



State of Wisconsin Department of Administration

Enterprise Resource Planning System Cost Refresh

An update of estimated costs from the ERP System Feasibility Study dated March 7, 2005

Presented by:

Information Services Group, Inc. Public Sector

February 22, 2013



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Mr. Mike Huebsch Department of Administration State of Wisconsin 101 E. Wilson Street, 10th Floor Madison, WI 53707

Dear Mr. Huebsch:

Information Services Group (ISG) Public Sector is pleased to present this report on the Enterprise Resource Planning System Cost Refresh project. As the State of Wisconsin (State) prepares to resume the State's PeopleSoft ERP initiative, we were engaged to update the *Enterprise Resource Planning System Feasibility Study* dated March 7, 2005. As the former Salvaggio, Teal & Associates (STA), we assisted the State with the 2005 feasibility study, process documentation, and requirements definition activities that led to the acquisition of the PeopleSoft software that is to be the foundation of the ERP initiative.

Although market conditions have changed in the years since the 2005 study, a great deal of progress has been made in terms of software functionality and in the collective experiences of ISG, state governments, and systems integrators. During our 15 year history, ISG Public Sector has participated in statewide ERP engagements for 17 states. We are currently providing ERP consulting services for nine states: Alaska, Arizona, Kentucky, Michigan, Minnesota, Mississippi, Texas, Washington and West Virginia. As such, we have used market information, actual results from comparable projects, and lessons learned from those projects to refine our updated cost estimates for the State's ERP initiative.

The estimated cost of the implementation project and an overview of our project approach are provided in the Executive Summary. Additional details regarding cost estimates, fiscal year funding requirements, and expected costs of maintenance and support are described in the body of the report.

We appreciate this opportunity to be of service to the State and will be available to assist the State in its ongoing planning processes. If you have any questions or require additional information regarding our report, I can be reached at my cell phone, (512) 970-0745, or at my e-mail address, nathan.frey@isg-one.com.

Sincerely,

Nathan L. Frey Partner

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Executive Summary

Background and Objectives

In November 2004, the State of Wisconsin (State) engaged Salvaggio, Teal & Associates (STA) to perform a business case analysis (BCA) to determine whether the State's aging financial, procurement, human resources, and payroll systems should be replaced by an integrated enterprise resource planning (ERP) system. The resulting BCA, released in March 2005, indicated that the State could achieve significant benefits and a positive return on its investment in an ERP system.

The Integrated Business Information System (IBIS) initiative began in June 2005. Following a competitive procurement process in August 2005, the State awarded a contract to STA to assist the State's project team in documenting "As-Is" and "To-Be" business processes and in developing a comprehensive set of functional and technical requirements that would support the acquisition of an integrated ERP solution for the State's "To-Be" business processes. The requirements prepared by STA were included in a Request for Proposal (RFP) for software that resulted in the State's purchase of PeopleSoft from Oracle Corporation (Oracle) in August 2006.

STA's work on the IBIS project concluded with completion of the system requirements, and we did not assist in the development of the software RFP or contract negotiations with Oracle. STA has since continued to expand our list of clients to include 17 statewide engagements. We are presently assisting the following States with their statewide ERP initiatives: Alaska, Arizona, Kentucky, Michigan, Minnesota, Mississippi, Texas, Washington and West Virginia. We return the State's ERP initiative with an increased array of market observations, real-world project experiences, and lessons learned from other states that we will use to assist the State in planning and estimating a new path forward for the ERP initiative.

In January 2013, the State engaged Information Services Group (ISG) Public Sector to "refresh" the costing component from STA's original *Enterprise Resource Planning System Feasibility Study* dated March 7, 2005 (the Study). The services provided in this cost refresh project are a natural continuation of our prior service to the State. Based upon our understanding of the State's plans for the PeopleSoft ERP initiative, we have identified the following objectives that the State wishes to achieve in preparing for the software implementation:

- Update and confirm the State's desired implementation scope and phased timeline for costs and timing of activities associated with the PeopleSoft ERP initiative; and
- Update implementation cost estimates from STA's original Study dated March 7, 2005 to reflect the State's current plans and market conditions for implementation and ongoing support of a statewide PeopleSoft ERP system.



Project Approach

Our project approach for this engagement was based upon our ERP Acquisition Methodology tailored for the specific circumstances and needs of the State. This methodology has been successfully applied in each of our statewide engagements. Our work for the State included the following adaptation of our standard methodology to address the present needs of the PeopleSoft ERP project.



The highlighted phases of our tailored methodology (as applicable) are described in the Project Methodology and Approach section of this report. Within these phases we utilized ISG's proven Business Case Analysis (BCA) Methodology to conduct this project. ISG has successfully applied its BCA Methodology in assisting the following states, with legacy administrative system environments similar to Wisconsin's, in evaluating the extent to which investing in a statewide ERP system would be business justified:

- Arizona
- Kansas
- Louisiana
- Minnesota
- Mississippi
- Tennessee

- Texas
- Virginia
- Washington
- West Virginia
- Wisconsin

Major Assumptions Pertaining to ERP Cost Refresh

Following are the key, high-level assumptions applicable to the ERP Cost Refresh. A full description of all significant project assumptions is included in the body of our report.

Scope of Planned ERP Initiative

An ERP system is a suite of fully integrated software applications that are used to perform administrative business functions such as financial management, procurement, human resource management, and payroll. What distinguishes ERP systems from a collection of stand-alone, best-of-breed applications is the integration that enables more efficient processing and eliminates redundant data entry and system reconciliation tasks.



The functionality provided by ERP systems is usually provided in major functional groupings, or modules, that typically address the major administrative functions within state government. Certain additional ERP features cross all functional modules such as: automated workflow, electronic approvals, security, reporting, business intelligence, and data warehousing.

The PeopleSoft ERP software acquired by the State in August 2006 addresses the functionality necessary to accomplish the ERP project objectives defined by the State. Following are the functional areas included in the scope of the State's planned ERP initiative:

Financial Management

- → General Ledger & Budgetary Control
- → Accounts Payable and Travel
- → Accounts Receivable and Billing
- → Grants Management
- → Project Management
- → Cost Accounting/Allocation
- → Asset Management
- → Cash Management
- → Federal Highway Administration Federal Aid Billing

Procurement & Logistics*

- → Solicitations
- → eProcurement
- → Vendor Self-Service
- → Contract Management
- → Warehouse Inventory Management

- Budget Development
- Data Warehouse/Business Intelligence
- Human Resources / Payroll
 - → Position Control
 - → Classification and Compensation
 - → Personnel Administration
 - → Payroll Administration
 - → Time Reporting / Employee Leave Accounting
 - → Recruitment and Applicant Services
 - → Benefits Administration
 - → Learning Management
 - → Employee Self-Service

The existing legacy applications used to support the aforementioned functional areas would be replaced with the new, statewide ERP system. All non-higher education State agencies would utilize this new, fully integrated ERP system to meet their financial management and human resource management needs of the State. Higher education institutions would retain their own financial and human resource management systems, reporting summary financial and payroll information via electronic interfaces.

Assumed ERP Implementation Phasing and Timeline

For the purposes of this analysis, it was assumed that the implementation would be a "Big Bang" deployment (i.e., all ERP functionality within scope would be simultaneously deployed to

^{*}Final procurement scope to be determined



all agencies) first for financial management, procurement and logistics, and then for human resources and payroll.

The timeline below presents the planned phasing for the ERP implementation project. This timeline has an assumed project start date of July 1, 2013.

Anticipated Timeline for Implementing an ERP System.

As the timeline above indicates, it is assumed that the project will be conducted in three (3) phases:

Phase 0: Plan & Procure

This phase will be a six-month effort to initiate planning and to procure ERP implementation services. The State has this phase underway. The State is funding Phase 0 from current administrative sources, so the estimated costs for this phase are not included in this report.

Phase 1: Financial Management / Procurement Implementation

This phase will be a 24-month effort to implement financial management, procurement, and logistics functionality (that will begin July 1, 2013 and will have a go-live date of July 1, 2015, the beginning of the State's 2016 fiscal year). Immediately following go-live will be a 6-month vendor-led post-implementation support effort.

Phase 2: Human Resource / Payroll Implementation

This phase will be an 18-month effort to implement human resource and payroll functionality. The first 6 months of Phase 2 will run concurrent to the financial management post-implementation support effort. Immediately following go-live will be a 6-month vendor-led post-implementation support effort.

Note that these assumptions were required for ISG to produce this report and may not necessarily be the deployment order and timeline ultimately chosen for the ERP implementation project.



Summary Results of Cost Refresh

Based on the planned scope and timeline, the implementation cost of the State's ERP initiative is estimated as follows:

Estimated Implementation Cost of Planned ERP Initiative

Cost Categories	nancials / ocurement	Н	R / Payroll	Total
ERP Software License & Team Training				
(including software maintenance: 24 months for				
FI/PU, 18 months for HR/Payroll)	\$ 4,500,024	\$	2,927,524	\$ 7,427,548
Selection, Oversight, and Staff Augmentation				
Services	\$ 3,679,999	\$	3,804,285	\$ 7,484,284
Integrator Consulting Services	\$ 38,728,060	\$	28,866,030	\$ 67,594,090
Third Party Interface Assistance	\$ 1,125,459	\$	1,032,668	\$ 2,158,126
State Team Members				
(100% backfill positions for State project team)	\$ 12,803,906	\$	9,457,891	\$ 22,261,796
Technical Infrastructure	\$ 4,969,440	\$	5,119,267	\$ 10,088,707
Project Facilities & Equipment	\$ 1,188,302	\$	568,947	\$ 1,757,250
Subtotal	\$ 66,995,190	\$	51,776,612	\$ 118,771,802
Contingency	\$ 10,586,503	\$	9,313,156	\$ 19,899,659
Total	\$ 77,581,693	\$	61,089,768	\$ 138,671,461

Please note that the total cost presented above includes a reserve for contingency of approximately \$20 million (based on 20% of effort-related cost categories). Furthermore, the cost of the ERP initiative would be incurred over approximately 4 fiscal years between FY 2014 and FY 2017.

Concluding Observations and Suggestions

In the ERP marketplace, there is an ever growing list of "lessons learned" in relation to ERP projects, in general, and many specifically focused on public sector ERP projects. Therefore, we would like to share the following observations and suggestions as the State moves forward with the ERP initiative. By addressing what we believe to be some of the most pertinent lessons learned, the State can begin its ERP initiative on a solid path toward success.

Because systems integration services represent the single largest cost item in an ERP project, the State should seek to hire a qualified and experienced systems integrator through a competitive procurement process. The procurement should require definitive commitment from the selected systems integrator to deliver all State requirements via a fixed-price, deliverables-based contract.



- The State should commit to staff the internal project team with the "best and brightest" among State staff. A successful statewide ERP project requires both central administrative knowledge and agency-level representation to address the functional requirements and business process impacts throughout State government. By staffing the project with a dedicated team of experienced State resources, the State will increase the likelihood that the new system will meet State business needs and be better positioned to assume full responsibility for the new system following the vendor-led post-implementation support periods.
- To preserve the State's ability to support and upgrade the new ERP system over the long term, the State should limit modifications to the software in favor of business process change where at all possible (e.g., unless required by statute). This approach will avoid many of the future difficulties encountered by other projects that struggled with the consequences of too many modifications to the base software.
- Budgeting for contingencies is a necessary part of planning an ERP project. Of their very nature, ERP projects span multiple fiscal years and contain elements of risk that may be unknown at the time of project initiation. For a project of the scope and timeline of the planned ERP initiative, unexpected events will occur that will have a direct or indirect cost impact to the project.

By budgeting for a reserve for contingencies, management can establish appropriate expectations that may avoid second-guessing of the project when unexpected events do occur. Furthermore, having available contingency funding will allow the project to react to such events in a timely manner without losing undue time (and possibly incurring even greater cost) to secure the necessary funds to proceed.

* * * * *



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Project Approach and Methodology

Our project approach for this engagement was based upon our ERP Acquisition Methodology tailored for the specific circumstances and needs of the State. This methodology has been successfully applied in each of our statewide engagements. Our work for the State included the



following adaptation of our standard methodology to address the present needs of the PeopleSoft ERP project.

ISG Methodology Tailored for PeopleSoft ERP



The highlighted phases of our tailored methodology (as applicable) are described in the Project Methodology and Approach section of this report. Within these phases we utilized ISG's proven Business Case Analysis (BCA) Methodology to conduct this project. ISG has successfully applied its BCA Methodology in assisting the following states, with legacy administrative system environments similar to Wisconsin's, in evaluating the extent to which investing in a statewide ERP system would be business justified:

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- Mississippi
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- Texas
- Virginia
- Washington
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- Wisconsin

Phases of ISG's Business Case Analysis Methodology



The services requested by the State are addressed primarily in Phases 2 and 4 of our BCA methodology. Working with the State in Phase 2, we refreshed our understanding of the planned ERP initiative, identified project objectives, and helped the State establish a preliminary deployment strategy and implementation timeline for the project. In Phase 4, Identify & Analyze Costs, Benefits & Risks, we applied our significant experience assisting public sector clients in evaluating, selecting, acquiring, and implementing integrated enterprise-wide



systems. Our strategy was to rely on this experience, as well as direction from State personnel, to provide inputs to our costing analysis. To develop the detailed estimate, we utilized our proprietary estimating model, which incorporates estimating standards/metrics and provides an overall framework for the cost estimate.

In applying our methodology, we begin with a detailed, "bottom-up" estimate of the cost to implement and operate the statewide ERP system. The results of this detailed estimate are then compared on a "top-down" basis to other comparable statewide ERP projects to confirm the reasonableness of our estimates.

The major estimating factors used in ISG's proprietary model include:

- Estimating the number of consulting hours that would be required to implement the functional modules within the planned scope of the ERP initiative. The estimated number of hours addressed the following services:
 - → Project management;
 - → Pre-implementation services/project oversight;
 - → ERP software installation, configuration, and reengineering of the processes supported by the ERP system, in order to leverage the best-practices processes inherent in modern ERP system;
 - → Custom development, including:
 - Automated interfaces,
 - Software modifications/enhancements,
 - Custom report development,
 - Data conversion and loading,
 - Workflow development, and
 - Forms development;
 - → Organizational change management; and
 - → End-user training and documentation.

After estimating the total number of consulting hours, we estimated the "loaded" consulting rate for each role assumed to be provided by vendors. The term "loaded rate" refers to an hourly rate that includes labor and travel-related costs. The loaded rate was then multiplied by the total estimated project hours to determine the total cost of vendor-provided implementation services.

For State personnel, we estimated the total hours, applied a benefits-loaded rate, as well as a backfill percentage of 100%, to calculate the cost of State personnel. Backfill refers to hiring new personnel to staff the project or hiring new personnel to replace agency staff while they are assigned to the project.



- Estimating the costs of other services and project components associated with acquiring and implementing the ERP system, which included the following:
 - → Project team training;
 - → Technical infrastructure and support for production environment;
 - → Technical infrastructure for all non-production environments (e.g., servers, system software, relational database management system, and networking infrastructure);
 - → Technical infrastructure and support for a production environment; and
 - → Project facilities and equipment.
- Estimating the cost of application software annual maintenance fees, as well as ongoing cost of operating and supporting the system after being placed into production. For software licensing and maintenance fees for the PeopleSoft software, we relied up the established costs in the State's license and maintenance agreements. The remaining estimates were based on our extensive experience with similar statewide ERP system implementations.

After completing the detailed estimate, we performed a top-down comparison of key elements from our proprietary estimating model to the actual experiences of other states in order to validate that our estimate was in line with what other state projects of similar size and scope have experienced.

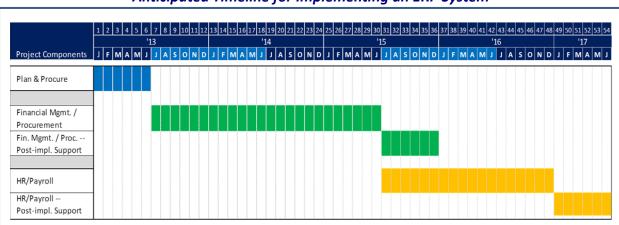


Key Estimating Assumptions

The primary assumptions pertaining to migrating to an ERP system follow.

Anticipated Project Timeline

The timeline below was utilized in the development of the ERP cost estimate.



Anticipated Timeline for Implementing an ERP System

As the timeline above indicates, it is assumed that the project will be conducted in three (3) phases:

Phase 0: Plan & Procure

This phase will be a six-month effort to initiate planning and to procure ERP implementation services. The State has this phase underway. The State is funding Phase 0 from current administrative sources, so the estimated costs for this phase are not included in this report.

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Note that these assumptions were required for ISG to produce this report and may not necessarily be the deployment order and timeline ultimately chosen for the ERP implementation project.

For comparative purposes, the table below contains information regarding the timeline strategies that were employed by nine (9) states for their respective statewide ERP projects. Under "Financials/Procurement" and "HR/Payroll", "All" means either all organizations or all modules were implemented simultaneously. "Phased" means that either the agencies or modules were implemented using a phased approach. "Duration" provides the length of the implementation, as well as the length of the post go-live support. If a range is provided, the first number indicates the number of months from inception until the first deployment, and the second number indicates the number of months for the entire implementation. The column "Overlap with HR/Payroll" indicates whether there was, or will be, overlap between the Financial modules or Human Resources (HR) modules implementation.

	Finan Procure	cials / ement	Dura	tion	Overlap with	HR/P	ayroll	Duration			
State	Agency Timing	Module Timing	Implementation	Post Go-Live	HR/Payroll	Agency Timing	Module Timing	Implementation	Post Go-Live		
Alaska*	All	All	24 months	Extended	No	All	All	18 months	Extended		
Arizona*	All	All	24 months	15 months	No	N/A	N/A	N/A	N/A		
Arkansas	All	All	15 months	3 months	Yes	All	All	15 months	3 months		
Kansas	All	All	24 months	6 months	No	N/A	N/A	N/A	N/A		
Louisiana*	Phased	All	27 months	3 months	No	N/A	N/A	N/A	N/A		
Minnesota	All	All	24 months	6 months	No	N/A	N/A	N/A	N/A		
Mississippi*	All	All	30 months	6 months	Yes	All	All	30 months	6 months		
Tennessee	Phased	All	24-33 months	6 months	Yes	All	All	26 months	6 months		
Kentucky *	N/A	N/A	N/A	N/A	No	All	All	21 months	6 months		

State ERP Implementation Duration Schedule

Note that the National Association of Auditors, Comptrollers and Treasurers (NASACT) in its 2012 Financial System Survey, *The Challenge of Change*, cited two years as the expected implementation time period for a financial system implementation.

Assumed Functional Scope

An ERP system is a suite of fully integrated software applications that are used to perform administrative business functions such as financial management, procurement, human resource management, and payroll. What distinguishes ERP systems from a collection of stand-alone, best-of-breed applications is the integration that enables more efficient processing and eliminates redundant data entry and system reconciliation tasks.

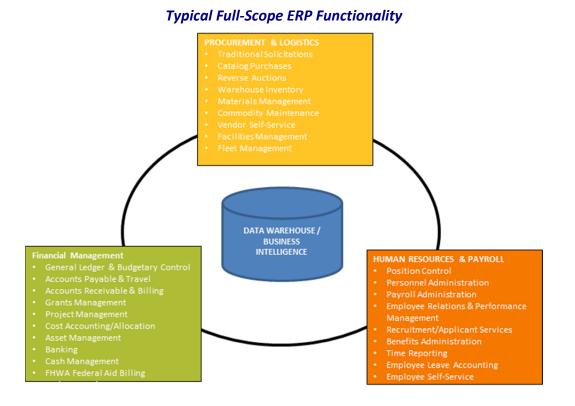
The functionality provided by ERP systems is usually provided in major functional groupings, or modules, that typically address the major administrative functions within state government.

^{*}Planned implementation duration



Certain additional ERP features cross all functional modules such as: automated workflow, electronic approvals, security, reporting, business intelligence, and data warehousing.

The following graphic depicts the primary functionality that is typically included in an ERP system.



The PeopleSoft ERP software acquired by the State in August 2006 addresses the functionality necessary to accomplish the ERP project objectives defined by the State. Following are the functional areas included in the scope of the State's planned ERP initiative:

Financial Management

- → General Ledger & Budgetary Control
- → Accounts Payable and Travel
- → Accounts Receivable and Billing
- → Grants Management
- → Project Management
- → Cost Accounting/Allocation
- → Asset Management

- Budget Development
- Data Warehouse/Business Intelligence
- Human Resources / Payroll
 - → Position Control
 - → Classification and Compensation
 - → Personnel Administration
 - → Payroll Administration
 - → Time Reporting / Employee Leave Accounting



- → Cash Management
- → Federal Highway Administration Federal Aid Billing
- Procurement & Logistics*
 - → Solicitations
 - → eProcurement
 - → Vendor Self-Service
 - → Contract Management
 - → Warehouse Inventory Management
 - *Final procurement scope to be determined

- → Recruitment and Applicant Services
- → Benefits Administration
- → Learning Management
- → Employee Self-Service

The existing legacy applications used to support the aforementioned functional areas would be replaced with the new, statewide ERP system. All non-higher education State agencies would utilize this new, fully integrated ERP system to meet their financial management and human resource management needs of the State. Higher education institutions would retain their own financial and human resource management systems, reporting summary financial and payroll information via electronic interfaces.

Other General Assumptions

The following assumptions were used as the foundation for developing the refreshed cost estimate. This estimate is consistent with the State's plans and assumptions regarding the approach for implementing the statewide ERP system, as documented in this report.

- The implementation project will be conducted in two phases, as discussed above under Anticipated Project Timeline.
- The assumed hourly rates for each identified implementation role was multiplied by the estimated level of effort (i.e., hours) for each role over the implementation period. This estimating process yielded an average hourly, expense-loaded rate of \$203 for the ERP systems integrator and a rate of \$195 for the project oversight contractor. These average hourly rates are consistent with ISG observations of market rates for each type of service.
- The cost of State project team and ongoing support roles was estimated on the basis of an average project team salary of \$65,774, marked up for an average benefits overhead rate of 46%. Assuming that 9.6% of staff hours are unavailable due to various forms of leave (e.g., sick, vacation, holiday), there are approximately 1,880 hours per year available to the project. Over the implementation period, these calculations yielded an average hourly, benefits-loaded rate of \$53 (inclusive of the inflation assumptions described below).



- The cost estimate reflects the assumption that the State will backfill (e.g., hire replacement staff or new staff) for approximately 100% of the cost of the State team members assigned to the project.
- The cost estimate includes only incremental costs for State resources. Costs related to positions that are not backfilled (e.g., agency employees participating in periodic design sessions or system testing) are assumed to be borne by the employing agency and will not be reimbursed from ERP project funds.
- An average annual inflation rate of 2% was assumed for the 10-year planning period.
- An ERP software upgrade will occur during Year 7 (FY 2020) of the planning period.
- The implementation work effort will be conducted using a ratio of approximately 1.1 State resources for every 1.0 contractor (i.e., non-State) resource.
- ISG's proprietary ERP cost estimating model was used to develop the cost estimate. Input into the model was based on our experience with similar ERP projects for state and large local governments and on assumptions provided by the State's project leadership.

Line Item Cost Assumptions

The assumptions that follow pertain to specific line items in the schedule of Estimated Costs by Fiscal Year of Implementing and Operating a Statewide ERP System that is presented below in the Results of Cost Estimate section of this report. Note that the summary schedule is divided into two primary sections, (1) Implementation and (2) Ongoing Operations, that represent a "total cost of ownership" view of the ERP initiative.

Implementation

Systems Integrator - Implementation

This cost category includes all Systems Integrator staff work effort required to successfully implement the ERP and third-party software (as necessary) across State government in accordance with the assumed implementation approach described above.

Following is a description of the major component of the Systems Integrator Implementation cost category.

System Configuration and Deployment Services

This category includes the Systems Integrator's effort pertaining to:

- Project management;
- "To-Be" business process design that will be enabled and supported by the ERP system;



- Software configuration in accordance with the defined "To-Be" business processes;
- Testing (participation in unit, integration, system, and stress testing, and support for acceptance testing);
- End-user training and documentation;
- Knowledge transfer; and
- Deployment (roll-out) support.

Technical Infrastructure Support and Customizations

This category includes the Systems Integrator's effort pertaining to:

- Technical architecture and infrastructure design;
- Database administration;
- Systems programming;
- Security configuration;
- Customizations
 - \rightarrow Forms,
 - \rightarrow Reports,
 - → Automated interfaces,
 - → Data conversion/loading,
 - → Software enhancements, and
 - → Workflow configuration;
- Business Intelligence and Data Warehouse implementation and support;
- Testing (participation in unit, integration, system, and stress testing, and support for acceptance testing);
- Knowledge transfer; and
- Deployment (roll-out) support.

State Team Members (including benefits)

This cost category includes all State project team members' work effort required to successfully implement the ERP and third-party software (as necessary) across State government in accordance with the assumed implementation approach described above. Following is a description of the major component of the State Team Members cost category.



System Configuration and Deployment

This category includes the State team member's effort pertaining to:

- Project management;
- "To-Be" business process design that will be enabled and supported by the acquired ERP system;
- Software configuration in accordance with the defined "To-Be" business processes;
- Testing (participation in unit, integration, system, and stress testing, and execution of acceptance testing);
- End-user training and documentation;
- Knowledge transfer; and
- Deployment (roll-out) support.

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This category includes the State team members' efforts pertaining to:

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- Business Intelligence and Data Warehouse implementation and support;
- Testing (participation in unit, integration, system, and stress testing, and execution of acceptance testing);
- Knowledge transfer; and
- Deployment (roll-out) support.



Project Oversight

It is assumed that the State will engage an independent project oversight consultant for the duration of the ERP implementation period. Ongoing project oversight activities include (but are not limited to):

- Facilitating issue and problem resolution;
- Monitoring project timelines and deadlines (including submission of deliverables) per the
 detailed project plan; variances from the planned schedule must be researched and
 contingency plans established, where necessary, to ensure that the project remains on
 schedule;
- Conducting periodic risk assessments and leading risk mitigation efforts;
- Preparing monthly progress reports to project executive management;
- Planning and conducting executive and management briefings;
- Reviewing project deliverables to ensure that they meet standards for deliverables;
- Performing project milestone reviews;
- Scrutinizing the quality of vendor performance;
- Managing contract specifics between vendor and the State (including enforcement of penalties, when necessary);
- Monitoring project scope and project budget;
- Delivering periodic written status reports to executive management; and
- Providing overall project guidance and direction.

Third-Party Integration Support

Third-party integration support is the estimated cost of engaging third-party vendors to enhance their systems in order to interface their systems with the new statewide ERP system, as well as provide assistance in developing the requisite interfaces. This line item represents the estimated funding that would be required, if the State chooses to compensate agencies for such third-party costs.

Team Training

This estimate includes the costs to train the State project team members on the ERP and third-party software included in the implementation (if applicable). Note that end-user training costs are included in the systems integrator and State project team categories. It is assumed that end-user training will be delivered primarily by the systems integrator with a ratio of 2.0 systems integrator FTEs for each 1.0 State FTE.



Software License

It is estimated that the State will pay approximately \$3.3 million to restore Oracle maintenance and support for the PeopleSoft ERP software. This is reported in the estimated cost schedules as a software license fee.

Ongoing Software Maintenance

Our estimate of the ongoing software maintenance is based on information provided by Oracle Corporation to State staff. Note that the software maintenance fees shift from the "Implementation" portion of the cost schedule to the "Ongoing Operations" portion once the applicable phase goes live. We assume that all annual maintenance fees will begin in Year 1 of the initiative.

Technical Infrastructure

This category is intended to provide a high-level estimate of data center and infrastructure costs and is based on ISG's experience with similar statewide ERP projects. These are, principally, the costs to establish and operate the development and production environments for the new ERP system. The hardware and technical infrastructure estimates include the following elements:

- Processors
 - → Application/database server(s) processing hardware
 - → Maintenance and server upgrades
 - → New server operating system software and server operating system upgrades and maintenance
- Data Storage and Management
 - → Disk/Storage Area Network (SAN) capacity
 - → RDBMS Software
 - → Maintenance
- Systems Management and Security software
 - → Transaction monitoring software
 - → "Middleware" such as gateways
 - → Testing tools and software
 - → Batch scheduling tools and software
- Communications



- → LAN/WAN upgrades
- → Telecommunications costs
- Backup/Disaster Recovery
 - → Hardware costs
 - → Software costs

Some states have contracted with a vendor to host the ERP development environment. Under a hosted scenario, at go-live, the ERP development environment would be migrated into a State-operated development environment. For this estimate, we have assumed that the development environment will be in a State-operated environment and have estimated the Production and Development Environment cost category accordingly.

ERP Project Facilities and Equipment

We estimated the cost of ERP Project Facilities and Equipment based on input from State management and our experience with similar statewide ERP implementation projects and included the following in our estimate:

- Office space for the project team
- Training facilities
- Furnishings staff workspace
- Furnishings conference rooms/training rooms
- Computers for project team members
- Phone lines
- Internet (circuits, cabling)
- Copiers/faxes/printers
- Office supplies

Contingency

A reserve for contingency has been included to address any additional costs that have not been included in our estimates. The need for contingency funds could result from uncertain project-related items and/or other conditions or events that are unknown at project initiation. The 20% reserve rate was based on our discussions with State management regarding risk tolerance and our experience with a number of other statewide ERP implementations. The annual contingency amount was calculated as 20% of the respective, combined total estimated annual cost of the following cost categories:

- Systems Integrator Implementation
- Project Oversight
- State Team Members (including benefits)
- Third-Party Integration Support
- State Agency Support (including benefits)



Ongoing Operations

Systems Integrator

A number of States have found it beneficial to maintain a consulting presence to help support the ongoing operations. Accordingly, we have estimated that the State will have an ongoing Systems Integrator presence of 3 FTEs to help resolve any technical or functional issues and serve as part of the ongoing operations support team.

Consultant Support for Upgrade

Based on ISG's prior experience with state and local governments in performing ERP software upgrades, we assumed that it will require systems integrator support of approximately 21 FTEs over a one-year period (estimated at 40,320 hours) to perform a software upgrade of the new ERP system. This estimate assumes a major upgrade of the existing functional and technical capabilities.

State Staff and Benefits

State staffing and benefits for ongoing operations assume the following staffing levels in each of the following operations areas:

Ongoing Operations Area	FTEs
Functional Support	23
Technical Operations and Support	10
Ongoing Training/Help Desk	9
Management of Ongoing Operations	3
Total	45

Staffing for Ongoing Operations

It is assumed that State resources will fill these positions at the same average compensation rates described above for the State implementation team. In developing estimates for this category, we took into consideration the staffing levels of other states and ISG's prior ERP experience. Also, the assumption was made that the best and brightest resources from the State's implementation team will fill these ongoing operations and support positions.

Software Maintenance

Refer to the assumptions pertaining to Software Maintenance described above.



Production & Development Environment

This is a high-level estimate of ongoing data center and infrastructure costs. It is based on ISG's experience with similar statewide ERP projects. Refer to the assumptions for the Technical Infrastructure category in the Implementation section above.

ERP Project Facilities & Equipment

This category includes our estimate of the annual cost of providing facilities and equipment for the ongoing ERP support effort. The estimates are based on input from State management and ISG's experience with similar statewide government ERP initiatives.



Results of Cost Estimate

Estimated Implementation Costs

The following three schedules present the estimated costs and level of effort required to implement an ERP system.



Estimated Cost to Implement a Statewide ERP System Bottom-up Estimate

Cost Categories	nancials / ocurement	н	R / Payroll	Total
ERP Software License & Team Training				
(including software maintenance: 24 months for				
FI/PU, 18 months for HR/Payroll)	\$ 4,500,024	\$	2,927,524	\$ 7,427,548
Selection, Oversight, and Staff Augmentation				
Services	\$ 3,679,999	\$	3,804,285	\$ 7,484,284
Integrator Consulting Services	\$ 38,728,060	\$	28,866,030	\$ 67,594,090
Third Party Interface Assistance	\$ 1,125,459	\$	1,032,668	\$ 2,158,126
State Team Members				
(100% backfill positions for State project team)	\$ 12,803,906	\$	9,457,891	\$ 22,261,796
Technical Infrastructure	\$ 4,969,440	\$	5,119,267	\$ 10,088,707
Project Facilities & Equipment	\$ 1,188,302	\$	568,947	\$ 1,757,250
Subtotal	\$ 66,995,190	\$	51,776,612	\$ 118,771,802
Contingency	\$ 10,586,503	\$	9,313,156	\$ 19,899,659
Total	\$ 77,581,693	\$	61,089,768	\$ 138,671,461

As indicated in the table above, and based on the assumptions described previously, it is estimated that the implementation of a statewide ERP system would cost approximately \$138 million. The schedule that follows presents the implementation costs in greater line item detail and by State fiscal year.



Estimated Costs by Fiscal Year of Implementing a Statewide ERP System

Phasing>	Financia	ls &	Procurement					
					HR/P	ayro	oll 🛕	
Project Phases/Component	FY' 14		FY' 15		FY' 16		FY' 17	Total
ERP Implementation								
Systems Integrator Implementation	\$ 11,977,248	\$	18,848,719	\$	19,393,788	\$	17,374,335	\$ 67,594,090
State Team Members (incl. benefits)	\$ 3,897,621	\$	6,452,501	\$	6,437,182	\$	5,474,492	\$ 22,261,796
Project Oversight	\$ 1,547,136	\$	1,578,079	\$	2,343,147	\$	2,015,922	\$ 7,484,284
Third Party Integration Support	\$ -	\$	1,059,210	\$	154,342	\$	944,574	\$ 2,158,126
Subtotal	\$ 17,422,005	\$	27,938,509	\$	28,328,460	\$	25,809,322	\$ 99,498,296
ERP Software & Team Training								
Team Training	\$ 630,000	\$	-	\$	-	\$	-	\$ 630,000
Software License	\$ 3,338,048	\$	-	\$	-	\$	-	\$ 3,338,048
Ongoing Software Maintenance	\$ 1,258,000	\$	1,258,000	\$	629,000	\$	314,500	\$ 3,459,500
Subtotal	\$ 5,226,048	\$	1,258,000	\$	629,000	\$	314,500	\$ 7,427,548
Technical Infrastructure	\$ 1,224,000	\$	3,745,440	\$	3,820,349	\$	1,298,919	\$ 10,088,707
ERP Project Facilities & Equipment	\$ 649,250	\$	539,052	\$	344,245	\$	224,702	\$ 1,757,250
Subtotal: Estimated ERP Project Cost	\$ 24,521,303	\$	33,481,001	\$	33,122,054	\$	27,647,443	\$ 118,771,802
Contingency	\$ 3,484,401	\$	5,587,702	\$	5,665,692	\$	5,161,864	\$ 19,899,659
Total Estimated ERP Project Cost	\$ 28,005,704	\$	39,068,703	\$	38,787,746	\$	32,809,308	\$ 138,671,461
Cumulative Total Estimated ERP Project Cost	\$ 28,005,704	\$	67,074,408	\$	105,862,153	\$	138,671,461	

The table that follows summarizes the level of effort associated with the estimated effort-based costs contained in the two preceding schedules.



Estimated Hours that Correspond to Effort-Based Implementation Costs

Phasing>	Financials	& Procurement			
			HR/Pa		
Project Phases/Component	FY' 14	FY' 15	FY' 16	FY' 17	Total
ERP Implementation					
Systems Integrator Implementation	58,480	94,720	95,040	84,960	333,200
State Team Members (incl. benefits)	78,568	125,177	120,633	99,013	423,392
Project Oversight	8,160	8,160	12,000	10,080	38,400
Third Party Integration Support	-	6,720	960	5,760	13,440
Subtotal	145,208	234,777	228,633	199,813	808,432
Total	145,208	234,777	228,633	199,813	808,432
Total State FTEs	41.8	66.6	64.2	52.7	450.4
Total Non-State FTEs	34.7	57.1	56.3	52.5	401.1
Total State FTEs / Total Non-State FTEs	1.2	1.2	1.1	1.0	1.1
Total State Hours	78,568	125,177	120,633	99,013	423,392
Total Non-State Hours	66,640	109,600	108,000	100,800	385,040
Total State Hours / Total Non-State Hours	1.2	1.1	1.1	1.0	1.1



Estimated Total Cost of Ownership

The following schedule presents a summary of the estimated costs to implement, operate, and maintain an ERP system over the 10-year planning horizon. The schedule contain the estimated implementation costs presented in the schedules above, plus the estimated cost to operate and maintain the ERP system through the end of the 10-year period.



Estimated Costs by Fiscal Year of Implementing and Operating a Statewide ERP System

Phasing>	Finan	ncials & Pr	rocurement	<u> </u>															
					HR/Payroll														
	Year 1	Y	ear 2		Year 3		Year 4		Year 5	Year 6		Year 7		Year 8	Year 9		Year 10		
Project Phases/Component	FY' 14	F	Y' 15		FY' 16		FY' 17		FY' 18	FY' 19		FY' 20		FY' 21		FY' 22		FY' 23	Total
ERP Implementation																			
Systems Integrator Implementation	\$ 11,977,248	\$	18,848,719	\$	19,393,788	\$	17,374,335	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$67,594,090
State Team Members (incl. benefits)	\$ 3,897,621	\$	6,452,501	\$	6,437,182	\$	5,474,492	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$22,261,796
Project Oversight	\$ 1,547,136	\$	1,578,079	\$	2,343,147	\$	2,015,922	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$7,484,284
Third Party Integration Support	\$ -	\$	1,059,210	\$	154,342	\$	944,574	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$2,158,126
Subtotal	\$ 17,422,005	\$	27,938,509	\$	28,328,460	\$	25,809,322	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 99,498,296
ERP Software & Team Training																			
Team Training	\$ 630,000		-	\$	-	· ·	-	\$		\$ -	\$	-	·	-		-	\$	-	\$630,000
Software License	\$ 3,338,048	-	-	\$	-	_	-	\$		\$ -	\$	-	-	-		-	\$	-	\$3,338,048
Ongoing Software Maintenance	\$ 1,258,000		1,258,000		629,000	_	314,500			\$ -	-	-	-	-		-		-	\$3,459,500
Subtotal	\$ 5,226,048	\$	1,258,000	\$	629,000	\$	314,500	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$7,427,548
Technical Infrastructure	\$ 1,224,000	\$	3,745,440	\$	3,820,349	\$	1,298,919	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$10,088,707
ERP Project Facilities & Equipment	\$ 649,250	\$	539,052	\$	344,245	\$	224,702	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 1,757,250
Subtotal: Estimated ERP Project Cost	\$ 24,521,303	\$	33,481,001	\$	33,122,054	\$	27,647,443	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$118,771,802
Contingency	\$ 3,484,401	\$	5,587,702	\$	5,665,692	\$	5,161,864	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$19,899,659
Total Estimated ERP Project Cost	\$ 28,005,704	\$	39,068,703	\$	38,787,746	\$	32,809,308	\$	-	\$ -	\$	-	\$	-	\$	-	\$	-	\$138,671,461
Ongoing Operations																			
Systems Integrator				\$	345,600	\$	518,400	\$	1,036,800	\$ 1,057,536	\$	1,078,687	\$	1,100,260	\$	1,122,266	\$	1,036,800	\$7,296,349
Consultant Support for Upgrade	\$ -	\$	-	\$	-	\$	-	\$	-	\$ -	\$	9,437,013	\$	- 1	\$	-	\$	-	\$9,437,013
State Staff and Benefits				\$	3,561,104	\$	3,978,499	\$	6,538,477	\$ 6,669,246	\$	6,802,631	\$	6,938,684	\$	7,077,457	\$	7,219,007	\$48,785,104
Software Maintenance	\$ -	\$	-	\$	629,000	\$	943,500	\$	1,258,000	\$ 1,283,160	\$	1,308,823	\$	1,335,000	\$	1,361,700	\$	1,388,934	\$9,508,116
Production & Dev Environment		\$	-	\$	1,273,450	\$	3,896,756	\$	5,299,588	\$ 5,405,580	\$	5,513,691	\$	5,623,965	\$	5,736,444	\$	5,851,173	\$38,600,647
ERP Project Facilities & Equipment	\$ -	\$	-	\$	114,748	\$	224,702	\$	129,045	\$ 131,626	\$	134,258	\$	136,944	\$	139,682	\$	142,476	\$1,153,482
Subtotal: Ongoing Operations	\$ -	\$	-	\$	5,923,902	\$	9,561,857	\$	14,261,909	\$ 14,547,148	\$	24,275,104	\$	15,134,852	\$	15,437,549	\$	15,638,389	\$ 114,780,711
Total Estimated ERP Program Cost	\$ 28,005,704	\$	39,068,703	\$	44,711,648	\$	42,371,164	\$	14,261,909	\$ 14,547,148	\$	24,275,104	\$	15,134,852	\$	15,437,549	\$	15,638,389	\$ 253,452,172
Cumulative Estimated ERP Program Cost	\$ 28,005,704	\$	67,074,408	\$	111,786,055	\$	154,157,220	\$	168,419,129	\$ 182,966,277	\$	207,241,381	\$	222,376,233	\$	237,813,782	\$	253,452,172	



Systems Integrator Implementation Effort Comparisons

Systems integrator costs are the single highest cost element in an ERP implementation. In completing this cost refresh for the State, we prepared a detailed estimate of the level of effort (i.e., number of hours) required for a systems integrator to implement the planned scope of work over the proposed implementation timeline. Our estimate indicated that approximately 333,000 hours of systems integrator effort would be required.

Additionally, as part of our BCA methodology, we compare the level of effort derived from our detailed estimation model to the level of effort bid by systems integrators on other comparable statewide ERP projects. By making this "top-down" comparison of effort, we are able normalize our comparison to other projects by removing the pricing differences inherent in bids submitted by various systems integration firms over the course of many years and varying market conditions. The following schedule compares the estimated number of systems integrator hours to three other comparable statewide ERP projects.

Comparison of Systems Integrator Implementation Hours (Finance/Procurement and HR/Payroll)

Comparable Project	# of System Integrator Hours
Wisconsin Estimate	333,200
Reference 1 - Vendor 1	322,000
Reference 2 - Vendor 1	230,000
Reference 2 - Vendor 2	335,000
Reference 2 - Vendor 3	421,000
Reference 3 - Vendor 1	457,000
Reference 3 - Vendor 2	356,000

Based on comparable ERP projects, we believe our estimated level of effort is appropriate for the State's planned ERP initiative.



Concluding Observations and Suggestions

In the ERP marketplace, there is an ever growing list of "lessons learned" in relation to ERP projects, in general, and many specifically focused on public sector ERP projects. Therefore, we would like to share the following observations and suggestions as the State moves forward with the ERP initiative. By addressing what we believe to be some of the most pertinent lessons learned, the State can begin its ERP initiative on a solid path toward success.

- Because systems integration services represent the single largest cost item in an ERP project, the State should seek to hire a qualified and experienced systems integrator through a competitive procurement process. The procurement should require definitive commitment from the selected systems integrator to deliver all State requirements via a fixed-price, deliverables-based contract.
- The State should commit to staff the internal project team with the "best and brightest" among State staff. A successful statewide ERP project requires both central administrative knowledge and agency-level representation to address the functional requirements and business process impacts throughout State government. By staffing the project with a dedicated team of experienced State resources, the State will increase the likelihood that the new system will meet State business needs and be better positioned to assume full responsibility for the new system following the vendor-led post-implementation support periods.
- To preserve the State's ability to support and upgrade the new ERP system over the long term, the State should limit modifications to the software in favor of business process change where at all possible (e.g., unless required by statute). This approach will avoid many of the future difficulties encountered by other projects that struggled with the consequences of too many modifications to the base software.
- Budgeting for contingencies is a necessary part of planning an ERP project. Of their very nature, ERP projects span multiple fiscal years and contain elements of risk that may be unknown at the time of project initiation. For a project of the scope and timeline of the planned ERP initiative, unexpected events will occur that will have a direct or indirect cost impact to the project.
 - By budgeting for a reserve for contingencies, management can establish appropriate expectations that may avoid second-guessing of the project when unexpected events do occur. Furthermore, having available contingency funding will allow the project to react to such events in a timely manner without losing undue time (and possibly incurring even greater cost) to secure the necessary funds to proceed.



Appendix A – ISG's Qualifications and Business Case Experience

During our 15 year history, ISG Public Sector (formerly STA Consulting) has participated in statewide ERP engagements for 17 states. We are currently providing ERP consulting services for nine states: Alaska, Arizona, Kentucky, Michigan, Minnesota, Mississippi, Texas, Washington, and West Virginia. Additional comparable engagements have been completed for the States of Arkansas, Kansas, Louisiana, Nebraska, Nevada, Tennessee, Virginia, Washington and Wisconsin. As such, ISG is uniquely qualified to assist the State with its ERP initiative for the following reasons:

- Our recent, relevant experience in providing business case/feasibility studies for 11 states, including Arizona, Kansas, Louisiana, Minnesota, Mississippi, Tennessee, Texas, Virginia, Washington (in progress), West Virginia, Wisconsin.
 - Each of those states (except for Washington) has used our studies as the basis for successful legislative funding requests and are in various project stages from software and services acquisition through post-implementation support.
- Our proven, proprietary ERP Business Case Analysis Methodology that we successfully employed in each of the statewide business case analyses that ISG has performed.
 - Our methodology and supporting tools enable us to perform business case analyses efficiently and effectively, minimizing the demands on client personnel, when combined with our subject matter expertise allows for the successful completion of the business case analysis.
- Our extensive experience in playing a lead role in ERP procurements undertaken by state
 and local governments, including PeopleSoft and the systems integration firms likely to bid
 on a statewide PeopleSoft implementation.
 - This experience gives us unique insights into the market dynamics and pricing that influence the software and services proposed by ERP software vendors and systems integrators.
- Our continuing relationships with our clients for which we have provided ERP-related services.
 - The ongoing, collaborative relationships that we enjoy with our clients give us access to upto-date information regarding the ongoing support and operations of their ERP systems. We are able to draw from these relationships in estimating the ongoing internal and external costs, as well as staffing requirements, necessary to support, operate, and maintain a statewide ERP system.
- Our understanding of the implications of ERP systems in a statewide environment and the complexities associated with integrating systems and agencies based on our experience with the statewide ERP projects noted above.
- Our considerable experience and skills in providing full ERP lifecycle integration oversight services to numerous public sector organizations.



This experience gives us unique insights into the costs, benefits, and risks associated with implementing and operating a statewide ERP system, which we draw from in providing our services.

- Our competitive rates for comparable experience and qualifications. Although we believe our services represent a "value" in terms of cost, we firmly maintain that our experience and qualifications in providing ERP-related services to state and local governments are unparalleled.
- Most importantly, our independence.

We maintain our independence with regard to <u>all</u> hardware, software, and systems integration vendors. Unlike most of our competition, we are not implementation partners (formal or informal) of ERP software or service providers, nor do we market any software or hardware products. We are truly independent in fact and appearance.

In summary, ISG Public Sector is the recognized leader in providing independent project oversight and implementation advisory services (both pre-procurement and during implementation). Our expertise in performing business case analysis, as well as providing other ERP-related services, is best evidenced by the fact that ISG Public Sector has been selected for every statewide ERP project for which we submitted a proposal since June 2002. For further information regarding ISG Public Sector, please visit our web site at www.isg-one.com/web/industries/public-sector/americas.asp.