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Technical/Management Proposal

for

Solicitation Number: 4TS-TT-01-0001

Introduction and Background

KPMG Consulting Background

KPMG Consulting, Inc. is a multinational corporation contributing to the systems modernization efforts of many of the world's largest governmental agencies and organizations. KPMG Consulting's in-depth knowledge and understanding of federal financial management systems was instrumental in being selected by the Defense Finance and Accounting Service to develop ***A Guide to Federal Requirements for Financial Management Systems (Blue Book),*** a comprehensive handbook of checklists and technical requirements for financial management systems. KPMG's CASMIS and KEYSTONE programs in AFMC exemplify the firm's systems development, data warehouse, decision support system, and program management expertise. Additionally, KPMG Consulting has recently been selected by the Department of the Navy to integrate two large scale Enterprise Resource Planning solutions in the Naval Air and Naval Sea Systems Commands.

Our use of our industry proven Project Management Methodology and Object-Based Systems Integration & Implementation Guidelines (OSiiG) combined with the Defense Information Infrastructure/Common Operating Environment, Joint Technical Architecture, Trusted Computing Base, and Global Combat Support System-AF guidelines will provide the overall structure for this effort. KPMG Consulting's Systems Development methodologies are based on the Software Engineering Institute's (SEI) Capability Maturity Model (CMM) for Software in that each phase details the necessary entry criteria, tasks, verification steps, and exit criteria to ensure phase objectives.

KPMG's designation as a CMM Level III Organization demonstrates our ability to meet the requirements and principles of the SEI CMM.

Task Objective

To provide the technical and programmatic skills necessary to develop and deliver a secure web application to allow seamless access to distributed relational data, improve information sharing/gathering among High Performance Computing Modernization Program (HPCMP) associated sites, standardize data exchange/reporting, and integrate operational data into a common information architecture. The web application will enable the HPCMP to better support its customers as it endeavors to supply and maintain high-performance computing to the DoD, other Government organizations, industry, and academia.

KPMG Consulting's Understanding of the Information Environment Requirement

High Performance Computing (HPC) is an important tool for DoD scientists and engineers as they seek to provide technological advantage to the warfighter. The knowledge gained and the resulting high fidelity models and simulation enabled by HPC have been growing rapidly. Service and Agency validated requirements to support these scientists and engineers exceed current department capabilities. To help address users' HPC needs, the High Performance Computing Modernization Program (HPCMP) operates four major shared resource centers (MSRCs) and provides high-speed networking services to connect the centers to each other and to the users. To supplement the MSRCs, the HPCMP has established distributed centers (DCs) throughout the Department of Defense (DoD).

In an effort to enhance the services provided to the HPC community by Service/Agency Approval Authorities (S/AAA), to simplify and standardize information exchange, and to increase effective administration of challenge and priority projects, the DoD HPCMP desires the establishment of a secure, web based Information Environment (IE). The goal of IE is to provide the HPC community, seamless access to distributed relational data, improve information

sharing/gathering among HPCMP associated sites, standardize data exchange/ reporting, and integrate operational data into a common information architecture.

This proposal describes KPMG Consulting's approach to provide automated data processing (ADP) related support and services to HPCMO in support of the IE requirement. For ease of evaluation, our approach is represented in a Work Breakdown Structure (WBS) depicted in Figure 1. The remainder of this document describes the tasks in the WBS in more detail.

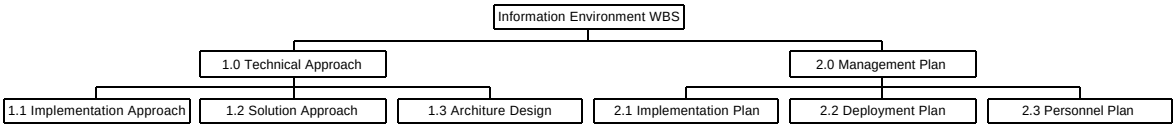

Figure 1: Proposal Work Breakdown Structure

WBS 1.0 Technical Approach

KPMG Consulting is certified level 3 on the Software Engineering Institute Capability Maturity Model (CMM). Thus, we have a proven process to design, develop, and deploy information systems. The following sections will describe our approach to implementing the IE, details of our actual solution and depict our proposed design of the technical architecture.

WBS 1.1: Implementation Approach

Within our overall program management methodology, the implementation phase contains the actual execution of the program. We are committed to executing all development and deployment activities in a phased manner utilizing a "spiral" development methodology. The deliverables from each step of our methodology must be reviewed and approved by the sponsoring organization or IPT. This approval is a gate for entry into the next phase. These steps typify the KPMG Consulting Software Development Lifecycle (SDLC), portrayed in Figure 2. Within these steps of

the SDLC, we want to emphasize two. First, the importance of proof-of-concept work; second, the nature of analysis in light of the work done to date by the government to define the requirements.

The proof-of-concept is essential - it is critical that all technical approaches endure a critical review - having been fully implemented in full working view of the sponsor prior to beginning actual detailed design on any component. It is a critical input to the Standards and Architecture Specification, which is delivered before the first detailed design is begun. This includes both COTS and custom build.

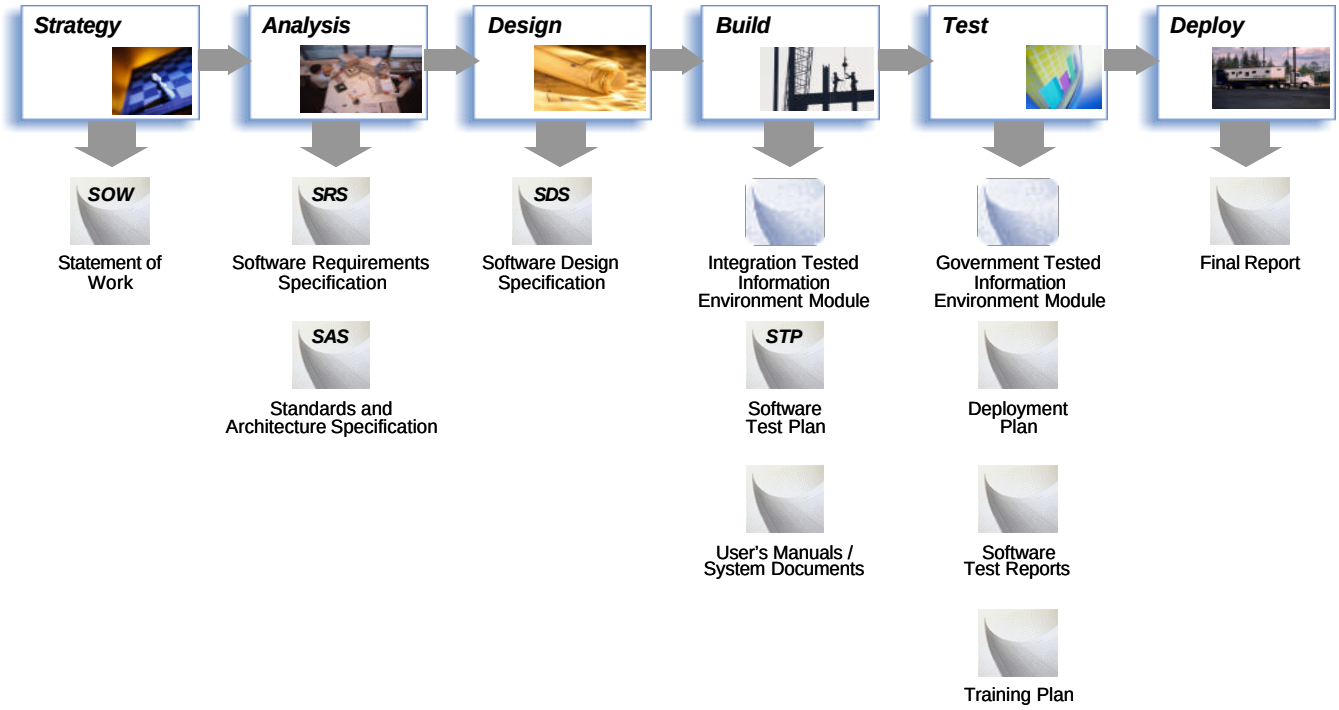

Figure 2: The KPMG Consulting Software Development Life-Cycle (SDLC)

It is around the proof-of-concept that implementation standards are refined—and the reality of the end-state architecture can be demonstrated. It also provides early insight into the specific productivity levels of the resources actually doing the development. It is an outstanding risk management tool. Each sub-spiral which invokes a technical approach which is new to the program, must endure a proof-of-concept review.

To leverage previous government investment, we propose involving our process labs for the purpose of reviewing proof-of-concept work. It is our desire to keep as much of the real-time program documentation or deliverables in front

of the end-customer as possible. The Software Development Plan (SDP) will be delivered shortly after contract award. Described therein are the details regarding deliverables and entrance/exit criteria for each step of the SDLC.

WBS 1.2: Solution Approach

KPMG Consulting will partner with Versata Inc., a world leader in e-Business transaction automation. Versata provides the HPCMP a complete, standards-based software system that reduces the time and resources required to implement, manage and change complex transaction-based e-business applications. Compared with traditional methods, the Versata e-Business Automation System (Versata) is an instrumental advance in computing through a unique rules-based approach. Versata users report savings of 10-fold or more in deployment and change management of applications compared with traditional web development methods.

Organizations using traditional development methods must manually implement, in low-level languages such as Java, the many "business rules" that are the foundation of their e-business applications. Once e-business applications are created and deployed, changing these "business rules" requires manually modifying the code within the applications. In order to accommodate a relatively simple, but crucial shift in strategy, a business must often make hundreds of programming changes requiring many months of work by skilled programmers familiar with the company's applications. Similarly, packaged applications aren't always specialized enough to warrant the costs—let alone the hidden costs—it takes to modify source code to meet unique business requirements.

Versata's unique rules-based technology represents an advance in computer programming abstraction with critical implications for e-Business: business rules may now be stated in simple, English-like declarative assertions that specify "what" must be implemented, replacing a procedural mode of implementation ("how") and virtually eliminating the need to write, test and optimize code.

Versata Captures Business Rules Up Front

Traditional and Information Engineering and Object Oriented analysis techniques focus on the structure and behavior of systems. - 'What' information a system needs to know and 'How' the business processes are performed. The fundamental business policies and rules that explain 'Why' a system behaves in a certain way tend to get lost and confused in the morass of models. This can lead to errors of process redundancy, inconsistency and omission in the final application. It can also make maintenance and enhancement of these systems very treacherous. Using Versata ensures that the business rules are clearly identified and analyzed and captured in the tool.

The analysis process starts by identifying the business policies and requirements within individual Use Case models. These requirements are then broken down into business rules that are applied to the relevant data objects, and captured in the Versata tool.

Versata Uses Declarative Rules, not Procedural Code

Versata captures and implements business policies and requirements using declarative rules that are written in English, not procedural code. The rules need to be identified during analysis and then applied to the relevant data objects, attributes and relationships. Using rules reduces the 'coding' effort, normally by a factor of 5-10.

Versata Separates the Logical Business Knowledge from the Physical Implementation.

Versata data objects capture and encapsulate the logical data, processes and business rules associated with each business object. These objects can then be reused and re-deployed in different physical applications. The underlying business knowledge layer is therefore separated from the physical presentation layer. This allows the presentation layer to be quickly modified and re-implemented without affecting the core business logic that is used across multiple applications.

Versata Uses a Centralized Repository

Versata stores development objects in a central, XML, team based repository, for re-use and re-deployment. This repository can be extended to store any other project-related items if required. The repository needs to be actively managed to maximize reuse. Naming standards and best practices also need to be enforced in order to enable this reuse. The repository also allows version management and migration between different development and test environments.

Versata Uses Archetype Template Web Page Layouts

Versata uses a standard Archetype template layout for the web page design. This Archetype gives a consistent look and feel across all pages within a Versata application. We will design a corporate Archetype early in the development lifecycle of the IE and continue in parallel to the analysis of the business requirements and the design of the web page content and navigation, so that the two can be bought together during the application design. The Archetype approach decreases the time spent building each web page and allows image changes to be rapidly and consistently applied across all web pages. It also removes the need to test Archetype features individually on each web page.

Versata Allows Sub-classing of Versata Foundation Classes (VFCs)

Versata allows developers to sub-class the Versata foundation classes in order to specialize class methods. This is a powerful automation technique that can be used to reduce code duplication and simplify maintainability.

Requires extensions to a normalized database design.

Versata business rules require that all attributes used by a rule sit in the same data object. Attributes therefore have to be summed, counted or replicated across parent or child relationships. This process is similar to designing a spreadsheet. This derived or replicated data may be persistent or temporary data. If the data is persistent, the database will need to be extended and, if any non-Versata applications are also accessing the data, it is important that they also maintain the extended database columns.

Versata Enables Rapid Iterative Prototyping.

Versata Studio can automatically generate applications from the data objects, applying the chosen archetype and implementing all the business rules. Prototypes can therefore be quickly generated and evaluated throughout the development lifecycle, including during requirements gathering. This does not remove the need to gather all the requirements up front, but it does allow rapid feedback and refinement of the business needs and the application design. Each prototype builds on earlier prototypes without having to throw old ones away and starting again. This approach provides quality assurance throughout the development lifecycle rather than waiting for user acceptance testing once the development has been completed.

Versata Enables Quality Assurance

Versata focuses more on quality assurance throughout the systems development lifecycle, rather than on quality control and testing at the end of each project phase. Declarative rules eliminate the need to test every event that triggers a change to a data object separately, since the rule is automatically and consistently applied each and every time the data object changes. The use of standard Archetypes and sub classes also reduces the need to test custom code. Overall testing effort is therefore reduced, and code quality should be higher, requiring fewer bugs fixing during the final testing.

Versata Enables Rapid Deployment

Versata applications are web based and therefore only need to be deployed to the servers. In traditional client / server systems the application would need to be deployed and maintained for each individual server and client. However, although deployment is simpler than client/ server systems, the complexity should not be underestimated and deployment issues will be evaluated early in the development life cycle. The Versata solution fits directly into the architecture of HPCMP Information Environment. Versata supports all layers of the proposed architecture. Versata builds systems that separate the Presentation Layer, Logic Layer and the Data Layer. This separation allows Versata to build true n-tier applications that are scalable and robust. Versata runs on any standard web server such as Microsoft IIS, Netscape Web Servers, Apache, etc., all of which support Secure Sockets Layer protocol. The Versata Logic Server

is a series of Java services that talk to the underlying APIs of the application server. Versata provides a Connector technology that allows any type of data source to be accessed. These data sources could range from Oracle databases, flat files, system queues, XML or message queues. The connector technology is a series of Java classes that can be subclassed to access any data source. The Versata Interaction Server provides Process/Workflow capabilities to manage the process of Account Application Management. The Versata Interaction Server provides auditing and monitoring of all processes involved in the Account Application Management, the assignment of work lists, and the tracking of the status of processes. The diagram in Figure 3 illustrates the HPCMP IE technical architecture implementing the KPMG Consulting|Versata Solution.

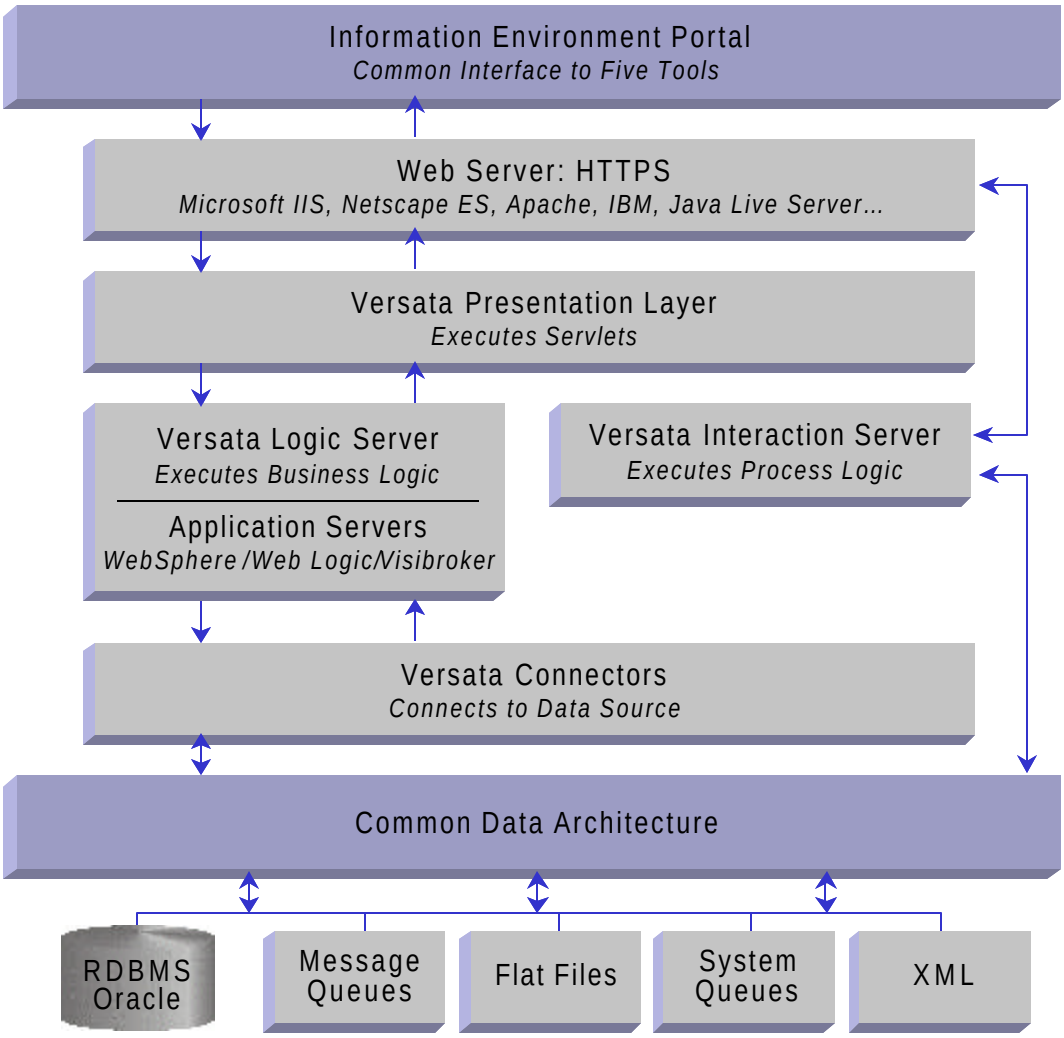

Figure 3: Diagram of Information Environment Technical Architecture

WBS 1.3 Architecture Design

The technical architecture described here supports the minimal set of rules governing the arrangement, interaction, and interdependence of system parts or elements, whose purpose is to ensure that a conformant system satisfies the Information Environment requirements. The above solution is made possible because of the common architecture across all Information Environment custom built and COTS components.

Software Tool Strategy

Overall tool integration requires a system and data architecture consistent with existing local sites databases and IE requirements. KPMG Consulting will gather data requirements and define XML standards for the Information Environment Data Architecture (IEDA). We will interface with HPCMP management in reviews of the various elements of the technical approach and in establishing standard data definitions. We will establish mechanisms for the IEDA to link to local site databases to access and update data. The proposed IE system will provide appropriate filters to do simple checks on data validity. The IE system will also provide a common User Interface to the five tools described below. A major component of the tool strategy is the utilization of Versata's Business Rules-based e-Transaction Automation tool for code generation and web page development.

The Business Rules approach to solving e-government applications is the right way to go about developing a solution for the HPCMP Information Environment. Versata will be instrumental in addressing the requirements of the five tools.

Target-State Application Interface: The Information Environment Portal

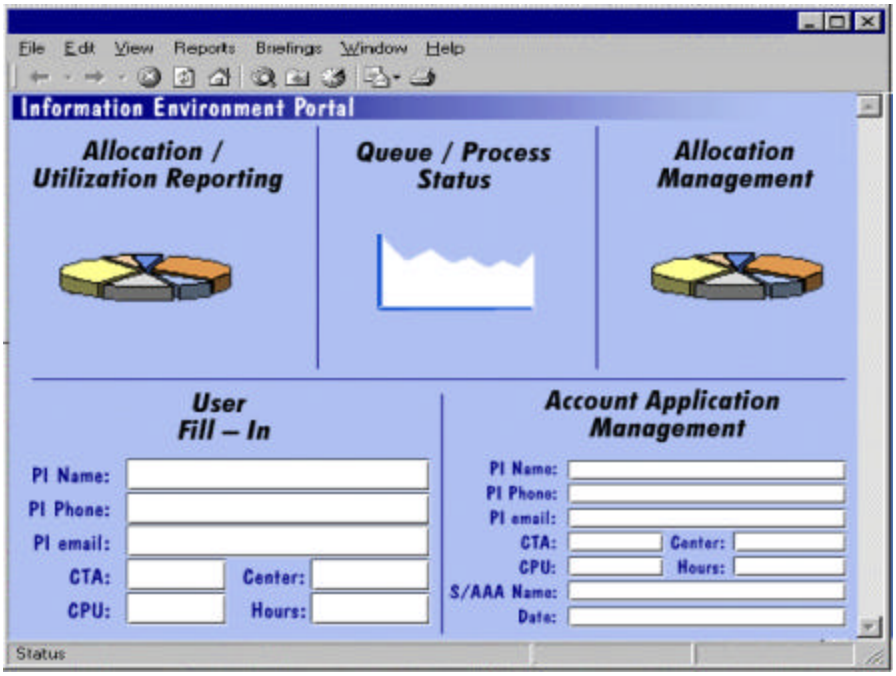

Figure 4: Information Environment Portal

The Information Environment Portal delivers the collaborative solution needed for the Information Environment. With Tool 1, the Information Environment Portal delivers formatted reports and personalized ad-hoc reporting and analysis for MSRC/DC utilization with all versioning within a customizable browser based workspace. Capabilities delivered with later tools are integrated into the Portal as they are available—with the final result being a single fully integrated workspace for all Information Environment activities as shown in Figure 4.

Allocation/Utilization Reporting (Tool #1): Tool #1 will bring the HPC users near-real-time (currently existing data is captured and stored in the IEDA) utilization data through the portal. For the first time, HPC users above the MSRC/DC level will have accurate and timely utilization information from all the MSRC/DCs on their desktops. The Versata Interaction Server will be used to automate the processes required to present the various types of reports/displays to fulfill the requirements in the SOW. Business rules will differentiate on time intervals, individual or project reporting, and levels of authority for data access.

Queue/Process Status (Tool #2): Versata has the ability to define custom connections called Versata Connectors that can access any source of data. Sources of data can be standard relational databases, such as Oracle, flat files, and data streams or make queries to systems to check on status. The Versata solution abstracts the getting of data from both the business logic and the presentation layer. Versata screens could allow for querying of the underlying computer resource and display information in real time to the user.

Allocation Management (Tool #3): Allocation Management is a transactional system to display and swap allocation times. Versata has been used throughout industry for these types of transactions. The Interaction Server automates interactions assigned to key business transactions. This module is dependent upon the rules that have been identified in the SOW regarding the exchange of hours in the reserve accounts, the distribution of account balance information for

review by prospective users, and the requirement to exchange balance amounts in a secured, controlled environment. The proposed architecture will provide that environment and execution of the appropriate business processes.

User Fill-In (Tool #4): This is a simple set of HTML or Java page(s) which allow authorized users to maintain profile information in a transactional environment. This information will be persisted inside of any data store that the user decides on. An ancillary rule can be that this information is dropped into a text file for later export to the underlying MSRC/DCs.

Account Application Management (Tool #5): This would work hand in hand with the User Fill-in to assist in the management of the overall system resources. Again this has a heavy emphasis on rules. For example, an important rule would be not to over commit time to a particular system. Rules would be used to automatically log account application management actions.

In the development of our evolutionary approach to Information Environment, we built upon a requirements foundation based upon the SOW and the Information Environment common data architecture file specification guide. We have leveraged a robust architectural solution to meet the current requirements of the Information Environment and provide for maximum flexibility in the future.

Systems Security Architecture

The proposed Information Environment Security Architecture System security architecture is shown in Figure 5. The general approach of our Information Environment Security Architecture security architecture is based on two key factors: A single level of distributed base wide desktop workstations that require access to the Information Environment Security Architecture Information Management System (IMS), and Required Unclassified to Secret connectivity accomplished through the use of a designated Multiple security level device.

The primary threats considered in our Information Environment Security Architecture security architecture are fraud, unauthorized access, and disavowal by receiver/ sender. To counteract these threats, Figure 6 summarizes the key features; security implementation techniques and the resulting threat protections of our proposed architecture. This table also indicates our proposed architecture's compliance to the Information Environment RFP's security requirements.

Role based security, with granularity down to a single user, is provided to ensure that only authorized users have access to system data, documents, and functions. Initial access to Information Environment is managed primarily by a single user-id and password login via Kerberos. To ensure adequate security of these passwords, our proposed system will encrypt all passwords that are stored on the Information Environment servers and client workstations. Once logged on, Information Environment operators/users will be constrained to the web pages and associated information that they are permitted to view, and will prevent them from being able to access areas that are not authorized. This will be accomplished by the use of individual digital certificates and Access Control Lists (ACL's) that provide role based access control to the web pages and associated information.

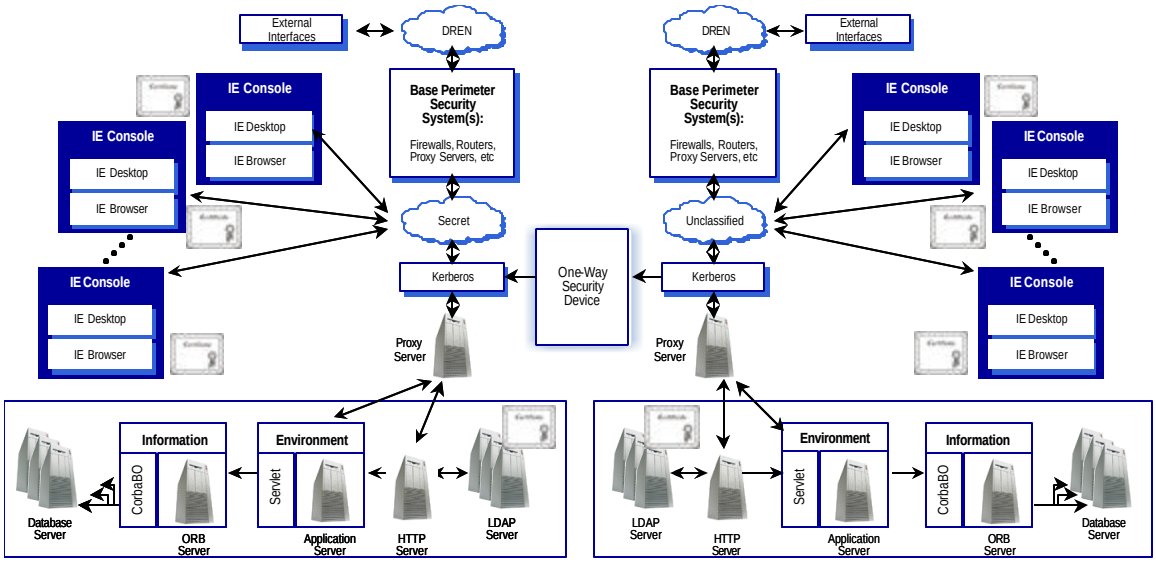

Figure 5: Information Environment Security Architecture

Our proposed Information Environment system will use digital signature controls that are in accordance with (Federal Information Processing Standard) FIPS 140-1 - Processing Sensitive Unclassified Information. By using digital signatures, via 509 compliant digital certificates, we provide strong authentication and non-repudiation functionality. By using digital signatures, via digital certificates, we can ensure:

- Authentication and non-repudiation in the approval and receipt of funding documents
- Authorized user approval of funding transactions
- Integrity of the information received is the same as when it was approved by the sender

The access controls used in our Information Environment system will be developed to ensure that users can not break menu controls, database controls, or directory access via SQL or other end-user oriented software that allows open access to data. Our proposed Information Environment system security architecture also provides support for processing and accessing both classified Secret and unclassified data. This is accomplished by physically segregating the Secret and unclassified data if required. We permit automated data transfer between the physically segregated systems through the use of a multiple security level device. Our team has significant experience with these types of systems. Our goal will be to use the least intrusive and life cycle cost system that meets the required operational functionality and provides the required security. For example, if only a one way unclassified to secret data feed is required, using a one-way optical fiber will be adequate.

Feature	*Mechanism(s)*	*Threat(s)*
▪ System Access Protection	▪ Screening Router ▪ Proxy Server ▪ PKI*	▪ Protocol (e.g., TCP/IP) exploitation, IP spoofing, e-mail attacks
▪ Identification and Authentication (including Global Client Access) ▪ Two Factor Authentication ▪ Single Sign-on	▪ Smartcard authentication* ▪ PKI* ▪ IBM/Tivoli Secure Way Policy Director*	▪ Unauthorized access ▪ Snooping
▪ Data integrity protection ▪ Prevent unauthorized alteration ▪ Validity assurance	▪ Encrypted hash ▪ PKI*	▪ Fraud ▪ Unauthorized alteration ▪ Unauthenticated data

Feature	Mechanism(s)	Threat(s)
▪ Authentication ▪ Non-repudiation		▪ Traceability ▪ Disavowal/repudiation
▪ Privacy/confidentiality	▪ PKI (SSL and IPSec/VPN) ▪ Access control ▪ ACLs ▪ RBAC ▪ Encryption	▪ Unauthorized disclosure
▪ Access control ▪ Look down capability by user and organization ▪ Global client access ▪ Least privilege ▪ Role-based security	▪ Application level access control ▪ Middleware access control ▪ Discretionary access control (Windows NT)*	▪ Unauthorized access ▪ Unauthorized disclosure and /or alteration ▪ Fraud ▪ Snooping
▪ Low-to-High communication between physically separate SBU and SECRET systems	▪ One-way security guard	▪ Unauthorized disclosure of SECRET data
▪ Threat detection	▪ Intrusion detection system*	▪ Penetration attacks
▪ Event auditing	▪ OS, middleware, and application level auditing	▪ Fraud ▪ Unauthorized activity
▪ Virus protection	▪ COTS virus detection system	▪ Introduction of malicious code

Figure 6: Security Capabilities List

Security Certification and Accreditation Approach

One of the goals of our Information Environment system security architecture is to provide a system with an infrastructure that is common to all MSRCs and DCs. Further, the security-relevant functionality of any system installed regardless of location will be common to all installations. Under these conditions, for each of the five tools we will perform a "Type Certification and Accreditation with a Designated Approving Authority (DAA) that forms the universal security measure for the system. Such an accreditation or certification will be done within the context of a "generic" or "typical" environment. Thus, in the installation at a specific site, only the deviations from the "typical" will need to be considered in the site accreditation process.

Our Information Environment Development Team's process for Certification and Accreditation maps directly to the four DoD Information Technology Security and Accreditation Process (DITSCAP) phases: Definition (9 tasks), Verification (4 tasks), Validation (9 tasks) and Post-Validation (3 tasks). Additionally, our Information Environment system will

also comply with the Automated Data Processing (ADP) security, to the C2 level of trust, in DoD Directive 5200.28, Security Requirements for Automated Information Systems. Kerberos will be the initiator of the C2 level of trust. Once a user is verified by Kerberos, the Information Environment will use Windows NT challenge/response system to ensure only valid users have appropriate access.

Management Approach

The following sections describe our management implementation/execution approach regarding project management, testing , scheduling and risk mitigation.

WBS 2.1 Implementation Plan

The KPMG Consulting Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level III certified software development team employs its proven software development lifecycle (SDLC) (Figure 2) as it develops, tests, and deploys software applications. The SDLC is governed by KPMG Consulting's Object-based System Integration and Implementation Guidelines (OSIIG), summarized in Appendix C: KPMG Consulting's Object-based System Integration and Implementation Guidelines

The SDLC includes Joint Application Development (JAD) sessions between the Government and KPMG Consulting to ensure KPMG Consulting has accurately specified the software requirement and design prior to building (developing) the application.

Program Strategy

Program Strategy will set the baseline that defines program progress. We will establish the program's approach to organizational change. New programs can often have an extremely high impact on an organization and its people. Substantial research has identified that management of "people" issues is one of the most critical success factors for a

program or project. Hence, during the program strategy phase, it is necessary to define the overall approach to managing organizational changes within the program.

This phase is completed with the publication of the Program Management Plan (PMP) which will define how we will manage Information Environment implementation. This plan will include our program organization, internal team roles and responsibilities matrix to supplement the government's Information Environment matrix, our approach to quality and performance management, and our approach to organizational change management.

Requirements Management

While the customer/user has provided an extensive set of requirements for Information Environment, the evolutionary process selected for the program acknowledges that program/project requirements will change over time. As a result, we will develop and define a process/procedure for managing requirements. This process will be put in place during our Mobilization phase following contract award. We will perform requirements management consistent with the Requirements Management Key Process Area (KPA) for Capability Maturity Module (CMM) Level 3.

Risk Management

Risk management is an important element to our program management methodology

The objective of a risk management process is to minimize the impact of unplanned incidents on the project by identifying and addressing potential risks before significant negative consequences occur. A strategic risk analysis will already have been undertaken as part of the Program Strategy Phase. We will also develop and deliver for government approval a Risk Management Plan during this phase. The plan will describe our detailed approach to program risk management that will be implemented during the Implementation phase and followed throughout the Information Environment program. Risk management incorporates the identification, analysis and management of project risk. After potential risks are identified, the purpose of risk analysis is to determine the relative exposure in terms of time and cost. Risk management is therefore concerned not only with identifying risks, but also with reducing risks to an acceptable

level. Our process for risk management is shown in Figure 7. One should note Phase 1 and Phase 3 activities included in our process.

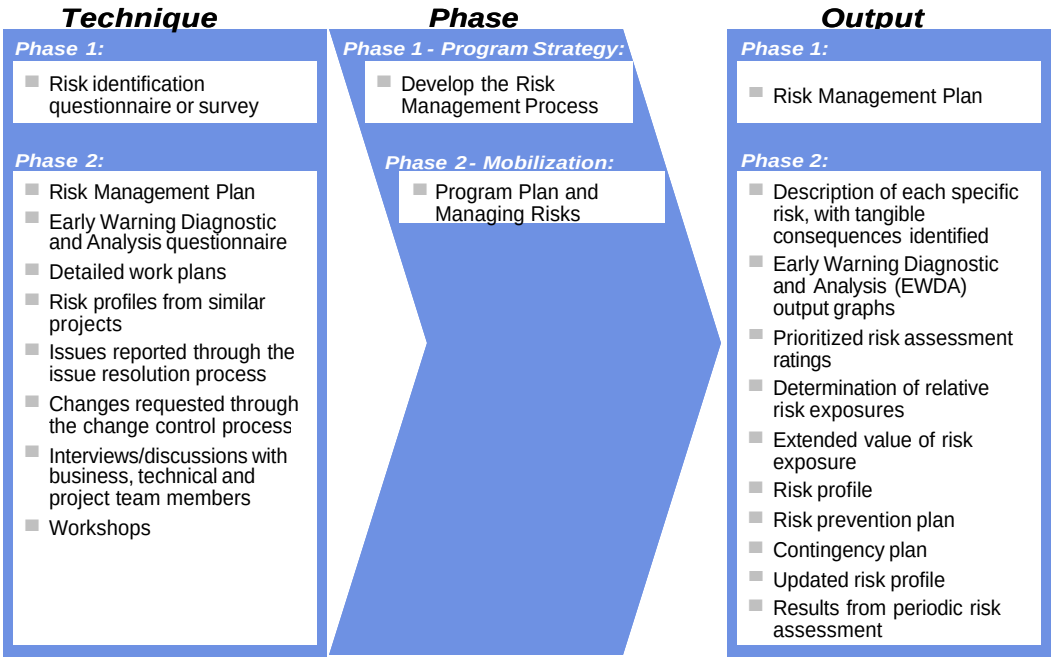

Figure 7: Risk Management Methodology

Change Management

We will use our World Class Change Management methodology to enhance people's ability to adapt to change. It is a disciplined approach with procedures and diagnostic tools used to measure the level of organizational support for/or resistance to a change project, take action to decrease the barriers, and increase the acceptance and support for the change, and provide momentum for changing an organizations' culture. The goal is accomplished by enhancing people's confidence, commitment and readiness. To support this change, we propose to augment our technical and management approach with a change management program.

The Change Management Program is a fundamental enabler to successful implementation of the Information Environment and must focus on the early identification of barriers to change that can be related to people, process, and

technology. Change Management will build acceptance of the new Information Environment system as it is developed and migrated. We, as well as our teaming partners, have extensive experience implementing Change Management. We have developed a proven methodology that has been used successfully in both the DoD and commercial environments.

User Documentation

Inputs

The principal inputs to the user documentation are the software requirements specification (SRS) and software design specification (SDS).

Output – User's Manual

The user's guide is planned to coincide closely with the information provided through the on-line help. This document is provided as a hardcopy reference for those who have difficulty or concerns with obtaining information on-line. The user's guide will be designed according to industry standards, and written in concise, easily understandable language. In many cases, the consumers of user documentation will be people who have a problem and are searching for answers. This means that long text descriptions of procedures are often inappropriate, because they cannot easily be searched for answers to specific problems. On the other hand, if there is to be an extensive training program for new users, documentation organized into narrative form will help in the design of the courseware. In designing documentation and help, then, the primary consideration is the nature of the audience and the situation - who will need it, when and why.

On-line help

Robohelp™ software will be utilized for the creation of Information Environment on-line help. Following Windows standards, both context sensitive and general help will be supported. Wherever possible, the verbiage will include procedures that describe both the application functionality and the incorporation of that functionality into the supporting business process.

Testing

While testing is happening, the project team is preparing for implementation by developing the Deployment and Training Plans. The software QA process begins with the very first lines of code, and continues to deployment. Information Environment will utilize a three-step release strategy: alpha (prototype), beta, and full releases will be produced. STRs (Software Trouble Reports) are used to document problems and are given to the Development Team Leader until the alpha release. After alpha release the Information Environment management team will receive the STRs for disposition. Figure 8 shows the Information Environment Test and Release Strategy.

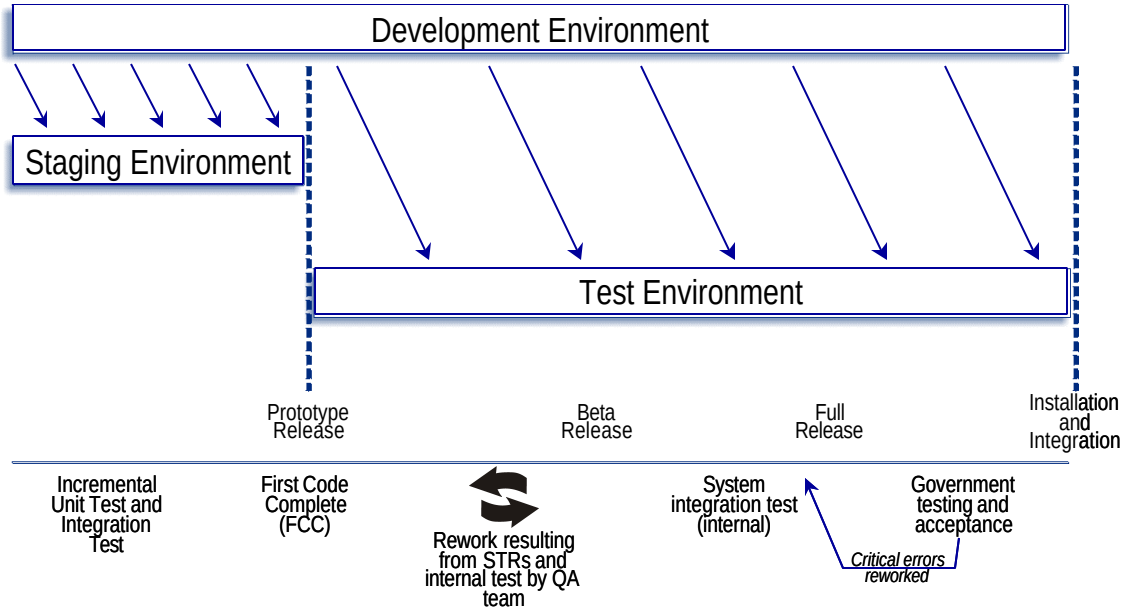

Figure 8: Test and Release Strategy

Unit and System Test

Prior to all functionality being fully developed and system tested, the development team will support a staging environment, which will contain a hot-build. This hot-build will contain the most current release of the Information Environment application, and will continuously be available for project internal and informal customer testing.

Initial Prototypes

Upon unit and system test of all SDS build components (full functionality), an alpha release will be delivered to the QA lead to be installed in the test environment. The test scripts and use cases developed through the previous phases will be executed by the QA team to validate functionality. Presence of any type 1 or critical STRs will require releasing an alpha sub-release for regression testing of areas affected by STRs. Sub-releases will only be delivered after the QA process has been completed. The Test/QA manager is responsible for documenting the results of alpha testing.

Beta

Beta release is delivered to the QA team when last alpha release contained no type 1 STRs and after the entire QA process has been completed. The Test/QA manager is responsible for documenting the results of beta testing in a formal test report.

Final Release

Final Release certification is assigned when no material STRs are outstanding. Beta sub-release will be required for regression testing if material STRs are found, as determined by the Information Environment management team.

Government

Government testing may include support from QA lead. STRs are handled through the Information Environment management team, with additional customer participation. A return to beta stage would be necessary if STRs require a re-release of the application.

Test Reports

The primary documentation that is developed during the Testing Phase is the test results folder. The test results will be managed to serve as an audit trail for the module undergoing test and also as a template for future testing projects. The test folder includes:

- A copy of the test plan
- Copies of the test scripts
- Notes on setting up the test region
- Reports and/or screen prints that show "Before" and "After" values for test data.
- Reports comparing actual test results to expected results.

Test Phase Exit Criteria

The test phase will be complete when the government has accepted the Full Release with no outstanding STR's.

WBS 2.2 Deployment Plan

This section describes our approach to deploying the system at multiple sites. Covered are a deployment testing approach and deployment schedule approach including schedule risk analysis.

Deployment Strategy

The IE tools will be deployed in four phases in accordance with the SOW. The principal place of performance (application development) of this contract shall be at the KPMG Consulting facility in Dayton, OH. The Initial Prototype (Alpha) phase of the deployment will consist of the demonstration of a minimum of two of the five tools in a simulated environment at the KPMG Consulting facility. This demonstration will be presented within 90 days of contract award.

The Beta Release of the IE system shall include all five tools to be installed at a minimum of five HPC centers to be selected by HPCMP IE personnel. To the degree possible, the systems will be distributed to the remote sites for installation, as a means of preparing for and testing the methods planned for the Installation and Integration phase of deployment. The Beta Release shall be delivered within 180 days of contract award.

Full Release of the IE system shall be a fully tested, robust set of applications and shall be delivered to the same sites used for Beta testing. This delivery shall occur within 300 days of the contract being awarded. Subsequently, within 365 days of contract award, KPMG Consulting shall demonstrate the scalability and portability of the IE system by distribution the system to a minimum of five addition HPC sites to be selected by HPCMP IE personnel.

The final data architecture for the IE will be hosted on government furnished the servers at one or more HPCMP sites. Initially, based on information provided in the Solicitation and Amendment, and that gathered from the HPCMP web site, each of the four MSRCs have more than adequate computational assets and infrastructure support capability to support the proposed solution. The DCs are more heterogeneous to a greater degree, and more detailed analysis is required to determine which DCs would be most appropriate for system hosting. Initially, it appears that not all of the DCs would provide sufficient resources to host the IE system depending on current processing requirements.

Final Report

After each Information Environment module has been fully deployed, a summary of system deployment issues will be compiled. Certain performance improvement recommendations may be identified to enhance operations. Results of these activities will be documented and integrated into the on-going iterative development process.

WBS 2.3 Personnel Plan

The Information Environment organizational structure provides the Project Manager with visibility into, authority over, and ultimate responsibility for the software development process. In order to meet the schedule for the development of

the Information Environment Data Environment, the Project Manager must provide guidance and direction to the entire KPMG Consulting software development team to ensure repeatable actions in the accomplishment of scheduled work.

Our Team recognizes that effective program and project management and leadership isn't just important - it's mission critical to the success of the program. One of the team's well-recognized strengths is our Management capability. We have built this capability through our experience and the successful reuse of those strategies that yield the best results. This section addresses our management approach of the Information Environment project from initiation, throughout ongoing execution to completion (design, development, test, deploy and sustain).

Management Approach

The approach lays out a consistent method for addressing the objectives of each critical management phase. The methodology details the necessary entry criteria, tasks, verification steps, and exit criteria to ensure phase objectives. Specifically, we will address requirements management, project planning, project tracking and oversight, configuration management, and software quality assurance.

Figure 9: Information Environment Program Management Approach

The objectives of our approach are to minimize risks and uncertainties by:

- Defining standard processes and techniques that can be applied to all project phase;
- Following a consistent structured approach;
- Facilitating continuous client involvement and reviews;
- Establishing management controls and procedures; and,
- Increasing awareness of the mechanisms for capturing experience.

This approach is intended to help the program manager meet challenges by providing guidance on the application of program management techniques within a framework that recognizes the interactions between a project and the related organizational environment.

System Architect

Directly supporting the Program Manager is a System Architect responsible for all technical issues related to the Information Environment design and development. The System Architect is chartered to provide technical guidance and direction to the entire KPMG Consulting software development team while following established processes that allow repeatable actions in the accomplishment of scheduled work.

Functional Requirements

The Functional Requirements Leader is responsible for ensuring all functional requirements are included in the final Information Environment product as required by the Government. A requirements tracking process will be managed jointly by the Government and the project team. Each of the requirements identified in the original statement of work is documented and traced via the Software Requirements Specification (SRS) to the Information Environment application.

Software Development

The Software Development Team Leader is responsible for the design and subsequent development of the Information Environment application based upon the SRS. The Software Development Team Leader manages the work of the

Information Environment development teams to the project plan, and presents development status and progress in the Project Manager's daily staff meeting. Software progress, resources, and issues are reviewed by the Project Manager in this meeting.

The Software Development Team Leader is responsible for configuration management of the Information Environment source code. Microsoft Source Safe is used for configuration management.

Test/Quality Assurance (QA)

The Development Team is responsible for developing and following a systematic approach whose purpose is to ensure that the final Information Environment software is a quality product that meets the design criteria and requirements. As the Information Environment application nears completion, it will undergo a series of tests and three functional releases: initial prototype, beta, full release, and installing and integrating. The Quality Assurance manager is responsible for the management and support of the alpha, beta, and full release (government) tests of the software.

Deployment

The Deployment Leader is responsible for the seamless integration of Information Environment into the customer's target environment. This integration includes two factors, physical considerations and human considerations. Physical considerations include ensuring Information Environment operates properly when deployed and ensuring the customer is aware of technical requirements necessary to load and implement Information Environment (required computing environment, etc). Human considerations include items necessary for customers to properly use the system, such as training materials, system documentation, and user manuals.

Technical Architecture Development Environment Support

The project's software engineering environment and support tools are based on initial estimates of the capacity requirements, the project's software size estimates, and other characteristics. As experience is gained during development, these estimates will be refined as required.

Conclusion

KPMG Consulting's SEI CMM Level 3 information system will employ the correct technology, the correct level of security, and the business graphing tools necessary to create an Information Environment that will empower the DoD MRSC and DC users.

Appendix A: Statements of Past Performance

Table 1: Centralized Acquisition and Sustainment Management Information System (CASMIS)

Client Name: Aeronautical Systems Center (ASC/YP)		**Contract** GS-35F-4338D (order number F33601-00-F-A263)
Project Name: Centralized Acquisition and Sustainment Management Information System (CASMIS)		**(Performance Dates)** 20 May 1998 – ongoing
Value at Award: $5.2M	**Value at Completion:** (Work is ongoing)	**(Contract Type)** Firm Fixed Price
Contracting Officer: ASC/PKWIE Dianna C. Aniton 1940 Allbroook Drive Suite 3 WPAFB, OH 45433-5309		**KPMG CONSULTING Contract Manager(s):** Gary M. Ahrens 3139 Research Blvd., Suite 200 Dayton, OH 45420 (937) 259-9850
Client POC: Brig Gen Jeffrey R. Riemer AFPEO/C2 1100 Air Force Pentagon Washington, DC 20330-1100 (703) 588-6464 jeff.riemer@pentagon.af.mil		**List of Subcontractors:** Modern Technologies, Inc. (MTC)
Litigation: None		**Governmental Administrative Actions:** None

Description: (Brief paragraph – contract work, location(s), and conditions of performance)

Situation: The US Air Force has seen extensive changes to program management as continued draw downs and budget constraints forced it to adopt practices once reserved for the commercial sector. It became increasingly clear within the executive-level management of the ASC program management had grown into three distinct disciplines – financial management, program management, and human resource management. Management recognized that by developing a comprehensive system that would allow managers across all disciplines to share information would improve the efficiency of ASC programs. Phase I of the CASMIS project saw the development and deployment of an integrated program management system. Phase II is focusing on further enhancements and sustainment of the program as it deployed throughout the ASC.

Project Objective: The primary goal of the CASMIS system was to build and deploy an integrated system that would be user-friendly for users across all management disciplines and incorporate data from the Central Procurement Accounting System (CPAS), the General Accounting and Finance System (GAFS), the Human Resources Integrated Database (HR IDB). Legacy information found in the Integrated Financial Tracking System (IFTS), the Enhanced Automated Program Management System (EAPMS), the Master Program Management System (MPMS), and the Automated Command System (ACS) data would also be incorporated into CASMIS. Three main modules have been delivered to date: the Financial Management Module (FMM), the Program Management Module (PMM), and the Organization and Operations

Management Module (OOM).

FMM
The Financial Management Module enables users to track their budgets, forecasts, and execution information. It helps users manage open commitments and obligations and other critical contracting and program information. It helps users report the status of each of their projects. It includes a built-in reporting tool and a Presentation Wizard to speed reporting tasks. CASMIS' reports and presentations options allows managers to devote more time to managing their programs and less time to collecting, analyzing, comparing, and reporting on them.

PMM
The Program Management Module was designed to help managers manage program performance. The Brain Book portion is an electronic version of a program manager's paper Brain Book. It will provide the program manager a way to manage program documents, pertinent information, budget summaries, schedules and suspenses that are generated using CASMIS and/or Microsoft Office applications. Its purpose is to serve as a single source for all program documents and files. In addition, PMM is designed to alert users of potential program management problems, such as missed goals or metrics.

OOM
ASC organizations manage multiple priorities, people, and tasks. OOM helps supervisors more effectively manage the projects and people critical to achieving mission objectives. The OOM is divided into two parts; an Activity Based Costing (ABC) component for capturing time card information and an operations component to capture information about the people, positions, organizations, suspense/actions, and processes that make the organization successful.

CASMIS has been certified as a Level 3 project under the Capability Maturity Model (CMM) designated by Carnegie Mellon University's Software Engineering Institute (SEI). This assessment verifies that the software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for KPMG Consulting. Level 3 certification further verifies that CASMIS uses an approved, tailored version of the organization's standard software process for developing and maintaining software.

CASMIS is currently deployed to over 5,400 ASC users and is being used to manage over $4 Billion in Air Force budgets.

Table 2: Joint Electronic Document Access (JEDA)

Client Name PEO – Acquisition Related Business Systems Electronic Acquisition – 21		**Contract** GS-35F-4338D (Order no. N00039-99-F-5019)
Project Name: Joint Electronic Document Access (JEDA)		**(Performance Dates)** June 1998 – ongoing
Total Contract Value: $3,500,000	**(Contract Type)** Firm Fixed Price (FFP)	
Contracting Officer: Michael McDonald Electronic Acquisition 21 2211 South Clark Place Crystal Plaza 5, Room 480 Arlington, VA 22202 (703) 601-0252	**KPMG CONSULTING Contract Manager(s):** Gary M. Ahrens 3139 Research Blvd., Suite 200 Dayton, OH 45420 (937) 259-9850	
Client POC: Ms. Debbie Streufert PEO – Acquisition Related Business Systems 2211 South Clark Place – Crystal Plaza #5 4th Floor, Rm. 480 Arlington, VA 22244-5104 (703) 601-0246	**List of Subcontractors:**	
Litigation: None	**Governmental Administrative Actions:** None	

Description: (Brief paragraph – contract work, location(s), and conditions of performance)

The Joint Electronic Document Access (JEDA) is a custom built electronic storage and distribution system. This development effort, for which KPMG is the prime contractor, is tasked with producing an enterprise-wide, web-based application to support the electronic storage and distribution of awarded procurement instruments for the Departments of the Navy and Air Force. This application is a key element of the Navy's strategy for unifying islands of operations around a common process, and for allowing the procurement community to cooperate. Within the Department of the Navy (DoN) and the US Air Force, this initiative is the single largest contributor to the paperless acquisition metrics collected by the Deputy Secretary of Defense. This application is a three-tier, object-based application designed to support the entire procurement community of the Navy, Marine Corps, and Air Force. It implements modern component-based software architecture to enhance the flexibility and efficiency of the software.

To assist with Functional Area Analysis, requirements were generated via facilitated sessions with representatives from all major claimants within the Department of the Navy (DoN). Requirements were documented using the Unified Modeling Language (UML) use case notation. Products produced include: Software Requirements Specification, Use Case Diagrams, Requirements Traceability Matrix, Test Plan, and a data dictionary. In order to meet security certification, KPMG designed, implemented, negotiated and documented security strategy to provide system access within DOD constraints:

Developed, staffed and negotiated DOD DITSCAP security documentation

Obtained and implemented PKI security system to integrated with DOD security architecture

Implemented multi-layer, multi-vendor firewall design to virtually eliminate possibility of system compromise

To facilitate system development, KPMG developed, implemented, and tested the product using a Spiral Development methodology based on the Rational Unified Process. Developed requirements based test scripts for use in remote testing by users. Products produced include: Graphical User Interface, Objects, Unit Test Logs, Integrated Test Logs, user documentation, and training documentation. In addition, three

major industry trends were adhered to as part of this effort and will be applied to future developments. These trends were:

Vertical Integration – System functionality was broken down into logical groupings. KPMG then built the software incrementally according to these logical groups. In this manner, consistency of design and development were preserved and customers were afforded insight into the development process at various stages.

Development Process Definition – Software Engineering Institute (SEI) Capability Maturity Model (CMM) compliant software development processes were defined and followed to ensure a successful project. Failure to follow strict guidelines would have resulted in significant rework and schedule overruns. The SEI is the recognized authority for development practices.

Incremental (Spiral Development) – The use of a Spiral Development methodology allowed for the system to be constructed iteratively with lessons learned from one build being applied to the next. Customers stayed involved and while correcting minor deficiencies before they become systemic problems.

The design of the Information System was accomplished using an object-oriented methodology. System design was captured using Rational's ROSE product. Products produced include: Design Specification, Entity Relationship Diagram, and Code Stubs. Furthermore, KPMG designed the multi-tier, multi-site server architecture for a variety of web-based applications:

Independent development, staging (beta), production and fail-over server suites

Implemented concentric fault-tolerance strategy to eliminate potential failure points and assure system availability

Installed, implemented and managed real-time monitoring and remote management tool

Specified and implemented server management tools to provide 7x24 availability

Implemented server/vendor-independent load balancing system to eliminate impact of component outages

Implemented inter-site virtual private network (VPN) to securely synchronize data between redundant host sites

KPMG employed Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level III processes during development to significantly lessen risk to the client. Specific areas that mitigated risk included the use of: Software Development Standards, Risk Management methodology, Configuration Management, Peer Review, Inter-group Coordination, Tracking and Oversight, Training, Metrics Collection, Design Standardization, Estimating and Scheduling, and Quality Assurance.

Table 3: Keystone H303 Decision Support System (DSS)

Client Name: MSG\ILSA	**Contract** GS-35F-4338D (Order no. FA8770-00-F-0023)
Project Name: Keystone H303 Decision Support System (DSS)	**(Performance Dates)** Nov 99-Sept 00
Total Contract Value: $4,010,122	**(Contract Type):** Time And Materials
Contracting Officer: Timothy Hanna MSG/PK 4375 Chidlaw Rd Room C002 WPAFB OH 45433-5006 (937) 257-5989	**KPMG CONSULTING Contract Manager(s):** Robert J. Gibson 3139 Research Blvd., Suite 200 Dayton, OH 45420 (937) 259-9850
Client POC: Robert Gregory MSG\ILSA 4170 Hebble Creek Road WPAFB OH 45433-5653 (937) 656-0557	**List of Subcontractors:**
Litigation: None	**Governmental Administrative Actions:** None

Description: (Brief paragraph – contract work, location(s), and conditions of performance)

KPMG Consulting, acting as the prime-contractor, developed the Keystone Decision Support System (DSS). Keystone is a technological solution to the Air Force Materiel Command's functional need for an efficient, reliable, and usable tool to facilitate financial analysis within the Air Force Working Capital Fund. The Keystone DSS has two primary user communities, Financial Management and Logistics analysts and managers at the Headquarters Air Force Materiel Command, Air Logistics Centers, Air Staff, Air Force Audit Agency, and other Major Commands. The system is a robust multi-dimensional analysis and ad hoc reporting tool using data warehousing architecture that permits the analysis of sales, expense, inventory, trial balance, and budget information relative to the SMAG performance. The role of subcontractors during the development of Keystone was minor.

To support Keystone and further its utility to the Air Force, the Materiel Systems Group (MSG) required support in two distinct domains with program management as a cross-domain activity:

- Functional Enhancement or Systems Integration
- Maintenance and Operational Support

System Integration is the requirement definition, development, and deployment processes and procedures needed to address the growing number of requirements levied against financial and logistical analysts and ultimately the Keystone system. These activities can be separated into two sub-domains:

- C4RD
- Engineering Change Proposals

Maintenance and Operations of the Keystone DSS is primarily composed of four sub-domains focused on ensuring user satisfaction. These sub-domains include the following:

- Data Transformation and Load
- Keystone Specific COTS Software Upgrades
- Discrepancy Resolution and Help Desk Support

- Training

Keystone was the first operational on-line analytical processing (OLAP) decision support system in the entire US Air Force. Additionally, the system was the first fully interactive web-based application deployed within AFMC. Keystone was developed using a spiral development object oriented methodology and deployed in seven months.

KPMG partnered with AFMC on all aspects of Keystone's lifecycle. During initial project planning, KPMG worked with senior management to define the overall project objectives and goals. In decomposing this strategic information into software requirements, KPMG conducted joint application design (JAD) sessions with AFMC and ALC personnel to define business functions, tasks, data requirements, information sources, reporting formats, and security requirements. These sessions were facilitated at KPMG's development center in Dayton, OH and utilized a pilot application to illustrate key system capabilities. During design and development, KPMG partnered with AFMC's central design activity (CDA), the Materiel Systems Group (MSG), to ensure integration with the Command's overall data architecture. Further, KPMG worked closely with the MSG to ensure data elements and naming conventions used within Keystone were consistent with the DoD's data dictionary. Once development was complete, KPMG hosted key AFMC users in conducting acceptance testing. KPMG then conducted training of over seventy users at our development facility in Dayton, OH. Since system implementation, KPMG has been working with AFMC to establish a functional review board (FRB).

The Keystone Decision Support System (DSS) supports AFMC's Supply Management Activity Group (SMAG), enabling analysis of sales, backorders, expense, inventory, trial balance, forecast, all general ledger account transactions, budget information, and financial statements. Furthermore, technologically, Keystone applies a four-tier client-server solution consisting of a client (Web browser), web server, application server, and database server to support Internet-accessible on-line analytical processing. Commercial-off-the-shelf software from Oracle, Infomatica Corporation's PowerMart, and MicroStrategy's DSS Agent/Web support these tiers. The fourteen (14) gigabyte, and growing, Oracle database is built and refreshed using data from twelve transaction systems (both financial and logistics). The database is populated through a series of transformations and aggregations facilitated by Infomatica Corporation's PowerMart. The Client/Web on-line analytical processing functions are provided by MicroStrategy's DSS Agent/Web and a Web browser.

Keystone was a blank slate development project. KPMG was tasked to develop program management plans, collect user, functional, system, and data requirements, perform hardware and software technology assessments and selections, development, data integration, testing and training plans, as well as, model/design/develop the database using a spiral development approach, data population algorithms, and user interface, integrated the technologies, perform DII CEO and DAA assessments, and train the user community.

As part KPMG's Methodology for an Integrated Knowledge Environment (MIKE), the KPMG team conducted initial business, information, and user interface requirements. These requirements helped us define and analyze the high-level technical architecture requirements needed in order to address the HQ AFMC's business needs. The team then analyzed the hardware and software needed for the data warehouse development and production architectures. MIKE also supports object oriented development approach and iterative development, where users are involved in the development process so that data problems and changes in user requirements are identified and resolved early on in the software life cycle process.

Table 4: Procurement Request Builder

Client Name PEO – Acquisition Related Business Systems Electronic Acquisition – 21	**Contract** GS-35F-4338D (Orders no. N00039-99-F-5025, -5029)
Project Name: Procurement Request (PR) Builder	**(Performance Dates)** April 1999 – ongoing
Total Contract Value: $3,000,000	**(Contract Type)** Firm Fixed Price (FFP)
Contracting Officer: Michael McDonald Electronic Acquisition 21 2211 South Clark Place Crystal Plaza 5, Room 480 Arlington, VA 22202 (703) 601-0252	**KPMG CONSULTING Contract Manager(s):** Gary M. Ahrens 3139 Research Blvd., Suite 200 Dayton, OH 45420 (937) 259-9850
Client POC: Ms. Debbie Streufert PEO – Acquisition Related Business Systems 2211 South Clark Place – Crystal Plaza #5, 4th Floor, Rm. 480 Arlington, VA 22244-5104 (703) 601-0246	**List of Subcontractors:**
Litigation: None	**Governmental Administrative Actions:** None

Description: (Brief paragraph – contract work, location(s), and conditions of performance)

PR Builder is a custom electronic procurement system. This development effort, for which KPMG is the prime contractor, was tasked with the development of an enterprise-wide, web-based application to support the development and approval of Department of Navy procurement requests. This application is a key element of the Navy's strategy for unifying islands of operations around a common process, and for allowing the procurement community to cooperate. This application is a n-tier, object-based application designed to support the entire procurement community of the Navy and Marine Corps. It implements modern component-based software architecture to enhance the flexibility and efficiency of the software. In addition, leading Internet technologies such as XML are utilized to maximize its interoperability.

To assist with Functional Area Analysis, requirements were generated via facilitated sessions with representatives from all four major claimants within the Department of the Navy (DoN). Requirements were refined using a custom-built web based collaborative work tool. Requirements were documented using the Unified Modeling Language (UML) use case notation. Products produced included: Software Requirements Specification, Use Case Diagrams, Requirements Traceability Matrix, Test Plan, and a data dictionary. In order to meet security certification, KPMG designed, implemented, negotiated and documented security strategy to provide system access within DOD constraints:

- Developed, staffed and negotiated DOD DITSCAP security documentation
- Obtained and implemented PKI security system to integrated with DOD security architecture
- Implemented multi-layer, multi-vendor firewall design to virtually eliminate possibility of system compromise

To facilitate system development, KPMG developed, implemented, and tested the product using a Spiral Development methodology based on the Rational Unified Process. Developed web based test scripts for use in remote testing by users. Products produced included: Graphical User Interface, Objects, Unit Test Logs, Integrated Test Logs, user documentation, and training documentation. In addition, three major

industry trends were adhered to as part of this effort. These trends were:

- **Vertical Integration** – System functionality was broken down into logical groupings. KPMG then built the software incrementally according to these logical groups. In this manner, consistency of design and development were preserved and customers were afforded insight into the development process at various stages.
- **Development Process Definition** – Software Engineering Institute (SEI) Capability Maturity Model (CMM) compliant software development processes were defined and followed to ensure a successful project. Failure to follow strict guidelines would have resulted in significant rework and schedule overruns. The SEI is the recognized authority for development practices.
- **Incremental (Spiral Development)** – The use of a Spiral Development methodology allowed for the system to be constructed iteratively with lessons learned from one build being applied to the next. Customers stayed involved and while correcting minor deficiencies before they become systemic problems.

  The design of the Information System was accomplished using an object-oriented methodology. System design was captured using Rational's ROSE product. Additionally, a rapid prototype was conducted validating the chosen architecture and technology. Products produced included: Design Specification, Entity Relationship Diagram, and Code Stubs. Furthermore, KPMG designed the multi-tier, multi-site server architecture for a variety of web-based applications:

  - Independent development, staging (beta), production and fail-over server suites
  - Implemented concentric fault-tolerance strategy to eliminate potential failure points and assure system availability
  - Installed, implemented and managed real-time monitoring and remote management tool
  - Specified and implemented server management tools to provide 7x24 availability
  - Implemented server/vendor-independent load balancing system to eliminate impact of component outages
  - Implemented inter-site virtual private network (VPN) to securely synchronize data between redundant host sites

  KPMG employed Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level III processes during development to significantly lessen risk to the client. Specific areas that mitigated risk included the use of: Software Development Standards, Risk Management methodology, Configuration Management, Peer Review, Inter-group Coordination, Tracking and Oversight, Training, Metrics Collection, Design Standardization, Estimating and Scheduling, and Quality Assurance.

Table 5: Versata Statement of Qualifications (U.S. Army STACOMP)

Client Name: US Army Standard Management Information Systems (STAMIS)	**Contract No:** TBP
Project Name: STAMIS Computer Acquisition, Integration Contract Development (STACOMP) Project Office	**(Performance Dates)** April 00 - ongoing
Total Contract Value: $295,883	**(Contract Type):** Cost Plus
Contracting Officer: Jan Runyon STAMIS /STACOMP 8540 Cinderbed Road Newington VA 22122 (703) 541 4100	**Versata Subcontract Manager(s):** Bruce Kuykendall Versata, Inc. 300 Lakeside Dr., Suite 1500 Oakland, CA 94612 (813)361 0171
Prime Contractor: Anteon Corporation 8540 Cinderbed Road, Suite 1700 Newington, VA 22122 POC: Ms. Madeline Bischoff 703-541-4100 Ext. 122	
Litigation: None	**Governmental Administrative Actions:** None

Description: (Brief paragraph – contract work, location(s), and conditions of performance)

This project was to develop a private marketplace portal for the US Army STAMIS organization to procure and field computer systems and parts in support of the US Army. It included $174,000 worth of software licenses and $121,000 for the development effort. The task was to build and deploy a web based application that would enable the US Army functionals to order and deploy computer systems form US Army standard contract vehicles in support of the STAMIS mission.

Versata successfully developed and turned over to a government directed Prime contractor for deployment and further enhancement. We met and exceeded all development and performance requirements of the Statement of Objectives (SOO).

The objective of this project is to layout the objectives of the U.S. Army Project Office Tactical Management Information Systems (PO TACMIS) for the use of Versata's suite of products to structure and backward engineer existing STAMIS Data Repository and applications to support Ordering, Configuration Management, Warranty, Fielding Processes and assisting with the Electronic Data Interface (EDI) with current vendors in support of PEO STAMIS Systems. Versata provides the Government with mentoring services on the use of Versata's suite of products. The purpose of the mentoring services is to increase the skills and competence of STAMIS team members -- Government and Anteon Corporation staff -- in using Versata's products, as well as to predict and proactively prevent potential pitfalls, problems, or rework required from the learning curve effect with a new technology implementation.

This initiative was to provide total procurement support to STAMIS Program Managers (PMs) and Project Officers (POs), including ordering, fielding extension management, configuration management, and warranty management. Tactical Management Information Systems (TACMIS) and STACOMP provide an organization built for the purpose of supporting the life cycle needs of STAMIS PMs and POs, providing an assortment of

flexible contract vehicles to meet STAMIS requirements, centralizing problem resolution, maintaining STAMIS hardware configurations, and on-site fieldings.

This project involved mentoring services for systems engineering, technical and management support, and testing. Versata provided these mentoring services on a time and materials, best level of effort basis.

The Government contracted with Anteon Corporation for support that encompasses engineering analysis, development and implementation of STAMIS Acquisition Repository (STAR), and for technical, logistical, and life cycle support for STAR. Versata's responsibility is to provide mentoring to increase the skills and competence of the STAMIS team members in using Versata's products. For mentoring to be of most benefit to STACOMP, Versata recommends that the Versata Mentor be allowed the freedom to consult and advise at his/her discretion, and not be assigned specific tasks or deliverables, and focus on knowledge transfer to STACOMP and Anteon staff. The activities such a consultant will be involved in include but are not limited to:

- Proactive approach to skills transfer (looking over shoulders, making suggestions)
- Ad Hoc 'topics of the week' mini-training sessions
- Design & Repository reviews
- 'How to' questions answered
- Refinement and implementation of Best Practices
- Proactive dissemination of samples hints tips, etc.
- Training of Anteon Lead Developers to remove dependence on Versata staff ASAP

Versata will provide proactive approach to skills transfer, reviews and recommendations for project deliverables, which may include project management and control deliverables, requirements analysis deliverables, solution architecture and design deliverables, and deployment deliverables.

Appendix B: Project Staff Resumes

Table 6: Project Manager Resume

KEVIN D. STOKES
KPMG Consulting - Dayton, OH
Senior Consultant, Public Services Consulting

Kevin Stokes is a Senior Consultant in KPMG's Public Services Consulting practice. He has over 16 years experience in the areas of systems administration and performance management, computer and network security, system configuration management, client/server and end-user computing, application integration, strategic planning and project leadership. Kevin is a KPMG certified Year 2000 practitioner and has been involved in various aspects of the system development life cycle. Kevin has also received certification for the completion of KPMG's Internet e-Business course and he is familiar with Activity Based Costing/Management (ABC/M) methods.

Relevant Experience

Mr. Stokes' professional accomplishments include:

- Manages and/or facilitates Business Process Reengineering engagements for a DoD client and a large regional community college. Responsibilities include providing/enhancing client competence in general project management and process improvement techniques, instruction regarding KPMG methodologies, and engagement management. Kevin also contributed to higher education strategic planning initiatives including course development and approval, student recruitment and enrollment, and distance learning.

- Mr. Stokes participated as a member of the Logistics Community Management project with direct responsibilities for tasks involving the Year 2000 Operational Assessment Plan for Deputy Under Secretary of Defense for Logistics (DUSD[L]). These tasks include the coordination and facilitation of the DoD Logistics Interface Assessment Working Group (IAWG), which includes representatives from the military services and logistics agencies within DoD. Mr. Stokes was also responsible for preparing technical tracking data, and briefs to the IAWG and to upper management within DoD Logistics. A summary brief of the project was presented to John Koskinen, Chairman or the President's Council on Year 2000 Conversion.

- Managed Year 2000 compliance projects for two major health insurance companies. Compiled product and vendor inventories, determined the Year 2000 exposures, developed risk assessments, developed renovation strategies and contingency plans, and coordinated resources. Developed budget and implementation strategies. Supervised eight-member team of consultants and client personnel, and coordinated the efforts of multiple departmental resources during all phases of system and application analysis, program remediation, testing and implementation. Kevin also maintained an Access database tool designed to assist in the management of the Vendor Tracking process.

- Mr. Stokes developed system and application software testing scenarios, and directed the development of a pseudo-production test-bed for business processes in a PICK database operating environment. Created and implemented component test plans. Developed procedures for capturing and documenting test results for storage in the project office archives. Provided input to the Enterprise Compliance Test and Enterprise Contingency Plan. Assisted in the development of national and regional practice methodologies.

- Conducted physical, system, and network information security risk analyses, threat assessments, economic assessments, IT assessments, and business impact analyses. Kevin operated as project manager and customer liaison working with universities, Department of Defense, Department of Energy and commercial clients.

- Performed Year 2000 Date Compliance Analysis using The Systems Redevelopment Methodology (TSRM) for a major public transportation entity. The assessment focused on mainframe, mid-range, and PC applications. Project deliverables included a Portfolio Assessment and Conversion Estimates for date field expansion and stabilization approaches.

- Coordinated a Facilities Management project at an Army Corps of Engineers site. He was responsible for project staffing, contractual oversight, and quality assurance. The engagement involved hardware, firmware, and software upgrades for over 200 systems in a client/server environment.

- Provided application development support for a computer security project at a major Department of Defense (DoD) site. Kevin was responsible for the development of tool deployment and system monitoring procedures. He also maintained hardware and software configuration databases and performed tasks on the Risk Analysis for the DoD client.

- Analyzed system performance and application integration issues for a national Department of Energy (DoE) contractor. He provided system programming and office automation system management consultation in production and CAD/CAM environments. He developed system technology evaluations and product proposals.

- Provided technical sales support to computer product and services sales force. He prepared and performed product reviews, presentations, demonstrations, and hardware and software installations. He developed customer needs analyses and proposed hardware and software system configurations for sales price quotations. Kevin developed technical product and system assessments for project proposals.

- Mr. Stokes managed a System Operations team of seven personnel on an MIS support project at a DoD site. His responsibilities included the support of system-level functions associated with the management of several VAXClusters of computers situated in remote locations. Kevin was responsible for all aspects of system management and user problem resolution. He assisted senior members of the operation support staff with software migration efforts. These applications were developed using Oracle CASE technology and SQLPlus in a VAX VMS environment. He developed and compiled user manuals for the DEC ALL-IN-ONE office automation system, and developed and delivered end-user training on a customized end-user operating environment.

Professional Background

Prior to joining KPMG, Mr. Stokes held the position of Senior Consultant at two Midwest region management consulting firms with responsibility for project leadership, Millennium conversion, and Information Security projects. Kevin also spent several years as a VAX VMS, VAXCluster, networking, and office automation specialist at Digital Equipment Corporation.

Mr. Stokes holds a Bachelor of Science in Computer Information Systems from The Ohio State University and has credits towards Masters of Science in Computer Science and Information Resource Management. Kevin has had full background investigations and has been awarded a DOE Q Clearance and a DoD Top Secret clearance.

Skills Definition

Mr. Stokes' key skills include project management, system administration, information and technology strategy, systems implementation, and information security.

Appendix C: KPMG Consulting's Object-based System Integration and Implementation Guidelines

Info Envir Phase	OSIIG Phase	OSIIG Base Activity	Activity List
Strategy	1.0 Business Design	1.1 Business Strategy	1.1.1 Document Business Vision
			1.1.2 Document Success Measures
			1.1.3 Document Change Drivers
			1.1.4 Document High-Level Requirements
		1.2 Envision Future State	1.2.1 Review Industry and Best Practices Information
			1.2.2 Define Future State Alternatives
			1.2.3 Define Opportunity Projects
			1.2.4 Define Technology Opportunity Requirements
			1.2.5 Incorporate Current State Assessment
			1.2.6 Summarize Future State Assessment
		1.3 Document Current State	1.3.1 Understand Current Processes
			1.3.2 Understand Current Systems
			1.3.3 Understand Current Organization and Resources
			1.3.4 Summarize Current State Assessment
		1.4 Define Business Case	1.4.1 Prepare Business Case
			1.4.2 Prepare System Case
			1.4.3 Propose Migration Strategy
			1.4.4 Package, Present and Finalize Deliverables
Analysis	2.0 Requirements	2.1 Define Functional Requirements	2.1.1 Identify Functional Subsystems
			2.1.2 Define Use Scenarios
			2.1.3 Define Interfaces for Scenarios

Info Envir Phase	OSIIG Phase	OSIIG Base Activity	Activity List
			2.1.4 Develop Initial Domain Model
			2.1.5 Validate Functional Requirements
		2.2 Enterprise Architecture	2.2.1 Develop Conceptual Data Model
			2.2.2 Define Business Functions
			2.2.3 Group Functions into System Applications
			2.2.4 Develop Enterprise Architecture Blueprint
		2.3 Identify Infrastructure Requirements	2.3.1 Define Volume/Performance Requirements
			2.3.2 Define Current Technology Infrastructure 2.3.3 Propose Logical Technology Infrastructure
		2.4 Define Data Conversion Requirements	2.4.1 Document Data
		2.5 Test Planning and Preparation	
		2.6 Propose Development Plan	2.6.1 Verify Business Case
			2.6.2 Define Migration Strategy
	3.0 Analysis	3.1 Model User and System Interfaces	3.1.1 Establish conformance to GUI Standards and Libraries
			3.1.2 Produce Initial Prototypes
			3.1.3 Define Data Requirements for Reports
		3.2 Process and Data Functional Design	3.2.1Define Application Partitioning Model
			3.2.2 Refine Application Architecture
			3.2.3 Design Logical Data Model
			3.2.4 Define Process Flows
			3.2.5 Design Data and Process Integration Interfaces

Info Envir Phase	OSIIG Phase	OSIIG Base Activity	Activity List
			3.2.6 Design Data and Process Detailed Architecture
		3.3 Design Hardware and Software Infrastructure	3.3.1 Define Physical Technology Infrastructure
			3.3.2 Validate Physical Technology WRT Performance
			3.3.3 Develop Database Strategy
			3.3.4 Define Security Model
			3.3.5 Define Transaction Model
			3.3.6 Identify Necessary Infrastructure Upgrades
			3.3.7 Define Development Environment
		3.4 Plan Data Conversion	3.4.1Analyze Legacy Data Sources
			3.4.2 Define Data Conversion Plan
		3.5 Define and Track Testing Requirements	
		3.6 Create Iterative Release Plan	3.6.1 Identify and prioritize project risks
			3.6.2 Identify infrastructure dependencies
			3.6.3 Identify design dependencies
			3.6.4 Define Release Functionality
			3.6.5 Plan the release
			3.6.6 Update System Migration Plan
Design	4.0 Design	4.1 Design User Support	4.1.1 Complete User Interface Model
			4.1.2 Identify Audiences
			4.1.3 Develop Outlines for Procedures Manuals
			4.1.4 Develop Usability Inspection Procedures
			4.1.5 Plan Production of On-Line Help
			4.1.6 Identify Training Requirements
		4.2 Process and Data Technical	4.2.1 Develop Physical Data Model

Info Envir Phase	OSIIG Phase	OSIIG Base Activity	Activity List
		Design	
			4.2.2 Allocate Functions to Modules
			4.2.3 Develop Module Hierarchy
			4.2.4 Design Batch Processes
			4.2.5 Create Traceability Matrices
		4.3 Prepare Software Development Environment	4.3.1 Establish Configuration Management Baseline
			4.3.2 Establish or Upgrade Development Environment as Necessary
			4.3.3 Send Staff to Vendor Training Classes
		4.4 Design Data Conversion	4.4.1 Design Conversion Programs
			4.4.2 Create Conversion Environment
		4.5 Define Test Cases	
Build	5.0 Implementation and Rollout	5.1 Develop Documentation and Help	5.1.1 Produce User Documentation
			5.1.2 Produce Operations Documentation
			5.1.3 Produce Desk Procedures Documentation
			5.1.4 Produce Help Screens
		5.2 User & Operations Training	5.2.1 Create Training Environment
			5.2.2 Finalize Training Courses
			5.2.3 Develop Training Materials
			5.2.4 Conduct Training Sessions
		5.3 Software Development	5.3.1 Code, Comment & Unit Test Software Programs
			5.3.2 Fix Bugs and Retest
		5.4 Convert Legacy Data	5.4.1 Produce Conversion Programs
			5.4.2 Collect and Validate Source Data
			5.4.3 Normalize and Augment Data

Info Envir Phase	OSIIG Phase	OSIIG Base Activity	Activity List
			5.4.4 Load Data
		5.5 Execute Test Plan	
		5.6 Deliver and Install Code	5.6.1 Establish Delivery Environment
			5.6.2 Determine Distribution and Installation Method
			5.6.3 Produce and Test Installation Scripts
			5.6.4 Establish Contracted Level of Support
			5.6.5 Validate Cut-over Readiness
			5.6.6 Move Production Programs and Converted Data to New Environment
		5.7 Evaluate and Launch	5.7.1 Conduct User Acceptance Test
			5.7.2 Launch New System
			5.7.3 Assess Compliance with Project Objectives
			5.7.4 Perform Post-Implementation Systems Performance Review
Test			