eligibility determination processes, with some adaptation, it is possible that the application code could be used to build a childcare eligibility module.

For States that have begun building information systems using Service Oriented Architecture (SOA), there may be even more efficient ways to leverage the functions built into other State systems. Although a complete description of the SOA approach is beyond the scope of this *IT Guide*, the basics of SOA are described below.

In essence, SOA refers to the ability to build information system components in such a way that they can be reused across a number of different information systems. The term "service" in this context does not refer to services in the sense of services to a customer. SOA services are information system components that can be used by multiple systems to perform the same process.

For example, if one State agency were to develop a "service" that performs eligibility processing, other programs and organizations could use this service as part of their own systems. This requires that the eligibility function can be adapted to the specific data and business rules of the new program. Since eligibility programs now are often based on rules engines that allow data and business rules to be changed relatively easily, the potential to reuse such a function becomes possible. This can be a time-saving and cost-effective approach to adding new functionality to an existing childcare system.

Although SOA offers a very efficient approach to building and reusing specific information system components across programs, there are substantial infrastructure requirements. In order for the components from one system to be reused by another, the State must have the necessary enterprise service infrastructure to support this and the component modules must be built in a manner that allows the shared use. The State's IT staff would be aware of the potential to address childcare information system needs through the SOA approach.

Purchasing a COTS Product

States also have the option of purchasing software products, either as their complete solution for a childcare information system, or to add functionality to their existing system. Commercial Off-The-Shelf (COTS) systems are developed based upon common requirements of, and functionality needed for, a specific program (e.g., childcare) or for a related set of programs (e.g., human services). COTS products are expected to be implemented with little or no customization (i.e., change to the program code). However, most COTS products allow a certain amount of customization (referred to as configuration). For example, a COTS product for childcare typically would allow those who purchase the product to configure the application for their own rules and criteria for determining eligibility as this is expected to vary by State. On the other hand, the way that the system users view their cases, general case assignment functions, and the methods for issuing alerts are typical functions that cannot be changed without significant programming effort. Changing the program code of a COTS product not only eliminates the major advantage of purchasing a product (i.e., that it can be implemented “out of the box” with minor configuration), but changing the base product will likely complicate the ability to accept future upgrades to the application from the COTS vendor.

COTS products are available as complete, integrated childcare information systems, as well as fully integrated human services systems (referred to as enterprise human services information systems). In addition, COTS products are available for specialized and ancillary functions that are important to the core childcare system. For example, there are COTS products that can be implemented to perform data-reporting functions, content and document management, and financial functions. COTS products can be considered as an option to fully implement a childcare information system or to add new modules to an existing system.

The primary advantage of a COTS solution is that it offers an expected short cycle to implementation, eliminating the need to build modules from the ground up. However, the extent to which the COTS product meets all of the State’s system requirements will determine whether the solution is the most cost-effective approach for the childcare program. It is incumbent on the State to examine the product carefully and, when possible, to explore the experience of other States that have implemented the COTS product, to assess the feasibility of the solution for its own program.

An important consideration for States before purchasing a COTS solution, is whether the COTS product fits the State’s current technology infrastructure and is consistent with the IT plans for the future. If not, the COTS product may not be a viable solution even if it does have the required functionality to meet the childcare program’s automation needs.

Ongoing cost is another very important factor to consider. Some COTS solutions are sold with an upfront purchase price and an ongoing license fee (often based on the number of users). States should consider very carefully the licensing structure for the COTS solution. In addition to the initial costs for implementing the COTS, the State should explore the pricing structure for future upgrades and enhancements.

In summary, COTS products have many advantages, such as potentially lower costs, easier modification, and faster implementation. As with other options, however, there are also potential disadvantages including the extent to which the product supports planned business practices and

fits within the existing IT technical structure. Each State should determine whether this approach aligns with its technical and business direction, as well as training, licensing, system upgrades, and service agreements.

Transferring Another State's System

As shown in Part I of the *IT Guide*, a number of States have implemented, or are in the process of implementing, comprehensive childcare information systems. States that are replacing their legacy systems may want to consider transferring a system from another State. In most cases a transfer from another State is performed by the vendor that implemented the system in the originating State. Usually States will acquire a transfer only after an open Request for Proposal (RFP) process, during which the State has viewed demonstrations of the software and conferred with representatives of the originating State before acquiring a transfer system. States should determine whether the original vendor is highly experienced with the transfer application, knowledgeable about the implementation requirements, as well as how modifications to fit the new State can be made.

There are advantages to transferring another State's system. Since State childcare programs have similar automation needs, at least at the high level, the transfer system is likely to have most of the core functionality required. A well-designed system will have the appropriate integration across the system modules (e.g., data entered when doing an authorization are verified against a client's eligibility status and the status of the selected provider), which is an important component of a comprehensive childcare system. A transfer system has the advantage of being tested in a true operational environment, with the assumption that some of the early issues have been identified and resolved.

However, while core program needs are usually similar from one State to the next, there are almost always differences in policies, procedures, or processes that require some tailoring of a transferred system. Transferring a system requires that the State considering that option examine the business processes of the State that originally implemented it. If the processes are significantly different, the system transfer effort may not be successful. When a State decides to commit to a transfer from another State, it is important to recognize that some adaptation of its own business processes may be necessary. The more modifications that are required, the less advantage is gained from the decision to transfer another State's system.

The system also must be integrated with the receiving State's IT infrastructure, including interfaces with other State systems required by law, regulation, or State-specific situations. IT staff must assess the compatibility of the transfer system's architecture and technology to ensure that it meets the State's standards and that the system can be operated and maintained by the IT department.

Finally, to implement another State's system, the State must ascertain the ownership rights over the software. Although some systems are in the public domain (meaning that others can use the program free of charge), this is usually only the case for systems built with Federal funds. The State will have to examine the potential costs of acquiring the software if it is owned by another State or by the vendor that developed the system.

Develop a New System

Although building a new system from the ground up allows a State to implement the exact functionality that meets its existing or planned business processes, building a new information system is generally very expensive and often takes considerable time from project initiation to final implementation. Given the large number of new childcare information systems, most States will only consider developing a new system if their automation needs are profoundly different from the functionality available in these existing systems. Generally, adopting one of these existing solutions, even if it requires some amount of adaptation, will be a less expensive solution and can be implemented in much less time. IT projects that are based on ground-up development are likely to be those in which a State is only implementing a new system module or creating a standalone system for a very specific purpose.

Blended-Solution Approaches

These approaches to IT investment are not mutually exclusive. For example, a State may choose both a COTS product for a specific childcare function such as document management and use the modification of legacy system components to further enhance the overall childcare information system capabilities.

In another example, a State may choose an enterprise framework COTS product and then train State IT staff to configure that product to meet the business and service needs of the childcare program. Enterprise framework technologies in the human services arena offer the opportunity for skilled users to configure the software to support many core functions including eligibility determination, case management, reporting, financial management, workflow management, and the development of online forms and Web pages. With training, skilled business analysts may be able to configure the software and may require limited assistance from technical programmers.

Another State may choose to implement a combination of applications developed in-house, COTS applications, and Web services available from other State programs. This option may be more frequent in States with SOA capabilities (as described above).

Regardless of the approach, it is important for the State to assess the potential solution alternatives in order to make the right choice for its IT project. The next section discusses the process for evaluating the various solution alternatives.

Process for Evaluating Solution Alternatives

Once the potential approaches to implementing a new childcare solution have been identified, the State should follow a relatively rigorous process for examining the fit and feasibility of each option under consideration. As noted above, each option has its advantages and disadvantages and the true test is how well any specific solution under consideration will meet the specific State's needs, available resources, and technology strategy.

In general, the process to examine the project and technology options is referred to as an “Alternatives Analysis.” An alternatives analysis can be conducted by an individual, often contracted, or a small team, that possesses program knowledge, financial analysis skills, and the ability to assess legal and financial considerations related to system ownership and implementation.

The first step in conducting the alternatives analysis is to identify the basic criteria that will be used to evaluate the possible alternatives considered. The analysis should address the following questions:

- Does the solution meet the agency’s business objective and system requirements and does it do this in an efficient manner?
- Does the solution meet all of the legal and regulatory requirements?
- Can the solution work within the agency’s technical structure and capabilities?
- What are the specific constraints and risks involved in implementing the solution?

Each of these criteria indicates specific analyses that the alternatives analysis should include.

Meeting the Business Objective and System Requirements

To be a viable solution, the alternative under consideration must be able to address the program objectives, administrative requirements, and system requirements of the childcare program. The IT project will not succeed if it does not help the agency achieve its vision as defined by agency leadership. Most State government agency administrators are responsible to political stakeholders that may have strong views regarding the operations of State government. Many technically successful projects fail because they do not meet the needs of key stakeholders or diverge from the stated direction of agency leadership. In reviewing the alternative approaches to system development, the political context in which decisions will be made must be kept in mind. Agency leadership, and other critical stakeholders, if appropriate, should be interviewed to determine whether there are particular constraints that need to be considered in the alternatives analysis process.

Assuming that one or more of the alternatives under consideration involves a currently implemented system (such as a system in another State) or an available COTS product, the alternatives analysis can assess the scope of functionality available in the system, how closely it meets the requirements of the State childcare program, and how easy the application is to use and implement.

There are various ways to assess an existing application. The State may see whether there is existing documentation available. This documentation may include user manuals, product or system descriptions, a list of requirements used to develop the system (for a system in another State), or demonstration versions of the software. If the State is seriously considering a project procurement, one preprocurement step may be to issue a Request for Information (RFI) to solicit information from interested vendors. Either as part of an RFI, or as a separate activity, the State may also ask vendors to demonstrate their software to interested staff from the childcare program and the technical services unit. If the State is leaning strongly toward implementing another State’s childcare system, it also may be possible to schedule a visit to the other State for an inperson demonstration of the software. Visiting another State, or States, can have the added

advantage of hearing firsthand the types of implementation issues (including training requirements and system acceptance by staff) that resulted, as well benefits that have been gained, from the implementation of the system.

One major consideration in assessing any system alternative, however, is the ease with which agency workers, providers, and clients can use the system. If system users find it difficult to navigate or enter data, the system may increase staff workload, rather than improving staff efficiency. This is a difficult aspect of the application to judge prior to implementation. However, to the extent possible, it is important to assess how information is organized in the application, how users view and enter data, and what is required to maintain and operate the application. A usability assessment for a functioning system typically includes comparing a system to the State's specified design standards and then assessing how users interact with the system to perform their work. As noted above, it is very advantageous to visit, or at least speak with, organizations that have direct experience using the software.

Legal Analysis

State government information systems are subject to an ever-expanding and sometimes complex array of laws and regulations with which the State must comply; often there also is "guidance" which must be adhered to for approval by State and Federal Agencies that control the funding for the system. Such requirements may include

- security and privacy of information;
- restrictions on information system usage, such as Internet access;
- fraud avoidance requirements;
- software ownership related to the use of public funds (especially relevant if COTS products are being considered);
- Federal and State requirements for approval;
- access for physically challenged users; and
- procurement rules that may impact the selection of the alternative.

It is essential that States identify all of the legal and regulatory requirements that are relevant to the IT project. The State will want to identify and recognize these requirements prior to assessing the detailed functional and technical attributes of the potential options as these may impact the judgment of the various alternatives. For example, a State may have restrictions on purchasing proprietary software (software that is purchased, but the vendor maintains control over the use, modification, and distribution of the programs). If so, this will affect whether certain COTS products can be considered. Finally, States often have various regulations that define preferences or requirements when procuring vendor services. Limitations regarding procurement can be taken into account as decisions are made about whether to use an in-house or a vendor-developed information system.

Technical Analysis

A State should assess whether it can implement the technical approach within the agency's current technical architecture (network, hardware, software) and whether the approach is consistent with the State's IT plans for future. The technical approach for a new childcare system may have to be consistent with the IT strategic planning of other State human services and

related programs. For example, if the State chooses to adopt Electronic Benefit Transfer (EBT), online card technology for its State-sponsored services (e.g., SNAP, WIC, or TANF), an alternative that includes a swipe card solution to track time and attendance for subsidized childcare may be more feasible to implement and be seen as consistent with the overall technology direction the State is taking.

In assessing alternatives from a technical perspective, it is important to determine whether they may require equipment or skills that are not currently available in the agency. If an alternative requires a considerable investment in new hardware, the cost of the hardware must be factored into the analysis comparing possible alternatives.

Evaluating the Constraints

Assessing whether a solution fits within the known constraints is an important component of a feasibility analysis. The most common constraints are cost, time, and scope. Cost constraints refer to the available resources for system development and maintenance. For example, a great data-mining product may be available that can profile cases and determine which are at greatest risk for resulting in an improper payment, but the agency must have adequate funds for its acquisition and implementation.

Agencies also may have specific time constraints stemming from requirements related to State or Federal legislation, or based upon commitments made by the childcare program administration. One or more alternatives may require more time to implement and may not allow the childcare program to meet deadlines that have been promised to stakeholders. For example, an agency may be able to develop a solution or integrate a system that meets the stated user requirements, but the timeframe for this development may exceed a requirement set forth in legislation or a budget appropriation.

Analyzing and Tracking Risks

The purpose of a Risk Analysis is to identify possible situations that, if they were to occur, might inhibit the success of the project. By identifying potential risks as early as possible, the project staff can develop contingency plans to address them if they occur, or strategies for ameliorating the conditions that lead to them so that the risks are prevented or reduced.

Risks for an IT project may derive from many factors. Risks may be related to implementation concerns (e.g., staff resistance to the changes that new automation will bring) or very specific activities within the project (e.g., lack of available childcare staff to perform acceptance testing of the system once it is developed).

While some risks are largely the same for all alternatives, such as potential loss of State funding before the project is completed, other risks are different for each alternative. The following are some examples of risks that may be associated with one of the solutions under consideration by the State:

- Enhancing an existing system, if based on obsolete technology, may pose a challenge for retaining staff with the requisite skill sets to maintain the system, or the development of the system enhancement itself may overburden existing staff.

- Risks for implementing a COTS product include the substantial reliance on the company that owns the product and the possibility that licensing and maintenance costs will increase over time.
- A major risk in transferring another State's system is that the project may find that the functionality is not as compatible with the State's business processes as was thought when the transfer was selected. The need to perform extensive modifications to the software may lead to costs (and time) that exceed the initial project estimates.

Potential project risks of each solution can be weighed against the advantages of the solution to determine the viability of each option under consideration.

Cost-Benefit Analysis

Once the State has narrowed down the technical alternatives to replacing or enhancing the childcare information system, including the possibility of an enterprise system to accommodate multiple programs, it is important to assess the expected benefits and costs of pursuing the IT project. A cost-benefit analysis (CBA) may be used to assess the costs and the expected benefits of one or more of the alternatives under consideration. Doing so will not only help in selecting the alternative solution but will provide important justification for the IT investment itself.

The State likely will do a CBA only for the most promising of the technical approaches as determined by the alternatives analysis. In some cases, only one solution will be deemed to meet the State's needs and the CBA will be done for this option alone.

A typical CBA includes estimating direct costs, quantifying benefits, and evaluating the impact on existing systems and business processes. A CBA usually estimates both one-time costs and recurring or ongoing costs (e.g., licensing fees, customer support, operations and maintenance costs).

One-time costs are generally the costs of the IT project per se. These costs should be examined across the full term of the project and should include costs associated with the following:

- Site/facility
- Hardware and software
- State personnel
- Vendor services (for all contracted services)
- Training
- Organizational change management and other implementation activities

The time and effort (cost) of the State's childcare staff's involvement in the project may be an important factor in determining the overall cost of the project. For example, childcare staff are likely to be needed for defining the requirements, verifying that the system design will work in practice, testing the system once it is developed, and implementing organizational changes.

Recurring, or ongoing, costs should also be examined. These are the costs of operating the system once it is implemented. The State should consider the costs over multiple years up to the expected life of the new system. Potential categories for recurring costs are

- equipment leases and maintenance;
- software licenses and maintenance;
- personnel (ongoing operations staff);
- operations (backup and recovery, security);
- training;
- travel; and
- utilities.

Evaluating benefits against which the costs can be compared, depends to some extent on the objectives and scope of the planned information system project. In most cases there are both quantitative benefits (that can be directly measured) and qualitative benefits (generally intangible benefits). Typical categories of benefits to consider in the CBA are the following:

- Quantitative Benefits
 - Reduced costs
 - Reduced staffing
 - Improved staffing utilization
 - Increased productivity
 - Faster response times
 - Fewer manual functions
 - Increased resources
 - Reduced errors
 - Reduced fraud
- Qualitative Benefits
 - Improved customer satisfaction
 - Increased accessibility
 - Increased worker satisfaction
 - More timely reporting
 - Improved security

Benefits should be assessed using objective metrics to the extent possible. The financial benefits of implementing the system alternative should be estimated as these can be directly balanced against the costs of implementing the alternative solution. Ultimately the costs of the selected solution will be compared against the dollar savings to judge the true cost of implementing the new automation. The following is an example of calculating benefit savings for one particular type of new automation.

If one of the solutions includes a new portal to provide potential clients with Web-based access to the system so that they can apply for childcare services directly, the automation may not only provide increased access to services (an intangible benefit), but it may also reduce staff time (a measureable cost savings). For example, if the average conversation with a potential client requires 10 minutes of worker time that would be reduced or eliminated with the implementation of Web-based client access, the cost benefit could be estimated as follows:

- The number of telephone conversations with potential clients is reduced from 5,000 per year to 1,000, a reduction of 4,000 conversations per year.

- The average conversation requires 10 minutes of worker time, plus an additional 5 minutes to complete required documentation for a total of 15 minutes per conversation.
- The average hourly salary, benefits, and overhead cost per worker is \$50.
- The financial benefit in terms of reduced worker time would be calculated according to the following formula:
 $(4,000 \times 15/60) \times \$50 = \$50,000$ for the first full year of system operations.

Obviously, the benefits are realized once the new automation is implemented. Estimating these benefits provides a perspective on both the dollar savings and service improvements that may be realized for one or more of the solution alternatives being considered.

All costs and benefits of each option under consideration should be judged against the status quo (in essence, the costs and benefits of maintaining the current system and scope of automation) as well as against each other.

Although the complexity of the CBA undertaken by the State will depend on the level of investment and scope of automation under consideration, some degree of CBA is warranted for any significant IT project. Prior to engaging a major IT investment, it is critical that all parties involved in the decision to go forward are clear about the project's estimated costs, as well as what will be gained by implementing the new automation.

The final step in the CBA process is calculating the return on investment (ROI) over a system's life cycle. An ROI calculation includes costs, savings, benefits, and the ability to meet strategic objectives. This kind of assessment also includes one-time costs (e.g., hardware, software, and data conversion) and recurring costs for enhancements and customer support. An ROI calculation also should include benefits such as reduced staff time for performing each work function; cost savings from fewer improper payments; cost savings from reduced fraudulent claims; and other benefits that are not easily quantifiable, such as an increase in public trust and an increase in customer satisfaction.

IV. INITIAL PROJECT PLANNING

Once a State has evaluated the alternatives available for acquiring the new automation, the next step is initial project planning. In this phase, the primary considerations are how long the project is expected to take; who will manage and oversee the progress, quality, and resolution of issues; and who will perform the various services required to carry out the IT project. Before starting this project planning effort, it is important to understand the typical phases of a major IT project. The following describes the high-level phases that comprise a typical IT project.

Major Project Activities

An IT project must proceed in an organized and structured manner to ensure that the end product (the new automation) includes the intended functionality and is successfully implemented. For this reason, all major projects follow a set of structured activities, each of which builds upon the activities performed and products produced in the preceding stage. These activities are often

referred to as the System Development Life Cycle (SDLC), which is intended to be a disciplined and structured path for IT projects. The primary activities that comprise the SDLC of a major IT project are described below.

- **Requirements Definition and Validation**—The SDLC begins with the initial steps required to plan for the IT project. Although the principles and processes for analyzing needs and defining requirements were discussed earlier in this part of the *IT Guide*, these activities are, in fact, the first phase of the SDLC. However, once the IT staff (whether the State’s own staff or a vendor) begin the process they usually will wish to hold a series of meetings to review and validate the requirements and to clarify any areas that require further information or discussion. This requirements validation exercise may result in requirements being modified, deleted, or added to fully describe the system that is to be designed. Such changes should be documented in the State’s requirements tracking tool.
- **System Design**—System design follows the requirements definition and validation phase. The system design specifies the manner in which functions will be implemented in the application. Developers will use the system design documents to develop the programming code or to configure the system to perform the functions as specified in the requirements. The design process should involve extensive discussions with experienced agency staff and other stakeholders, as well as the IT staff responsible for creating the system. The amount of design work required for any specific IT project depends upon whether the automation is being built from the ground up, or a product or transfer system is being implemented. If a product or transfer is being implemented, the level of design work is predicated on the amount of modification and configuration required to make the system perform as needed by the State.
- **System Development and Configuration**—After the system design phase, product development begins. During the development phase, programmers write the technical code in the selected system development language that operationalizes the system design. A product or transfer implementation may involve little or no actual programming work depending on how well the product or transfer system fits the State’s business processes.
- **System Testing**—Development is followed by testing, which often is an iterative process during which components of the system are tested on their own and then the system is tested as a whole. If this is a new development effort, the IT staff or the vendor will be testing the modules of the system as they are developed (unit or system testing), with later testing by users (user acceptance testing) to ensure that the system performs as they expected. There may be a phase of pilot testing during which the application is installed at one or more sites to test that the new system operates effectively in the “real life” environment. During the course of all testing, system failures (“bugs”) are reported, rectified, and retested.

- **Implementation**—A number of activities are required for successful implementation of new automation in the childcare organization. Implementation includes training the agency staff on how to use the new system, implementing all support structures required (e.g., help desks), and installing and turning on the system (often referred to as “going live”).
- **Maintenance and Operations**—Once a system is implemented and fully operational, it must be maintained and updated, as needed, to support changing agency requirements and conditions. After the implementation of new technology, it is possible that issues will arise that were not discerned during the initial testing. Remediation of issues and possibly enhancements of the system that are determined to be necessary are usually implemented via maintenance releases to the software.

These phases describe the typical activities performed in an IT project and are often sequential in nature. Each project phase is completed and verified before the next phase occurs; this is often referred to as the “waterfall” approach to a project. However, there are other ways to conduct an IT project. For example, some large scale projects are implemented in an iterative fashion. In this approach, one module of the system is planned, designed, developed, tested, and implemented, while other modules are being designed and developed and tested as other iterations. The iterative approach allows some functionality to be released before the full system is developed. However, it does require that great care is taken to assure that all modules work well together and that each new release does not disrupt the functionality already implemented.

Regardless of project approach, an IT project requires constant management to ensure that the work performed proceeds according to the established schedule, is done within the budget set for the project, and that all products of the project (e.g., design documents) are of sufficient quality to advance the project and to result in a quality information system once implemented. Every IT project requires a project management structure and a quality assurance process to ensure that this occurs.

In-House versus Contracted Services for IT Projects

After identifying the work that must be done during the course of the project, including the management and quality assurance functions, a State must decide whether the work can be done by its own staff (in-house) or requires procuring services from a vendor (contracted). The decision of whether in-house staff will perform the work or a contract will be sought with a vendor applies to the following services:

- **Project Planning**—Project planning was discussed earlier in this document and involves a wide range of activities including evaluating needs, defining requirements, assessing alternatives, and evaluating the costs and benefits of the new automation project. Although these activities can be performed by State staff, some States prefer to hire firms with experience in these detailed analyses to conduct the assessments.
- **Design, Development, and Implementation (DD&I)**—These are the central activities for creating and implementing the new automation. Specialized skills are required to design the new automation, to program and/or configure the software, to test the new software, to prepare the hardware and network infrastructure for the new

- application, and to prepare the organization and system users for the implementation. For major IT efforts, States often seek the assistance of companies that specialize in IT services (often referred to as system integrators).
- **Project Management and Quality Assurance**—Even when a system integrator is hired to perform the DD&I services, States must still perform project oversight and quality assurance services throughout the project. For complex projects, States may decide to hire a vendor, separate from the DD&I vendor, to assist the State in managing the project and to provide oversight of the DD&I vendor’s work. These services are typically titled quality assurance (QA) or independent validation and verification (IV&V) services.
 - **Maintenance and Operations**—Maintenance and operations refers to the activities that are required to ensure that the system remains functional following implementation. In the past, almost all new information systems, once implemented, were maintained and operated by the State’s IT staff and were housed on the State’s computers. Although this is still true for most new systems, depending on the solution that has been implemented, there may be an option to have the system “hosted” by an external vendor. This means that the application and database are housed outside of the State’s own technology infrastructure and the vendor is responsible for maintaining the software and performing day-to-day tasks (such as backing up and managing disaster recovery when the system fails). Although there is a cost for these hosting services, and hosting services are not always available for every solution alternative, this can be cost effective in some situations. The technical staff of the State likely will determine whether this arrangement is worth evaluating as part of the IT planning effort.

The following presents some of the advantages and disadvantages of conducting the IT project primarily using State staff (in-house) or contracting with vendors to perform the project.

In-house

The first option is the in-house approach to system management and development. In this approach the State is fully responsible for the design, development, management, testing, training, and implementation of the system. Although certain vendor staff may be involved to augment the skills of existing State staff (through a new contract or an existing maintenance contract¹), the success or failure of the new system to meet the childcare agency’s information needs and achieve the agency vision is wholly the responsibility of the State. The State is responsible for managing the day-to-day project operations; assessing and resolving issues and risks; developing and executing training and change management activities; and assessing organizational and system readiness for implementation.

¹ Some State IT departments use contractor personnel on an ongoing basis or hire IT personnel through contracts to augment the State’s IT personnel for specific projects. Contractors acquired on this basis are often acquired through State master agreements from which vendors can be selected or under existing maintenance agreements with IT vendors. Since a major procurement effort for staff augmentation is not required, these arrangements are considered under the in-house model discussed in the IT Guide.

Agencies that typically embrace this approach have the fiscal and personnel resources, time, and expertise to perform custom system development or to implement COTS products. Given the limits on State and agency budgets, there almost always are competing demands for in-house development resources that have to support both new development and maintenance activities. For this reason, it often is difficult for State IT departments to dedicate sufficient technical resources for a major IT project.

Even when a State has a well-staffed IT department, the State should determine whether the IT department has the project management capabilities to manage a major system implementation. This recognizes that a major IT project usually requires dedicated management personnel to oversee the progress, resolve ongoing project issues, maintain plans for all phases of the project, and evaluate the products required to move the project forward (requirements, design documents, testing plans, and the developing application itself).

The advantages of employing the in-house/staff approach for an IT project are that

- the State has greater control over project resources and timelines;
- the personnel assigned to the project are familiar with the business operations of the program;
- there is little to no learning curve regarding the existing technical environment; and
- the approach enables the State to avoid long-term dependence on, or financial obligation to, an outside vendor.

Disadvantages of the in-house approach include the following:

- The approach requires State IT personnel who may be needed to support other development or maintenance tasks.
- State staff may not have the experience in system design and integration that is needed for the project.
- The State does not receive the benefit of new “outside” ideas that a contractor can provide.

Contracted Project Services

States often consider contracting when their internal development staff is fully engaged on other projects, or when moving to a different technical environment in which their current staff members do not have the requisite skills and experience. Additionally, some States recognize that they do not have the requisite project management structure or personnel to manage a major IT development effort. IT projects require a mix of business analysts, programmers, trainers, and testers that often are not available from within existing staff in the numbers required by the planned IT project.

Contracting project development offers some significant advantages over an in-house approach:

- Contractors have, or can obtain, staff with the appropriate technical skill and experience.
- Contractor resources may be more flexible than those of the State, so it is easier to adapt to changes that impact the project schedule.

- The design and development process may be more efficient, and result in lower costs or a shorter schedule than an in-house team might have required.
- The approach may enable moving to a new technical environment that would not have been possible using in-house staff.
- Project risk is shared between the State and the contractor, rather than falling exclusively on the State agency.

The contractual approach to system development also has significant disadvantages:

- The approach may require greater financial outlays.
- Changing regulations, policies, or processes may require expensive and time-consuming change orders to enable the contractor to comply.
- It may be more difficult to adequately communicate program mission, goals, and service requirements to contract personnel.

If the IT project requires vendor assistance to develop or implement the new automation, or the State plans to acquire a COTS product, the State should determine its method for procuring the services or products. The procurement guidance included in the next section, describes the activities involved in preparing and evaluating an RFP, which is the typical vehicle for soliciting bids from available vendors.² An RFP may be issued for the solicitation of any contracted resources, generally including the purchase of a COTS product, the transfer of another State system, or development of a new system.

V. DEVELOPING AN RFP

If a State decides to solicit competitive bids for services from a vendor or to purchase a COTS product, the usual procurement method is through an RFP. An RFP must clearly describe the responsibilities that the selected vendor will have and any requirements that must be met by the vendor in performing the services, including the specific requirements of the system that will be provided or built by the chosen vendor.

Although the RFP must be clear about the requirements for services and products, States should consider aspects of the RFP that will unduly limit the number of vendors that can qualify. In general, the State will want to encourage as many competent bidders to respond as possible. This will encourage competition, allow the State the maximum latitude in selecting a project approach and/or technical solution, and will ensure that bidders will be cost conscious in their responses. The best balance in an RFP is to prescribe as much as is needed to ensure that the project fulfills all of the State's requirements, while allowing as much room as possible for vendors to propose their own solutions and approaches.

² A more limited vehicle for acquiring services and products includes Requests for Qualifications (RFQs). The differences between these various methods of procurement relate to the degree to which the State can make its selection based on more than the "low bidder".

RFP Overview

An RFP is a written solicitation that conveys to vendors information about materials or services that the State intends to purchase. Many States use an RFP process to solicit proposals for IT solutions from vendors and select the proposal that provides the best value, a concept that is discussed later in this section. Two strengths of the RFP process are its procedural clarity and flexibility in soliciting innovative, value-added solutions to complex business needs and problems. Procedural clarity is especially important in the current, sometimes contentious, public procurement environment. To address such concerns, most States have developed standard language and formats for RFPs that conform to all legal requirements and procurement procedures. This “boilerplate” material serves as the starting point of any RFP.

The new generation of human services systems, including those that support childcare programs, often involve complex and varied technical and design aspects. These design issues often are essential to the functionality of business processes and cannot be decided on a purely objective cost basis. The RFP and its associated process offer a structured manner in which vendors can propose solutions to these complex requirements.

Key Success Factors

Each State must follow its own clearly articulated RFP process that is compliant with State law and regulation. Within that existing framework, the success or failure of an RFP depends on a number of key factors. The following section discusses many of those factors and includes guidance on establishing an effective team, developing a plan, defining requirements, and using components of a successful RFP, which are those that

- contain the input of relevant stakeholders;
- provide a well-conceived vision of the client’s desired outcome and business needs;
- clearly state the requirements that the system must meet to help the agency achieve the vision; and
- define the criteria on which the State bases its acceptance or rejection of the vendor’s proposal.

Establishing an RFP Development Team

Putting together the right team to develop an RFP is one of the initial and most important steps in the RFP process. Drawing on the appropriate individuals who represent key stakeholder groups helps establish buy-in of key stakeholders, especially frontline workers or other users of the system. Additionally, childcare systems are complex, as are the issues related to the acquisition of any new IT architecture. To address this complexity, the ideal RFP team would include a procurement specialist, a policy representative from each program involved, an end user from each program, and an IT business analyst. Depending on the nature of the need and potential solutions, other key stakeholders may be involved at different points in the process, including legal counsel, budget representatives, and more specialized IT staff members, such as a security officer, systems architect, and database administrator.

Developing a Procurement Management Plan

Once the team is established and trained, the first order of business is creating a procurement management plan that describes all of the phases and activities involved in the procurement process. The plan keeps the RFP team focused and prevents critical items from being overlooked and deliverable dates from being missed. Having the team develop the plan as one of its first activities engenders ownership among team members. The procurement management plan should clearly identify the responsibilities of each person involved in the procurement process from the time the RFP is written to the final evaluation of proposals received.

The following issues are important to address in the procurement management plan:

- How much time should be allotted for bidders to develop their proposals? For major projects, enough time should be allowed to receive clear and complete responses to the RFP.
- Will the State hold a bidder's conference after the RFP is released? A bidder's conference provides an opportunity for prospective bidders to ask questions and to receive clarifications about specific aspects of the RFP.
- Will the State entertain additional questions throughout the RFP process? If so, the State should have a process for addressing the questions. State responses must be made available to all prospective bidders to maintain fairness throughout the process. A specific deadline for final questions and State responses should be established. The final responses should be published well before the deadline for proposals to ensure that all bidders can accommodate any changes that result from clarifications of the RFP.
- How much time will the State require to evaluate submitted proposals and to process the decision through State agencies to reach a final award decision? The time required for these activities will determine the projected award date for the contract.
- Will the State conduct a Best and Final Offer (BAFO) phase after deciding on one or more of the potential vendors, based on their proposals? The BAFO activity is usually done to explore possible cost reductions from the proposer's original pricing or to clarify the work, deliverables, or approach described in the proposal. A State may decide to request a BAFO response only from the highest-rated vendor or may include more than one vendor in this process. Since this phase involves a significant amount of time and effort for both the State and the vendors, only vendors with a legitimate chance of final selection should be included.

The procurement plan should include the schedule for the release of the RFP, the dates/time/place for the bidders' conference (if one will be held), the proposal submission date, and the projected date for award of the contract.

Establishing an Online RFP Document Library

To assist vendors in preparing their proposals in the most responsive manner possible, State agencies often create a procurement document library. The library should contain all of the procurement documents, such as the RFP and any amendments or questions and answers. Additionally, the library should include any program descriptions, performance data, and other

materials that will increase the vendors' understanding of the programmatic issues the new system is expected to address. Documentation of the legacy system should be included so that potential vendors can understand the problems the system poses with regard to meeting current information needs. Also, any technical standards with which the system must comply, and technical descriptions of the State's system infrastructure should be included. Documents resulting from the earlier phases of the system development process, such as reports outlining the agency vision, goals, and objectives; detailed business process flows and descriptions; and system requirements are often included in procurement libraries.

The goal of a procurement library is to provide all potential vendors with as much information as possible to enhance their understanding of the agency. The library provides background information necessary to assist vendors in proposing the most appropriate system solution. To the extent feasible, procurement library materials should be available online. Some materials may only be available in hard copy, for various reasons. They should be described in the online library and made available for review at specific times and locations open to all vendors. Some documents, such as technical descriptions of the existing system infrastructure, may be considered sensitive. The State can require vendors that desire access to such documents to sign a release that requires them to maintain confidentiality, where appropriate.

Writing the RFP

Successful RFPs clearly and succinctly communicate the State's business needs, outline performance expectations, include necessary technical specifications, and provide a balanced set of terms and conditions that mitigate risk without driving up the bid cost.

Once the RFP development team understands the full needs of all end users, the State can decide whether the RFP will identify a specific solution or will be open to any solution that meets the business needs of the childcare program. In most cases, RFPs will focus on desired outcomes, incorporate both short- and long-term goals for the requested solution, and define the criteria on which a State will base its selection of the vendor. Generally, States should leave respondents as open to proposing innovative or cutting-edge technologies and project approaches as possible and should allow for a wide range of vendors. However, the degree of openness of the RFP will depend on whether the State has already determined that there is a preferred COTS product or system transfer that best meets its needs. Ideally, States should strike a balance between specifications that focus on the desired outcome of procurement and how the IT system must perform once implemented.

In order to inform bidders of the scope of the automation to be provided or developed, it is common for States to include their system requirements for the IT project. As discussed earlier in this guide, providing excessive detail about how the system will function precludes vendors from proposing innovative and efficient approaches that will best serve the State's business needs.

Although many vendors may be able to submit a competent and compliant proposal in response to the RFP, it is essential that the State have the ability to evaluate the vendor's capability to perform the work they describe. The RFP should require that proposers supply current and past project references for projects similar to one covered in the RFP. Vendors should be required to demonstrate in their proposal that they have the necessary knowledge, skills, and experience to perform all components of the work for which they will be responsible. In particular, vendors

should be required to document that the individual project staff they are proposing for key roles have the necessary experience. Otherwise the vendor may document its corporate experience but not include as key personnel those individuals who contributed to that experience. The RFP should require that vendors describe their corporate and proposed staff experience in doing similar projects and their experience working with childcare and related programs.

Establishing Acceptable Terms and Conditions

States typically use standard terms and conditions in their contracts. These generally are part of the State boilerplate for all procurement documents, although some States allow modifications. To the extent possible, sharing these terms or a draft of terms as an appendix to the RFP, instead of during the negotiation, helps vendors assess their risk and liability and more accurately account for these factors in their bid. Some States have mandatory terms and conditions that assign all or the majority of risk to the vendor as a means of safeguarding public funds. These limitations of liability (or unlimited liability) clauses often do not reflect the terms and conditions in similar contracts in the commercial sector, which share the risk among parties. For this reason, some vendors may pass along the cost of this risk to the State in their bid or choose not to bid at all.

The National Association of State Chief Information Officers (NASCIO), and the National Association of State Procurement Officials (NASPO) both have published materials regarding IT procurement practices, including briefs discussing specific terms and conditions included in State contracts that may limit the number of vendors choosing to bid on projects and drive up the cost of bids among vendors that choose to bid.³

Avoiding Common Mistakes

Many of the following tips are adapted from Karl M. Kapp's *Winning E-Learning Proposals: The Art of Development and Delivery*.⁴ Avoiding these common mistakes can help States effectively procure the products and services necessary to meet their business/service objectives:

- *Poorly written or illogical content*—Despite their enormous importance, RFPs are notoriously poorly written. Vendors are more likely to bid on a well-written RFP. In addition to standard writing procedures, such as using a technical editor, writers of RFPs may want to include diagrams, examples, and reference additional available documents such as an agency's strategic plan, descriptions of the existing technical environment, and a synthesis of the stakeholder needs.

³See, for example, NASCIO publications on procurement at <http://www.nascio.org/publications/researchBriefsSubject2.cfm?category=28>. NASPO references a number of articles on IT procurement issues at https://www.naspo.org/content.cfm/id/it_procurement.

⁴Karl M. Kapp (2003). *Winning E-Learning Proposals: The Art of Development and Delivery*. J. Ross Publishing, Inc. Preview available at

http://books.google.com/books?id=ZAvJ_DPLnbAC&printsec=frontcover&dq=Karl+M.+Kapp%E2%80%99s+%E2%80%9CWinning+E-Learning+Proposals:+The+Art+of+Development+and+Delivery&source=bl&ots=6H-cdA-Gde&sig=NQoeYfNcCgJ63ucJMxpkOfgnELk&hl=en&ei=BTmvTcmhM4Le0QGK1tyfAQ&sa=X&oi=book_result&ct=result&resnum=2&ved=0CB8Q6AEwAQ#v=onepage&q&f=false

- *Providing too little detail*—Vendors cannot help meet business needs or solve problems if there is too little information about the current business process, technological infrastructure, or user requirements. Sharing information about the current technical environment helps vendors understand the gap between current operations and their proposed solution. Clearly stating the requirements and project constraints helps vendors to assess and propose viable solutions.
- *Lack of imagination*—The RFP process is a good time to brainstorm internally and think of a variety of alternative solutions. As the SOA approach has gained acceptance among States, more RFPs are calling for web-based services that can be used across the enterprise by multiple programs. Additionally, the advent of framework technology creates new possibilities to leverage a single software product across multiple programs. Looking to the experience and solutions used in other industries with similar functions may produce new, innovative ideas.
- *Poorly scoped*—Poorly scoped RFPs typically overstate or understate the business needs and the level of effort. Overstating the needs and level of effort may cause vendors to inflate the potential cost of the project. Conversely, understating them may lead to under-budgeted bids that later result in significant change orders and cost increases. Discussing lessons learned with other States can help a State avoid this problem.
- *Failing to account for business needs*—If the RFP does not clearly include the statement of business needs and the desired outcomes, the quality of all other aspects of the RFP process does not matter. If vendors know the business needs driving your RFP, they can leverage their knowledge to help identify a solution.
- *Overly strict interpretation of the “Cone of Silence”*—Many States maintain strict requirements related to interaction between State personnel and vendors, particularly during the RFP process. This is often referred to as the “Cone of Silence.” Vendors possess great knowledge of industry practices and technological capabilities that can be valuable to the RFP team in understanding the external environment and identifying potential options. Finding acceptable ways for the RFP Team to have access to this vendors’ knowledge could significantly benefit the project. Options for acceptable interaction with vendors include issuing a Request for Information (RFI); issuing a draft RFP for comment; holding a pre-bid conference; and providing time for “discovery” during which vendors interview and observe State and local staff so that they better understand the business processes and challenges.
- *Unclear business needs or unclear deliverables*—Vendors build greater contingency into their bids to mitigate the risk associated with unclear business needs and/or unclear deliverables.
- *Unlimited liability terms*—The industry standard for liability of IT services is shared liability. Language requiring unlimited liability drives up the cost of the bid because the vendors must cover their risk.

- *Deliverable-based payment schedules*—If payment schedules are not based on a good estimate of the costs associated with deliverables, then vendors may end up fronting costs, and the cost of this “loan” to States is accounted for in the bid.
- *Hiring a separate independent verification and validation (IV&V) vendor*—For contracts requiring development, many States hire independent vendors to do verification and validation to ensure quality. In addition, most sophisticated vendors have their own IV&V process as part of their normal course of doing business. If a State does not hire an independent vendor, verification and validation should be included in the contract with the development vendor. Although there is additional cost, use of an IV&V vendor offers an additional level of independence.
- *Unnecessary constraints*—Unnecessary constraints can increase costs, precluding vendors from using innovative approaches to meet the business need. Unless the service or product purchased is narrow in scope, it is better to state the business need and see how the vendor responds, than to presume a solution and place multiple constraints on the bid.

Evaluating Proposals

The procedure for evaluating proposals in response to the RFP should be clearly stated in the RFP. The number of points, or percentage of total score, assigned to each of the major groups of evaluation criteria should be clearly stated in the RFP. Details about membership of the evaluation committees or the specific evaluation procedures should not be included in the RFP. However, these details should be developed before the RFP is released.

States typically use a prescribed evaluation methodology that combines several elements, including cost, quality of the proposed approach, and experience and skills as shown in company and proposed staff references. RFPs generally specify that, to be evaluated according to the aforementioned criteria, the proposal must be deemed responsive (i.e. that it is complete and meets all of the requirements of the RFP and that the vendor has agreed to all terms and conditions (e.g., meeting the performance bond requirements, adhering to State laws and regulations related to contracts with the State). The State may find it useful to develop a spreadsheet that includes all of the critical elements that the system and the proposal that describes the solution must meet. These elements should be grouped according to the major evaluation categories and use the weights assigned to the category in the RFP. Within a category, however, individual items in each category can be prioritized and weighted.

The following are some important considerations related to the proposal evaluation process.

- Evaluate the vendors’ technical and management processes to ensure compliance with State and agency policies and procedures.
- Make certain that proposers clearly delineate any required software purchases, software license fees, and ongoing maintenance or supports that will become the responsibility of the State once the system is implemented.
- If the vendor will be supplying a COTS product, ensure that the vendor has the organizational capacity to support the product over the long term.

- Carefully examine and qualify the personnel proposed for the project and determine whether the vendor has committed the necessary management, programmatic, and technical expertise and experience to successfully complete the project.
- Be certain that the vendor describes its contingency plan in case critical staff members become unavailable during the project.
- For the final two or three vendors being considered, States may consider visiting a reference site to observe the product or service. If the vendor is known to have built childcare or similar benefit systems in States that they did not list as a reference, it may be prudent for State representatives to contact their counterparts in the unmentioned States to determine whether there were problems that the vendor has not disclosed.
- The State also may consider requesting that the final vendors provide a demonstration of the system or functionality they are proposing. Such demonstrations and oral briefings from the top few applicants offer an excellent opportunity to clarify unanswered questions in the proposal, view the proposed software solution, gain exposure to the key personnel included in the proposal, and test the knowledge of the key personnel.

Best Value

The best-value concept has taken hold in many States as a better alternative to basing the vendor selection only on the best price. The best-value approach connotes a process for selecting the most advantageous solution by evaluating and comparing all relevant factors in addition to price.

Under this paradigm, a winning proposal may have a higher price, but provide greater quality and benefits for the State. Best-value factors may include long-term project benefits, cost avoidance, increased productivity, maintenance and replacement costs, cost versus technical superiority tradeoffs, vendor support, less risk, and enhanced user satisfaction. States should be aware that proposals with a significantly lower initial cost may be anticipating future change orders that will drive up the total cost of the project. Significantly lower cost bids could also be an indicator that the vendor does not fully understand the nature of the project effort required.

The following issues are among those that should be considered when implementing a best-value approach:

- Evaluating best-value bids is more complicated than evaluating bids based solely on price. Decision makers must make thoughtful decisions about the relative weight of different evaluation criteria. For example, what percentage of the overall evaluation will the State base on cost, corporate qualifications, the technical approach, and understanding the business/service need?
- States should make sure the data used to evaluate factors are reliable. Unless States clearly and carefully articulate evaluation standards, it can be easy to make subjective judgments.
- States should communicate the relevant factors that make up the evaluation criteria for a best-value bid to the vendor, as part of the RFP.

- The review team should be scrupulous in its use and documentation of rating factors. Inconsistent rating factors could lead to poor procurement choices and potential legal challenges that drive up cost and create project delays.

Summary

As States research and plan approaches to preventing, identifying, and addressing improper payments in their subsidized childcare programs, they often are faced with the challenge of upgrading their existing IT infrastructure or acquiring new IT products and services. With limited funding and the high cost and complex nature of many IT projects, it is important for States to make prudent procurement decisions to ensure that they meet business and service objectives on time and within budget.

The most important tasks in any procurement process are clearly defining the business needs and stating the desired outcomes or problem to be solved. Defining needs early in the process saves cost in every phase of the project life cycle.

In their procurement, States can choose either to specify the desired solution or articulate the problem and allow vendors to bid one or more solutions. To make this important decision, project team members must understand the current business processes and technical environment, research promising practices in other States and industries, prioritize the business requirements, and identify technical and other project constraints.

If the State cannot purchase the service or product from a State-approved vendor list, an RFP is the most likely procurement method to be used. Key factors to consider when developing a successful RFP include establishing an RFP development team that includes critical stakeholders, developing a procurement management plan, and putting together an RFP library for use by the team and prospective bidders.

VI. ADDITIONAL RESOURCES

Part II of the *IT Guide* has provided information related to the technology options for major IT projects and the various activities that can be used to evaluate these options and procure services based on the direction the State chooses to pursue. The following resources are also available to examine the processes involved in planning and conducting an IT project.

Administration for Children and Families, Feasibility, Alternatives, and Cost/Benefit Analysis Guide, July 1993

Although this guide is written for State programs that are required to submit Advanced Planning Documents (APDs) to acquire Federal funding for information system projects—such as the Federally funded Statewide Automated Child Welfare Information System program (SACWIS)—this resource provides detailed information about conducting indepth feasibility and alternatives studies and performing a cost/benefit analysis for a planned IT project implementation.

<http://www.acf.hhs.gov/programs/cb/systems/sacwis/cbaguide/index.htm>

Project Management Institute

The Project Management Institute (PMI) is an organization that provides guidance on, and standards for, all aspects of IT project management. PMI administers a training and certification program for project managers, and this certification sometimes is made a requirement for proposed project managers on major IT projects. The standards developed by PMI are referred to as the Project Management Book of Knowledge (PMBOK) which is currently in its fourth edition.

Although membership is required to obtain complete versions of most of their materials, membership is relatively economical (\$129 for a new, individual member).

<https://my.pmi.org/Pages/Default.aspx>

Article on COTS Advantages and Benefits

The below link will take you to a short article that discusses some of the advantages and disadvantages of using COTS products. The article provided by MITRE, a nonprofit company that works with the Department of Defense and other Federal agencies.

http://www.mitre.org/news/edge_perspectives/march_01/ep_king.html

National Association of State Chief Information Officers (NASCIO)

The website for this organization contains tools for, and case studies on, State initiatives and projects, and also contains information about emerging technologies related to public sector information systems. The lead IT person in most States will have knowledge of, and likely will be involved in, NASCIO.

<http://www.nascio.org/aboutNASCIO/index.cfm>

National Association of State Procurement Officials (NASPO)

The website for this organization contains numerous resources for assisting States in improving their procurement processes, including for IT projects. While it is a membership organization, many of its materials can be purchased and some are available, in part, at no charge.

<http://www.naspo.org/>

TechAmerica

TechAmerica is the organization of American technology corporations. It was formed through a merger of other organizations including the Information Technology Association of America. It offers numerous materials that may be of use, including conferences. Its resources may be reviewed at its Website.

<http://www.techamerica.org/>