Illinois State Board of Education

RFSP: Redesign of ISBE TCIS and TSR

RFSP Response

REDACTED VERSION

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Submitted By

Hupp Information Technologies

In Partnership With

IBM

May 25, 2011
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A - Cover Pages

Hupp Information Technologies
Hupp Information Technologies

RFSP: Redesign of ISBE TCIS and TSR
Due: May 25th, 2011 4:00 PM

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This is the RFSP Response from Hupp Information Technologies for the Redesign of ISBE TCIS and TSR RFSP that was released on 04/27/2011 by the Illinois State Board of Education and due by Wednesday, May 25th, 2011 at 4:00 PM. This proposal is good for 90 days from the due date of May 25th, 2011.

Proposal Number: Redesign of ISBE TCIS and TSR

Original signature of Officer in Blind of Company/Date

05/25/11
A.2 - Executive Overview

Hupp Information Technologies
A.2.1 - Executive Summary

Hupp Information Technologies (HIT) is uniquely positioned to meet the goals of the Illinois State Board of Education (ISBE) in its venture to create an innovative credentialing system, teacher assignment system, and web portal. The proposed HIT team will be vigilant in keeping ISBE’s objectives in the forefront while proposing unique opportunities that will lead to the best possible solutions. With this framework in mind, ISBE will meet their goals in redesigning the legacy TCIS and ECS systems for beyond their expectations.

It is our intention in this proposal to demonstrate our firm’s commitment to partnering with ISBE as it moves to achieve this ambitious goal. Our proposal will also demonstrate our company’s understanding of your business practices and showcase our experience and expertise in order to help you fully realize the opportunities that lie before you.

Our company, and more specifically our project team, specializes in the education market. Each team member of our proposed project team has worked directly in the education market, and all of the team members have worked on previous certification systems in other states. It is our desire to leverage this vast pool of knowledge and experience to partner with the Illinois State Board of Education to create software solutions second to none.

The Illinois State Board of Education’s goal of acquiring a leadership position in the handling of its educator credentialing will require an innovative software solution that is well designed, user friendly, and completely integrated. As stated in the RFSP, this solution must allow user customization and creation of queries, reports, timelines, letters, and imaging, in addition to making all applications available online for the educators of Illinois.

Our proposal will provide the Illinois State Board of Education (ISBE) with a comprehensive solution that addresses every single requirement defined in the RFSP. Our strategy for the new ELIS system will position ISBE as the national leader in the tracking and credentialing of their educators. We intend to demonstrate our collective ability to not only deliver the new Educator Licensure Information System, but to also deliver it with an unparalleled level of expertise, professionalism, and dedication.

We will leverage our experience in five states and territories to ensure all the requirements in this RFSP are met. Our implementation teams have provided nearly all mentioned functionality to at least one state level Department of Education. We will leverage the best processes from each state’s implementation to ensure that the state of Illinois has the best solutions regardless of its source. In this manner, the Illinois State Board of Education will benefit from every state’s approach: cherry picking the best approach from our multiple implementations.

Our approach also leverages current ISBE partners to ensure this work is done properly and integrated into the existing system environments. Our partner in this approach, IBM, has provided extensive services to ISBE related to the Student Information System effort. HIT staff has supported the existing certification system (TCIS) for over ten years, and wrote the ECS system. By combining the efforts of HIT and IBM we are proposing a team that is more knowledgeable on the ISBE system environment, rules, and processes than any other possible combination. In many cases, staff from Hupp Information Technologies (HIT) and IBM already work together to assist ISBE in their daily support, maintenance, and
enhancement efforts. It is our pleasure to present ISBE with our collective vision for the redesign of the TCIS, ECS, and TSR systems.
A.2.2 - Summary of Objectives

The Objective...

Educator Licensure Information System (ELIS)

The Illinois State Board of Education has been using a legacy software solution to track their educators and educators' credentials. This software has been frequently modified to support the evolving needs of the department's and agency's goals. The Illinois State Board of Education desires to create a new solution that addresses the continually changing needs of the department and agency. They desire for this new solution to provide many new capabilities the legacy solution is not able to perform.

- Need #1: Improved Software Solution: ISBE needs a new software solution that will allow them to better monitor the Illinois educators and their credentials. This solution needs to be totally integrated with the other data of the agency such as the NASDTEC felony file, the testing results, the NBPTS data, and the NCLB requirements data. This solution should be a web-based application that replaces the legacy TCIS application.

- Need #2: Improved Access For Illinois Educators To Their Data: A new approach to disseminating information regarding an educator's application status needs to be implemented. Educators have access to the current ECS system but additional functionality needs to be added and their portal needs to be integrated with the same portal used for the ISBE staff, ROE's, and districts.

- Need #3: Improved Access For Illinois Regional Offices of Education: A new approach to disseminating information regarding Illinois' educators to the Regional Offices of Education is needed. Their tasks need to be automated and incorporated into this effort.

- Need #4: Improved Access For Illinois Districts and Schools: A new approach to disseminating information regarding Illinois' educators to the individual districts and schools is needed. Their tasks need to be automated and incorporated into this effort.

- Need #5: Improved Access For Illinois Institutions: A new approach to credentialing Illinois approved program completers is needed. Institution tasks need to be automated and incorporated into this effort.

- Need #6: Workflow Process Revisions: A new approach to ISBE staff productivity is needed. Many processes are manual. A new workflow solution is needed that automates many tasks and greatly simplifies those that cannot be automated.

- Need #7: Historical Microfiche Needs Imported: The existing microfiche needs to be scanned into the system so that all historical documents are accessible through the new solution.
Educator Service Record (ESR)

The Illinois State Board of Education has been using a legacy software solution to track the assignments of Illinois educators. This software has been frequently modified to support the evolving needs of the department’s and agency’s goals, and does not fully track all the educators’ assignments, just their primary assignments. Also, the TSR system does not use a standard course code reporting procedure that is compatible with the Student Information System. This makes attaching teacher assignments to students very difficult, if not impossible. The Illinois State Board of Education desires to create a new solution that addresses the continually changing needs of the department and agency. This solution should track all of an educator’s assignments and be able to link those assignments to students in the Student Information System.

- Need #1: Teacher Assignment Records: The existing TSR system needs to be replaced so that all of a teacher’s assignments can be collected. The existing system just collects the primary assignments.

- Need #2: Automatic Production of HQT Reports: The highly qualified status of teachers needs to be tracked automatically so that federal reports can be generated on demand.

- Need #3: Assignments Linked to Students: The assignments for each teacher need to be integrated with SIS so that student rosters can be viewed for each assignment.

- Need #4: Automatic Assignment of FTE: The new ESR solution needs to automatically assign FTE values to the educator’s assignments.

ISBE Web Information System for Educators (IWISE)

The Illinois State Board of Education has been using two methods of authenticating users not at a school district. Educators logged into ECS, while Institutions, ROE’s, and LPDC’s logged into Citrix. This creates an administrative support burden. ISBE wishes to create a new web portal that authenticates all users who are not associated with a school district. This solution should match much of the functionality in IWAS.

- Need #1: Single Authentication Portal: A new authentication portal is needed for those non district users, specifically Educators, Institutions, ROE’s, and LPDC’s.
A.2.3 - Summary of Opportunities

The Opportunity...

ELIS, ESR, and IWISE

ISBE has the opportunity to take a leading position in the handling and tracking of its educator credentials and their assignments. This leadership position will allow ISBE to better support the educators of Illinois, the school districts of Illinois, and the staff members of ISBE who must track and monitor this entire process. Lastly, this opportunity will allow ISBE to provide leadership to other states on the handling of educator credentialing. To realize this opportunity, the new Educator Licensure Information System (ELIS), Educator Service Record System (ESR), and ISBE Web Identification System for Educators (IWISE) will need to accomplish the following goals:

- **Goal #1**: Create New Web Presence: The solutions need to be web accessible so educators, districts, institutions, and other required entities can become more integrated into the work flow of the educator credentialing process. It also needs to incorporate existing data into a new database structure that supports future growth.

- **Goal #2**: Improve Integration: The solutions need to have all modules streamlined, integrated, and automated to reduce staff overhead when using the system, while at the same time improving the ability of the system to produce meaningful and useful monitoring and statistical data.

- **Goal #3**: Implement Dynamic Design: The solutions need to be built in a way that allows for easy user customization of modules and processes so that maintenance programming is only required on large issues.

- **Goal #4**: Improve Document Automation: The solutions need to automate the creation, printing, distribution, storage, and tracking of the various documents that are required in order to reduce office overhead and improve application tracking.

- **Goal #5**: Improve Module Checklist Tracking: The solutions need to incorporate a dynamic checklist capability that allows the user to define the flow of applications and application requirements. Once this checklist has been defined, the system should then monitor the checklist and ensure all necessary correspondence is created and disseminated in accordance with that checklist. This process needs to be specifically tailored to ensure complete automation of the deficiency letter process.

- **Goal #6**: Integrate with Existing Hardware and Software Solutions: The solutions need to conform to existing ISBE hardware and software standards to ensure that the solutions will easily and elegantly integrate into the existing ISBE hardware and software framework.

- **Goal #7**: Improve Query and Reporting Tools: The solutions need to be constructed in a way that allows the users of the system to quickly and easily perform queries of their own creation. This query ability should be integrated with a dynamic reporting module that...
allows the users to quickly and easily create reports of their own design based on their created queries.

- **Goal #8**: Web Services: The solutions need to provide web services in a standard well documented format so that other systems can easily access the data contained in the new systems.

- **Goal #9**: Legacy Data Conversion: The solutions need to import all legacy data, cleaning it up in the process. User accounts need to be ported to IWISE if possible so that users do not have to create new accounts.
A.2.4 - Summary of Solutions

The Solution...

Educator Licensure Information System (ELIS)

Hupp Information Technologies specializes in the technology needs of governmental education entities. Every employee of Hupp Information Technologies has worked on applications to support education and those in education. This reservoir of experience will be valuable because the Illinois State Board of Education’s goal of creating a new Educator Licensure Information System (ELIS) requires an innovative solution that goes well beyond a typical database system.

As stated in the RFSP, this solution must organize and integrate the flow of data between multiple geographically disconnected entities, ensure that all facets of the educator credentialing process are tracked and monitored in accordance with law; automate query, search, and reporting capabilities to allow the user of the software to dynamically query the system for systemic issues and problems; and to accomplish all these objectives with a flexible, easily upgradeable, and user-friendly solution.

Hupp Information Technologies proposes that the Illinois State Board of Education’s needs and goals be met with the following solutions.

- Solution #1: New Database Design: We will completely replace the existing database. The new database will be the central repository of all data for the system, providing the glue for all the different applications accessing certification data. Unique views into this database will be created to address the needs of the different users who access the data. Web services will also be provided so that other systems have a well-defined interface for accessing certification data.

- Solution #2: Web Portal: All users will access the new Educator Licensure Information System through a web application tailored to their needs. This interface will allow most, if not all, applications to be submitted online by users. Illinois educators will also be able to check on their application’s status without calling ISBE. A second web application will be created that is integrated with ELIS and SIS. This system will be customized to collect teacher service record information. This information will then be used by SIS and ELIS as needed.

- Solution #3: Application Wizards: Illinois educators will have a new understanding of the Illinois certification process because we will customize our application wizards to ensure that they properly describe all necessary information to complete an Illinois certificate application. Only one topic at a time is presented in the wizards so that there is ample room to fully explain the concept of each wizard application step. This will not only improve the quality of the application data received, it will also educate users about the Illinois application processes.

- Solution #4: Imaging Portal: A new imaging module will be installed to automate the storage and tracking of documents. By implementing an imaging system it will be possible to scan and store every document coming into or out of the Illinois State Board of
Education. These documents will then be at the fingertips of any user with the appropriate security roles within the new Educator Licensure Information System. It will no longer be necessary to pull files to review a case because everything that is contained in the file will be available electronically.

- Solution #5: Documentation and Help: The new ELIS solution will have a help system that is entirely electronically integrated with the application.

- Solution #6: Training: Training is an important part of any new system implementation. We will train all ISBE personnel as needed throughout the life of the contract as long as the support and maintenance agreement is in good standing. Also, a training program tailored to each user group will be created and implemented to ensure institutions, ROE’s, districts and schools are knowledgeable in the use of the new ELIS solution.

- Solution #7: Support: Because of the constantly evolving nature of the educator credentialing needs of the state of Illinois, we are proposing on site support programmers for the duration of the contract.

- Solution #8: Highly Qualified Teachers: Like most states, Illinois is working hard to highly qualify all its teachers per the No Child Left Behind Act. The new ELIS solution will integrate with the new ESR solution to display teacher assignment data. That assignment data will then be matched against the credentials of the teachers to determine the highly qualified status of all Illinois’ educators in real time.

**Educator Service Record (ESR)**

Hupp Information Technologies specializes in the technology needs of governmental education entities. Every employee of Hupp Information Technologies has worked on applications to support education and those in education. This reservoir of experience will be valuable because the Illinois State Board of Education’s goal of creating a new Educator Service Record System (ESR) requires an innovative solution that goes well beyond a typical database system.

As stated in the RFSP, this solution must organize and integrate the flow of data between multiple geographically disconnected entities; ensure that all facets of the educator assignments are tracked and recorded, automatically calculate the FTE per assignment, automate query, search, and reporting capabilities to allow the user of the software to dynamically query the system for systemic issues and problems; and to accomplish all these objectives with a flexible, easily upgradeable, and user-friendly solution.

Hupp Information Technologies is partnering with IBM to implement the ESR system. IBM already has training and software structures in place for the batch collection of district files. They also already have a well-defined portal for collecting and displaying student information. It is a natural fit for IBM to implement the ESR solution to ensure that the links between the SIS and ESR systems are complete and without holes.

Hupp Information Technologies proposes that the Illinois State Board of Education’s needs and goals be met with the following solutions.
Solution #1: New Database Design: We will completely replace the existing database. The new database will be the central repository of all data for the system, providing the glue for all the different applications accessing teacher assignment data. Unique views into this database will be created to address the needs of the different users who access the data. Web services will also be provided so that other systems have a well-defined interface for accessing teacher assignment data.

Solution #2: Web Portal: All users will access the new Educator Service Record (ESR) System through a web application tailored to their needs. This system will allow the batch import of teacher assignment data which will then be shared with other systems such as ELIS and SIS.

Solution #3: Documentation and Help: The new ESR solution will have a help system that is entirely electronically integrated with the application.

Solution #4: Training: Training is an important part of any new system implementation. We will train all ISBE personnel as needed throughout the life of the contract as long as the support and maintenance agreement is in good standing. Also, a training program tailored to each user group will be created and implemented to ensure all user types are able to use the system properly.

Solution #5: Support: Because of the constantly evolving nature of the educator credentialing needs of the state of Illinois, we are proposing on-site support programmers for the duration of the contract.

Solution #6: Highly Qualified Teachers: Like most states, Illinois is working hard to highly qualify all its teachers per the No Child Left Behind Act. The new ESR solution will support the assignment and reporting of highly qualified credentials.

ISBE Web Information System for Educators (IWISE)

Hupp Information Technologies specializes in the technology needs of governmental education entities. Every employee of Hupp Information Technologies has worked on applications to support education and those in education. This reservoir of experience will be valuable because the Illinois State Board of Education's goal of creating a new Educator Web Information System for Educators (IWISE) requires an innovative solution that goes well beyond a typical database system.

As stated in the RFSP, this solution must allow non-district personnel to access ISBE online systems. Hupp Information Technologies has extensive experience in multiple states with authenticating users and will leverage that experience to solve ISBE's authentication needs.

Hupp Information Technologies proposes that the Illinois State Board of Education's needs and goals be met with the following solutions.

Solution #1: New Database Design: We will design a completely new database. The new database will be the central repository of all data for the system, providing the glue for all the different applications needing authentication services. Unique views into this database will be created to address the needs of the different users who access the data. Web services will also be provided so that other systems have a well-defined interface for accessing authentication data.
• Solution #2: Web Portal: All non-district users will access the new IWISE system to gain access to other systems like ELIS and ESR.

• Solution #3: Documentation and Help: The new ESR solution will have a help system that is entirely electronically integrated with the application.

• Solution #4: Training: Training is an important part of any new system implementation. We will train all ISBE personnel as needed throughout the life of the contract as long as the support and maintenance agreement is in good standing. Also, a training program tailored to each user group will be created and implemented to ensure all user types are able to use the system properly.

• Solution #5: Support: Because of the constantly evolving nature of the technology needs of the state of Illinois, we are proposing on-site support programmers for the duration of the contract.
AO2.5 - HIT/IBM Partnership

Partnership Overview

HIT and IBM have partnered on this effort to ensure the needs of the Illinois State Board of Education are met on every level possible. Our collective team presents the strongest possible implementation team for the new ELIS, ESR, and IWISE development efforts. IBM will focus on the new ESR solution and its integration with the SIS system. HIT will focus on the new ELIS and IWISE solutions. Dean Hupp, the project manager from Hupp Information Technologies, will work closely with the IBM project manager, Howard Hammel. Ultimately, Dean Hupp, and Hupp Information Technologies, will be responsible for the delivery of all three systems.

IBM, one of the largest corporations in the world, has worked with ISBE for many years on the Student Information System (SIS). Their knowledge of ISBE systems is comparable to HIT's knowledge of these systems. Together, our collective knowledge is unmatched in the consulting field. Our two organizations are the Subject Area Experts on ISBE systems and processes. It is hard to imagine any other vendor having more knowledge and experience with the ISBE environment and processes than the partnership of HIT/IBM.
A.3 - Product Overview

Hupp Information Technologies
A.3.1 - Product Opportunities

The Illinois State Board of Education has a number of opportunities to benefit from the Educator Licensure Information System; and Hupp Information Technologies has the capabilities to exploit these opportunities. The Hupp Information Technologies is proposing its certification product, HIT-LS, as the primary foundation for our ELIS implementation. This product has been installed in three states and already meets 90% of the ELIS requirements listed in the ISBE Redesign of TCIS and TSR proposal.

Hupp Information Technologies is proposing programmers that have worked on virtually every software system currently being used at the Illinois State Board of Education (in addition to at least one credentialing implementation). This comprehensive understanding of the issues that face governmental education agencies allows us to better position the Illinois ELIS solution within the overall structure of ISBE responsibilities. Because of this extensive background, we will be able to more easily integrate the ELIS solution with other ISBE software solutions.

However, our exceptional technical knowledge of the issues ISBE faces takes a back seat to our overwhelming ability to implement highly streamlined, highly usable, software solutions that always manage to outperform already high expectations. Our developers have forged many partnerships with the Illinois State Board of Education, Oklahoma Department of Education, New Hampshire Department of Education, and Mississippi Department of Education over the years, and we look forward to continuing our partnership with the Illinois State Board of Education to see the following opportunities realized.

By partnering with Hupp Information Technologies on the Educator Licensure Information System, the Illinois State Board of Education has the opportunity to take a leadership position in the tracking and credentialing of its educators. A few of the many opportunities that await the Illinois State Board of Education are the ability to reduce costs, in both time and money, associated with tracking and handling of educator credentials; improve communication with parties outside of ISBE that are involved with the various credentialing tasks; and ultimately reduce the workload of the Illinois State Board of Education by becoming more proactive in their credentialing of educators by sharing the entry load to the universities, districts, and teachers.

To deliver on this effort, Hupp Information Technologies is proposing our flagship certification automation product known as the Hupp Information Technologies Licensure System, or HIT-LS. The HIT-LS solution is already poised to deliver 90% of the requirements in this RFSP. Our proposal meets 100% of the listed requirements with a few simple customizations to the core HIT-LS solution, the implementation of our customized SSO solution, and the development of the new ESR portal. Most importantly, this is accomplished with two customized production systems (ELIS and SSO). These systems have been in production in other states for many years which means ISBE will benefit from a solid, well tested foundation as it moves forward with these solutions. As you review this RFSP response you will notice we use our internal name, HIT-LS, as well as, the name assigned in the RFSP, ELIS, interchangeably when referring to the system that replaces the existing TCIS and ECS legacy solutions. ELIS and HIT-LS both are intended to interchangeably refer to the same implementation. Also generally speaking, HIT-LS refers to the core HIT-LS product and ELIS refers the customized implementation of HIT-LS. A few of the opportunities that can be realized with a HIT-LS implementation are listed below.
1.4.1.1 Improve Communication with all Credentialing Parties

By communicating more effectively with all parties involved in the credentialing of educators, ISBE has the opportunity to improve all parties' experience. This will enhance the public's impression of the Illinois State Board of Education. Also, because of the ability for all parties involved to access relevant information more quickly and easily, the number of actual calls into the agency has great potential to decrease over time due to better publicly available information.

Hupp Information Technologies is focused on development that communicates as much information to the users of HIT-LS as possible. We believe that well informed users who are allowed to evaluate available information and make decisions are the best users. To illustrate this we are proposing a publicly available web credentialing system that will allow appropriate users to query educator credentials. This should result in fewer calls to the help desk because districts, universities, ROE's, and educators themselves will now be able to look up files online.

1.4.1.2 Automate the Storage and Retrieval of Credentialing Documents

By implementing an electronic imaging system the Illinois State Board of Education has the opportunity to electronically capture and save all paperwork associated with the certification process. This will protect ISBE by providing a dependable mechanism in which to store these materials, as well as, improve the ability of the system to support the processing and management of certificate applications.

Hupp Information Technologies has many years of experience in the effective use and integration of imaging technologies within an overall software solution. This is important because implementing an imaging system that lacks effective integration with the rest of the system falls well short of its potential. By leveraging Hupp Information Technologies' ability to seamlessly provide imaging functionality within the Illinois Educator Licensure Information System, the Illinois State Board of Education will have the opportunity to create a system unequaled in its ability to track, maintain, and support, and document the various aspects of educator credentialing.

1.4.1.3 Save Money and Time

By implementing a superbly structured and designed software solution the Illinois State Board of Education has the opportunity to reduce costs associated with educator credential tracking and processing. This will be accomplished by streamlining integration of the various modules, improving communication to all involved parties, and fully integrating the new Educator Licensure Information System with other ISBE systems. Costly support calls will be reduced by providing the information online to the public (with appropriate user security of course).

Hupp Information Technologies has an extensive background in designing systems that are integrated and streamlined. Integrating and streamlining a system automatically reduces costs by reducing staff time spent overseeing the system. We will streamline the system and reduce costs by implementing tangible functionality such as electronic applications for educators, having universities enter newly graduating educators directly into the system, automated
tracking of certificate deficiencies, and allowing school districts to access teacher information without calling the Illinois State Board of Education.

1.4.1.4 Improve Software Technology

By implementing a newly designed ELIS system the Illinois State Board of Education has the opportunity to become a national leader in the handling of educator credentialing. The new technology will automate many tasks that are currently done manually, reducing the time required to get applications processed. The new technology will better position the Illinois State Board of Education to be proactive to future requirements by being more manageable, more streamlined, and easier to use.

Hupp Information Technologies has many years of experience in the design of dynamic table driven software. Table driven design is an approach to software creation that stresses the user's ability to modify the system through maintenance screens. For instance, using the checklists for certificate issuance as an example, table driven software would allow an administrator of the ELIS system to change the order and type of documents that are needed prior to a staff member reviewing the case. By using a maintenance screen (which only administrators of the system could access) an administrator could change the requirements for any application. Once the requirements have been changed, HIT-LS will automatically start tracking the new document requirements. The application will only be routed to an evaluator after the list of new documents are received; and until they are received automated deficiencies will be mailed to the applicant informing him or her of the outstanding requirements. The exciting thing is that this is possible with no program changes to the application. No program code changes means that support and maintenance costs will be inherently lower over the life of the ELIS system.

Hupp Information Technologies has extensive experience in this type of design and implementation and we look forward to partnering with ISBE to make the ELIS system a model of user control and management.

1.4.1.5 Create New Web Application for Users External to ISBE

By creating a new web application that allows access to ISBE data, the Illinois State Board of Education can significantly improve the communication between all involved parties, improve the data that is collected, and reduce the workload ISBE staff by having the involved parties enter their portion of the ELIS data. ISBE has an opportunity to create a web portal that is tailored to the needs of their different users.

Hupp Information Technologies has many years of experience in the design of usable software interfaces. A great example of this expertise can be found in the OECS web application on the Oklahoma State Department of Education home page (sde.state.ok.us). The OECS application has allowed teachers all over the country to enter tens of thousands of applications electronically from the comfort of their own home. Because of our extensive knowledge of the intricacies of interface design, not one support call has been received in the Oklahoma Department of Education asking how to complete the applications. Implementing a web application poorly can actually increase the time supporting that application. A well designed web application will not require the user to answer more than one question at time. In OECS, we walk the educators through the application process one question at a time. The wizard format significantly reduces support calls. This highly desirable goal is achieved by focusing the
educator on one issue, and then explaining that issue in detail with user friendly language. By addressing potential questions before they are asked, we better educate the applicant, which improves their experience, and reduces support calls.

1.4.1.6 Improve Module Integration

By creating a new ELIS system ISBE has the opportunity to significantly improve the integration between the various modules. This integration will result in less work and real cost savings. ISBE will be able to view all pertinent information on one screen regardless of its source. Because of this improved integration, ISBE will be able to analyze the data in depth. Questions such as ‘How many of our educators certified since 2000 are not considered highly qualified in their teaching position?’ can be answered quickly and easily because the new ELIS solution is so closely integrated with other Illinois systems.

Hupp Information Technologies' staff have decades of experience in integrating different modules of a software system. We have been trusted by the United States Military Academy (West Point) for over five years to design and maintain their recruiting system. By partnering with Hupp Information Technologies you will achieve your goal of an integrated system that is highly usable and intuitive. The integration of the ELIS modules becomes the backbone of all credentialing activities. Meaningful trends and systemic issues cannot be identified unless all modules are tightly integrated, with an eye toward certification data collection. Hupp Information Technologies will meet with ISBE staff during the design phase to ensure we understand all data that needs to be collected and analyzed. When you combine this effort with our focus on a dynamic table driven solution it is easy to see how our solution best accomplishes the goal of improved module integration and reporting.

1.4.1.7 Improve Deficiency Tracking

By creating a dynamically defined list of deficiencies for each license and certificate type, the Illinois State Board of Education will be able to allow the new ELIS solution to automatically track and report all remaining deficiencies for all deficient certificates. ISBE has the opportunity to reduce future support costs, improve system usefulness, and improve customer communication by allowing these deficiencies to be viewed online by applicants. The deficiency system would allow Illinois State Board of Education staff to see which documents have been received. This system would also automatically route applications to evaluator queues once all required documents are received.

As previously demonstrated, Hupp Information Technologies has extensive experience in designing and implementing table driven software solutions. We will automate the process of sending, receiving, and tracking documents, while at the same time, ensuring that ISBE staff has complete control over each and every document. We also ensure that all tests are automatically tracked when new testing results imports are performed.

1.4.1.8 Improve Query and Reporting Tools

By creating a new query and reporting module, ISBE has the opportunity to significantly improve its detection of anomalies and systemic issues. A new query engine needs to be designed and implemented that allows common users to extract useful information from the ELIS system. The
tool needs to be designed in a manner that allows the joining of all data contained within
different modules of the system. For example, a user should be able to ask the query tool for
the number of certificates that were issued to teachers who are not marked highly qualified.
The query tool should also be able to save and load common queries for reuse. The integrated
reporting tool should allow a user to produce a report based off a query, as well as, create a new
report from scratch.

Hupp Information Technologies is uniquely positioned to support the ISBE’s goal of improving
querying and reporting of certification data. The core HIT-LS solution has a dynamic query and
reporting tool integrated into it. This tool allows users to look at all aspects of the certification
data in any way they wish. They can save and load queries, generate reports, and produce
reports at will. The HIT-LS solution has a reporting module built into the software that allows
users to create new reports. The user can add new fields, groupings, and sorts to reports of
their own design. These reports are then automatically incorporated into the report menuing as
if they were part of the stock reporting customization effort. These examples illustrate the kind
of functionality that ISBE can expect with user oriented table defined software design.

1.4.1.9 Decrease the Time Between Application Submission and Response

The new ELIS solution will allow the Illinois State Board of Education to greatly improve
communication to applicants. We will start by immediately generating a deficiency letter upon
receipt of all non issuing applications. The automatic deficiency letter will verify that the
applicant’s application has been received and list all documents that must be sent in prior to the
application being reviewed. The scanning module will automatically identify documents as they
are received by the Illinois State Board of Education. When a new document is received, an
updated deficiency letter will automatically be sent out listing what has been received and what
is still outstanding. This type of thinking will be applied to all aspects of the system to ensure
the applicants are getting the best possible response time and service.

Hupp Information Technologies is uniquely positioned to partner with the Illinois State Board of
Education in its goal of improving response time to educators. Our experiences in Illinois will
help us to suggest meaningful improvements to the Illinois State Board of Education processes.
We look forward to working with the Illinois State Board of Education to identify possible areas
of process improvement.

1.4.1.10 Automate Import of Teacher Test Scores

The new ELIS solution will ensure that the Illinois State Board of Education will be able to import
test scores and then automatically associate them to the appropriate certificate applications.

Hupp Information Technologies is well positioned to implement an entirely new testing module
that allows for the importation of testing results or the manual entry of testing results. The new
module will be integrated with the deficiency module to ensure that testing deficiencies are
removed as tests are passed.

1.4.1.11 Creation of a Work Flow Assignment Process

The new ELIS solution will integrate an entirely new office automation module. As an evaluator
logs into the system he or she will see the applications that are ready to be reviewed. The ELIS solution will automatically track which applications have all required documents on file and then automatically put those applications into the appropriate work queues. We will work with ISBE to determine the best way to assign the applications to work queues.

Hupp Information Technologies has already implemented a very similar system in New Hampshire, Mississippi, and Oklahoma and we look forward to leveraging our experiences in these states to help improve the work flow of applications in Illinois.

- **14.1.12 Batch Print Of Certificates**

The new ELIS solution has a batch printing capability that will print all queued certificates at one time. This will enable certificates to be queued to print throughout the day and then actually printed at set times. Generally certificates are printed every morning. The morning batch print includes everything sent to print since the last batch print.

Hupp Information Technologies has already implemented a very similar system in Oklahoma, Mississippi, and New Hampshire and we look forward to leveraging our experiences in these states to help improve the batch printing process in Illinois.
A.3.2 - Product Information

Hupp Information Technologies is excited about the Educator Licensure Information System. Our vision for this project will exceed every standard and goal that has been set forth in the RFSP. We envision a system that has one database server, one web server, and possibly a report server, and all users, both internal and external, will access the system concurrently.

The new ELIS application will be available over the Internet as a web application. Users internal and external to ISBE will be able to log into the ELIS database at any time to track appropriate certification information. The new portal will allow real time dissemination of certification data. For instance, a university can enter a graduate’s certificate information, and the graduate can log in and immediately see the certificate information entered by the university. From this point the graduate can submit an online electronic application; all without leaving his or her home.

The new database system will become the driving force behind all activity related certification. Hupp Information Technologies will take the next step to ensure that the new ELIS system is fully integrated with all pertinent ISBE systems. Again, our unique knowledge of these systems ensures that this integration is done correctly, and that all systems are fully integrated, not superficially. Hupp Information Technologies will work with ISBE during the requirements study to integrate the new solution with all required systems.

Web applications, by definition, must be simple to use. If they are not, their public nature will generate a multitude of phone calls. We will ensure the new system is designed to assist users through the most common tasks.

In addition to this, we will ensure the new ELIS solution has a database that is designed from the beginning to be highly manageable by the users. We are proposing a system which is table driven. Certificates, and the deficiencies that are assigned to them, must be customizable by the system administrator. We will make the deficiencies, and all modules of the system, table driven so that users are in control of how the system operates and behaves. An example of this concept is the design of our document mailing system. The deficiency system will allow the system administrator to create or remove deficiencies, and define the order and in which they are checked. This means that a new certificate can be added to the system and deficiencies defined for it all without the involvement of a programmer. This flexibility means that future enhancements like this will be more straightforward and easier to implement, because hard coded system rules will not exist to complicate the effort.

Any customizations that are required will be built into the system without compromising existing data. We will import all existing certification data into the new database structure. If other data exists we will review it for its applicability for import as well. Our goal is for every piece of existing importable data to be available in the new system.

The existing data will have to be converted in some cases. This conversion will actually improve the quality of the legacy data. The improvement of quality will be a direct result of the data cleansing activity that must take place before it can be converted. One example of how this will happen is that the old data certificate expiration dates will be validated by certificate type before being imported into the new database. Once this has been completed the new querying and reporting system will be able to
extract information from the old data that was impossible (or very difficult) before its cleansing and conversion.

The newly converted data will really shine when it is analyzed in the new query and reporting system. This system will employ a dynamic query screen to allow the user to look for any combination of values on any combination of fields. These queries can be saved for reuse or made public for other users. A dynamic reporting tool will be incorporated into this screen that allows the users of the screen to make new reports based off any query. A report designer will be integrated with the software. A user can pull up the report designer and create a new report based on any query by simply hitting one button. This automated query and reporting tool will be the backbone of the monthly reporting requirements. Management can ask the system any question they like, and have a report printed off in minutes that professionally answers that question. If they would like, for further analysis, they can have the query tool extract the data to Excel. Once in Excel, the data can quickly and easily be used to create graphs or perform more in depth functions such as standard deviations. This transition from query results to Excel graphs can literally be performed in seconds.

Hupp Information Technologies will design and implement all this functionality in partnership with ISBE. Our project manager will work closely with ISBE management to ensure that ISBE management is fully apprised of its status at all times. We plan to meet with ISBE staff on a recurring basis every Monday morning (the actual day of the week is flexible depending on ISBE schedules). The lines of communication will always be open and free flowing. A status report will be submitted during that meeting that communicates progress, impediments, and accomplishments. We want this development effort to be a partnership. Our policy of communication will not be one sided, where good information is communicated, while bad information is buried or omitted. Bad news does not get better with time. Our communication policy will be transparent, as it should be between partners. The Hupp Information Technologies staff assigned to this project will work at ISBE where they can best define and implement the needs of the Illinois certification processes.

Furthermore, during the implementation of each major module, our staff will be required to work the help desk. Programmers that work directly with users benefit from that interaction, and learn how the software and solutions they have designed are being used. Often times, they learn that functionality that seemed obvious is not that obvious to the end user. By interacting with the users who call the help desk, the programmers will be able to modify the newly implemented module immediately, thus reducing the number of calls that are generated. Furthermore, they can then take this knowledge and apply it to future development to reduce potential future calls. The collective effect is a benefit for everybody. The programmers adapt and modify the system at a faster rate because they do not want a high call volume, while ISBE staff is spared from taking calls in which they are not able to answer. When problem calls have been replaced by how-to calls, we will train the help desk on the software, and turn the first line support over to them. However, the programmers will always be required to assist the help desk whenever needed.

To help reduce the number of potential how-to calls, we will conduct training at the ISBE computer training facility as needed. Hupp Information Technologies staff will perform as many training sessions as required to ensure that all users, internal and external, are fully trained on the use of the new system. This training would not include individual educator training. Because the wizards are intuitive, we find it is not necessary to train individual educators. Help manuals are available for download by the educators.
Lastly, being consistent with the principles of partnership, Hupp Information Technologies understands that ISBE needs the flexibility to modify or change priorities. We will work with ISBE to accomplish their goals. If new functionality is needed that was not originally anticipated in the RFSP, then we will implement it. We want this solution to be a model of partnership. Debating whether small issues are in or out of scope does not lend itself to the building of a strong partnership, nor does it serve the long term goals of ISBE or Hupp Information Technologies. Our role will be to solve problems for ISBE, not create them. This, understandably so, would not apply to new modules, but rather to small areas that were not documented correctly or identified in the RFSP.
B - Project Management Plan

Hupp Information Technologies
B.1 - Project Work Plan
B.2 - Issue Management Plan

Issue Management is a key element of HIT/IBM's Worldwide Project Management Method (WWPMM) methodology and is described in the Transition and Conversion Plan as the process to plan and contain new and/or emerging issues regarding project risk.

The HIT/IBM team will establish an issue process and tools and encourage the project team to record issues, conduct impact assessments, identify team members responsible for resolving issues, and document current status. The joint HIT/IBM-ISBE management team will use the issue tracking tool to monitor issue resolution and identify problem areas within the project. The HIT/IBM team will review open issues as part of its internal project status meetings as well as in the monthly performance review meetings.

The following is a summary of the process the HIT/IBM team will use to address issues as they arise on the project:

- Project issues will be documented in detail in the issue tracking tool.
- The author will propose alternatives for a possible resolution, and assign the issue to an individual whom he/she believes could resolve the issue.
- As part of their routine project management tasks, the management team will review the open issues list to manage the issues against plan.
- Issues are grouped for status reporting and are prioritized and escalated as required.
- A resolution date is assigned in conjunction with the timelines associated with the project plan.
- The HIT/IBM PM will escalate issues that cannot be resolved by the project team.
- The issue should be resolved by the due date.
- Once resolved, project management must review and approve the issue for closure and forward the resolution notes to the change management or communications manager when appropriate.

- Our issue management approach serves to identify potential project risks and plan for their occurrence, thus helping to improve the effectiveness of project management. Risk management looks at those factors that threaten to delay or stop project activities from being carried out and prevent milestones from being achieved. The HIT/IBM approach seeks to anticipate problems and pre-plan, wherever possible, ways of reducing the probability of occurrence and/or of mitigating their impact should they occur.
B.3 - Risk Management Plan

HIT/IBM's Worldwide Project Management Method (WWPMM) defines risk as a "potential event or future situation that may adversely affect the project." Adverse effects include diminished quality, increased costs, delayed completion, a dissatisfied client, and project failure. By using WWPMM, the HIT/IBM embraces the concept of ongoing risk management. This is consistent with software development and integration risk management as defined by the Software Engineering Institute (SEI). By employing risk management, the HIT/IBM team will provide a disciplined environment for responding to risks and enable proactive decision making.

The PM will develop the risk management plan that highlights the specific risk management processes, methods, and tools to be used on the project. This plan will include roles and responsibilities and risk management activities necessary for managing risk. The plan will determine risk management metrics to be collected and analyzed. Working from the risk management plan, the PM will interact with each team lead to identify and classify potential risks.

HIT/IBM's standard approach to risk management includes the following five essential steps.

- **Identify Risks:** At project inception and throughout the project lifecycle, risks will be identified. This will be done through facilitated risk identification workshops, meetings with project stakeholders, review of project artifacts, and lessons learned from similar implementations.

- **Analyze Risks:** New risks issues will be analyzed to assess their impact, probability, and severity. Existing risks will be validated to determine if their severity has changed. The criteria for assessing impact, probability, and severity will be defined in collaboration with ISBE project team. Based on the assessment, risks will be prioritized.

- **Plan Response:** Based on the risk assessment and severity, the project management team and risk owners will develop risk response strategies to minimize and prevent risks and to respond to risks if they materialize. Particular focus will be made on working and managing risk efforts to close risks. Documented risk responses will include a plan of specific activities including timelines and resources requirements, roles and responsibilities for implementing the plan, and triggering events that will prompt the implementation of the response plan.

- **Track Risks:** HIT/IBM will continually track and report risk at appropriate management levels. In addition, HIT/IBM will provide a regular risk report that includes open risks that may adversely affect the project, quantifies the probability and severity of risks, describes risk response strategies, and provides a current status of risk.

- **Control Risks:** HIT/IBM will continually monitor the status of risks and progress on implementing mitigation and contingency plans.
Risk management requires that risk identification is an ongoing process, not a one-time only activity. In accordance with WWPMM, risks will be analyzed on an ongoing basis to adjust to changing conditions and priorities in the project. The goal of risk management is to identify risks to the project and develop and implement appropriate mitigation actions in advance. The HIT/IBM team will proactively identify and mitigate risks before they affect the project schedule, lead to cost overruns, or result in unsatisfied requirements.
B.4 - Quality Management Plan

HIT/IBM’s Quality Assurance Management Plan describes the way the deliverables and key work products are quality assured.

The objectives of the plan are:

- Requirements are well understood and that (testable) acceptance criteria are specified
- Deliverables are well risk assessed
- Appropriate quality activities will be taken for each deliverable
- Demonstrate or review of major deliverables before completion

In order to enable that the deliverables produced by project meet required standards of quality, a formal process is needed to:

- Adhere to the process standards
- Find defects in deliverables using a defined review process
- Remove defects as early in the development lifecycle as possible

Quality Goals

Without a Quality Plan, neither ISBE nor the development team can be confident that the key work products or deliverables will meet the agreed-upon acceptance criteria. It will be difficult to verify and validate that the deliverables will meet the quality expectations for the product. Failure to focus on the quality of the work products/deliverables may result in ISBE not accepting the deliverable(s) and customer dissatisfaction.

Quality Strategy and Objectives

The purpose of the quality strategy is to:

- Identify the areas of risk
- Select the defect prevention and defect removal activities to be performed through development of the project deliverables
- Develop quality plan tracking methods

The quality strategy is mainly driven by the quality objectives. Quality objectives vary based on the individual perspective of the viewer. There are three different perspectives:

- End user perspective – quality means that the system meets the user needs or expectations i.e. the “right system has been built”
- Developer perspective – quality refers to the way the “system”, which is the technical solution to a business problem, has been “built right”

- Sponsor’s view – quality is the ability of the system to function without failing – minimizing the risks and thereby reducing the risk and therefore the impact of failure.

It is imperative that the quality risks be assessed carefully to focus the quality effort where it is most required. This poses a challenge to the project, as the project manager has to balance the conflicts against the trade offs. This means that in order to deliver a quality product, the different stakeholders must agree on a collective, common set of priorities so that the project resources are applied carefully and cost effectively.

Quality Criteria

Contrary to popular belief, quality is not free. The cost of quality is made up of the following components:

- Cost of failure – this includes not only the cost of system errors and outages, but also the cost of lost business and missed opportunities
- Cost of defect detection – this includes the cost of testing, inspections, and walkthroughs
- Cost of prevention – this includes the cost of instituting methods, standards and procedures
- The target level of quality is therefore determined jointly by the stakeholders to:
  - meet the quality objectives from different perspectives
  - manage the process and the product quality in a cost effective manner
  - reduce cycle time while managing risks and costs

Quality criteria represent the internal view of acceptance criteria. They are the defined and measurable characteristics of work products or deliverables that must be considered so that acceptance criteria for the deliverables will be met.

The overall quality criteria for the project are:

- Conformance to both the functional and technical requirements; and
- Elimination of defects found in integration and user acceptance testing, prior to the move to production.

Below are examples of quality criteria and the associated definition.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctness</td>
<td>Extent to which the requirements documents reflect the end users business processes</td>
</tr>
<tr>
<td></td>
<td>Extent to which a program satisfies its specification and fulfills the user’s mission and objectives</td>
</tr>
<tr>
<td>Criteria</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reliability</td>
<td>Extent to which a product can be expected to perform its intended function with required precision</td>
</tr>
<tr>
<td>Efficiency</td>
<td>The amount of computing resources and code required by a program to perform its function</td>
</tr>
<tr>
<td>Integrity</td>
<td>Extent to which access to software or data by unauthorized persons can be controlled</td>
</tr>
<tr>
<td>Usability</td>
<td>Effort required to learn, operate, prepare input, and interpret output of a program</td>
</tr>
<tr>
<td>Maintainability</td>
<td>Effort required to locate and fix an error in an operational program</td>
</tr>
<tr>
<td>Testability</td>
<td>Effort required to test a program to verify it performs its intended function</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Effort required to modify an operational program</td>
</tr>
<tr>
<td>Portability</td>
<td>Effort required to transfer a program from one hardware configuration and/or environment to another</td>
</tr>
<tr>
<td>Reusability</td>
<td>Extent to which a program can be used in other applications related to the packaging and scope of the functions that the program performs</td>
</tr>
<tr>
<td>Interoperability</td>
<td>Effort required to couple one system with another.</td>
</tr>
</tbody>
</table>

**Risk-Based Approach to Quality**

As technology advances and businesses get more complex, the cost of software errors goes up. As can be expected, the cost of finding and fixing errors goes up exponentially as we progress through the development lifecycle. The later the errors are found, the higher the cost. It is also not difficult to establish that exhaustive testing is not feasible. Even if it were, it is not cost effective. Therefore an effective quality management plan is based on effective risk management methods and includes using techniques to perform necessary and sufficient quality reviews and testing.

Quality assurance focuses on the processes that are used to develop the product and the management of the development process itself. Quality control is made up of Static and Dynamic testing which is focused on the quality of the product and how well the product meets the quality objectives of the different stakeholders. With a risk-based approach to quality assurance and testing, the focus areas are identified using risk as the main driver. In other words, the goals are to reduce project risks and manage testing risks. The key is risk assessment and acceptance versus avoidance. Quality strategy is based on an understanding of risks and associated costs.

The quality assurance plan will involve activities throughout the project lifecycle. Quality assurance will enable defects to be detected and corrected early enough, which will help minimize the impact to the project. The quality assurance process will involve both HIT/IBM and ISBE on activities to verify the following:

- Business Rules
- Data Quality
- Dashboard, Scorecards and Report Accuracy

The review of the business rules will involve documentation and ISBE signoff for rules incorporated into
the Extract, Transfer, and Load (ETL) process. The rules will be reviewed with the ISBE data stewards for accuracy. The review of data quality will consist of multiple steps.

a) Review of the source data. This review will consist of a reasonableness check to verify completeness of the source data.

b) Review of the ETL results will verify the accuracy of the ETL process to verify that source data has been either loaded to the ELIS-ESR or appropriately rejected. Subsequently, the effects of the business rules on the data loaded will be reviewed to verify the appropriateness of the business rule.

c) Test Dashboards and Reports to verify both the reasonableness of the data presented and the accuracy of the report.

To verify reasonableness, the dashboards and reports will be compared to existing source system reports. To verify accuracy, the dashboards and reports will be tested to verify that the results are consistent with the data loaded to the ELIS-ESR.

Quality Process Responsibility

The following table outlines the quality process responsibility for each project team role:

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Project Manager</td>
<td>Responsible for clarifying project objectives and standards. Will provide formal sign-off on all deliverables. Manages the HIT/IBM Team members so that they follow the agreed to processes. Responsible for resolving issues and for the quality and timeliness of project deliverables.</td>
</tr>
<tr>
<td>ISBE</td>
<td>Responsible for providing input in overall project direction. Will resolve project issues and problems that have a material impact on project schedules, quality or budget.</td>
</tr>
<tr>
<td>Project Personnel</td>
<td>Includes HIT, IBM and ISBE personnel working on the project. Responsible for understanding objectives, responsibilities, standards and processes for quality. The project personnel will be expected to follow the identified quality processes or seek guidance from mentors or senior staff. Project personnel are responsible for completing tasks within the agreed to quality targets and in a timely manner.</td>
</tr>
</tbody>
</table>
B.5 - Change Management Plan

In such a complex project, project changes are likely to occur. The prime purpose of change management is so that proposed changes that are of benefit to the project are implemented in a controlled manner and that proposed changes that are of little or no value are not. The first step is generally to create a change request, which supports the above objective by providing:

- A record of the proposed change and the rationale behind it.
- A record of the results of an analysis of the potential impact of the proposed change.
- The information required by the change control board to decide how to proceed with the proposed change and a record of those decisions.
- The information required to monitor the implementation of the change through to completion.

Change requests are then entered into a change log, to provide summary information about all the unforeseen changes that the project is managing. This log is often used as an agenda for a change control board meeting or to provide input for a status report. If approved, the change request then generates a change order. This form contains the information required to manage the implementation of all or part of one or more approved change requests. It includes a specification of what must be changed and a high-level implementation schedule, enabling implementation of the change to be tracked and controlled.

As with all of our templates, we can adjust them to meet ISBE’S needs and preferences. We propose that requests initiated by ISBE be submitted to the ISBE Project Manager for review, and similarly HIT/IBM change requests will go to the HIT/IBM Project Manager. Each will review the proposed change and determine whether to submit the request to the other party. Together the ISBE Project Manager and HIT/IBM Project Manager will review the proposed change and recommend it for further investigation or will reject it, and update the change log.

For change requests that would result in additional charges or changes to the Statement of Work, HIT/IBM will specify this as part of the investigation. PCRs resulting in contract changes such as cost or timeline must be signed by authorized representatives of both parties to authorize investigation of the recommended changes. The investigation will determine the effect that the implementation of the PCR will have on price, schedule and other terms and conditions of the Agreement. HIT/IBM will invoice ISBE for resulting charges.
C - Deliverables Overview

Hupp Information Technologies
C.1 - Weekly Status Reports

Purpose

HIT/IBM will provide weekly and monthly Status Reports advising the ISBE Project Manager of the progress and status of HIT/IBM activities worked on during that period. Significant accomplishments, milestones, and problems will be identified.

Content

The report will consist of the following, as appropriate:

- Work completed during the reporting period
- Activities underway during the reporting period
- Work scheduled to commence in the next two reporting periods
- Status of work against the project work plan including the efforts that are underway and deviations from the planned work schedule
- Status of issues and risks
C.2 - Project Management Plan

Purpose

The purpose of this document is to provide a detailed Project Management Plan for the ELIS-IWSE-ESR Project.

Content

The Plan will consist of the following, as appropriate:

- Project Work Plan
- Issue and Risk Management Plans
- Quality Management Plan
- Change Management Plan
C.3 - System Requirements

Purpose

The purpose of this document is to define and cover the relevant life cycle phases in the ELIS-IWISE-ESR project. This document will review personnel roles and responsibilities, list agreed deliverables, and discuss planned quality activities in the various project phases.

Content

The report will consist of the following, as appropriate:

- Confirm the systems and data that will be included in the ELIS-IWISE-ESR system;

- Identify the composition of the information that will populate the databases for each new system, as applicable;

- Detail the functionality to be included in each new system, including data-entry and extract capabilities, error-check and audit tools, role-based functionality, and use and security features;

- Confirm the data and reports to be transitioned from the existing systems to the new systems, including the visualization features and graphics that will be incorporated into the reports; and

- Specify the interface that will exist between and among the new systems and with other systems internal and external to ISBE, including the business rules for linking student course assignment data captured in SIS with teacher course assignment data captured in ESR.
C.4 - System Design

Purpose

The system design will provide information including the architecture of the ELIS-IWISE-ESR system, the architecture of the ELIS-IWISE-ESR portal, and the architecture of the report processing for the ELIS-IWISE-ESR solution. The following are required content for the system design:

Content

IWISE Architecture – The HIT/IBM team will define and document the architecture to be used for the IWISE Web portal, including the following:

- Identification of what development tool and software will be used in the construction of the portal.
- Description of how the portal will organize and display information to the user community. The portal must be able to host and provide access to Crystal Reports and other reporting presented in Microsoft® Excel, Microsoft® Word, PDF, HTML, and text formats. The portal must also support links to other reporting portals and systems.
- An explanation of how the portal will provide role-based capabilities, including but not limited to these roles:
  - Educator and district administrator role that allows access to the private credential accounts of individual educators;
  - Public search role that allows access to a set of predefined credential information for individual educators;
  - ELIS administration role that allows authorized ISBE, regional office of education (ROE), and higher education users to view and edit ELIS information;
  - Technical role that allows authorized ISBE users to author, stage, and schedule the display of reports and other information; and
  - Administrator role that allows authorized ISBE users to manage the portal and portal content.

Reporting Architecture – The HIT/IBM team will define in the deliverable the approach to be used for displaying, accessing, and executing reports in conjunction with ELIS, IWISE, and ESR, including the following:

- The reporting tools or software that will be used to construct reports, including the construction of standard and customized reports;
- How the architecture supports and accomplishes report generation, batch processing, and distribution of reports;
Identification of reporting features that will be supported, including the following:
- Drill-down or drill-through capabilities for reports;
- The use of parameters for reporting;
- The use of graphics (e.g., tables, charts) in reports; and
- Sorting or filtering of result sets (e.g., date range, gender).

How the reporting architecture will accomplish the archiving of reports and access to previous report instances;

How the architecture will support user-defined reports, ad hoc report construction, and the saving and distribution of user-defined reports; and

The mechanism that will be used to support the capture of audit information, including user report requests and data viewed by users.

**Maintenance and Operations** – The HIT/IBM team will identify the approach to be used for the maintenance and operations of the new systems, including the following:

- Processing and maintenance periods;
- How operational support resources monitor the performance of the new systems, during user access periods and during maintenance and data loading processing;
- How report scheduling and batch operations are established; and
- E-mail integration and report distribution mechanisms.

**Security Strategy** – The HIT/IBM team will define and document a security approach, including how security is implemented to protect and secure data. The approach will include defining and managing security levels and the capabilities associated with the security levels. The architecture of the security strategy is presented in the System Design deliverable, with additional information on maintaining the security of information to be included in the Operations Training Materials deliverable.

The security strategy must also define a control approach that prevents unauthorized access to the data and should address data encryption for the storage and transmission of data.

**Technical infrastructure** – working with ISBE technical resources, the HIT/IBM team will identify the infrastructure needed to support the new systems and their associated components. This includes servers to deliver the IWISE Web portal, report content, RDBMS, and batch processing.

The data storage requirements and the configuration of storage devices will be defined for each new system. Data storage requirements will be defined for project startup and will also include sizing estimates for a five-year growth period to support infrastructure planning. Data storage must take into account the data to be loaded and also storage requirements for report generation and report archiving.

ISBE will work closely with the HIT/IBM in defining the technical infrastructure, and ISBE will be responsible for providing the hardware and infrastructure components that will host the new systems and their associated components.
Component Performance – The HIT/IBM team will define and present in the deliverable the approach for evaluating the performance of each component and for optimizing performance. The HIT/IBM team will define the architecture for each component, such that the components support ISBE business practices, and users are able to successfully use the new systems to accomplish their work in an efficient and timely fashion.

The deliverable will present the overall architecture of the components that ensures the design and construction approach incorporates industry-accepted best practices to make sure component performance is optimal. Response times for data extracts and reports must be optimized to retrieve and produce with minimal waiting.

Configuration Management – The deliverable will include the approach used to perform configuration management of the software, tools, and components used to construct each of the new systems.
C.5 - Detailed System Design

Purpose

The Detailed Design presents the information used to construct the ELIS-IWISE-ESR components. The following are required content:

Content

The Detailed Design will consist of the following, as appropriate:

HIT/IBM will develop the designs for the physical models for ELIS, IWISE, and ESR. The physical models must be compliant with State of Illinois and ISBE policies, standards, and guidelines. Models will include the physical table structures, primary keys and constraints, triggers, and other database constructs that support implementation.

HIT/IBM will provide documentation for the following:

- Business rules;
- Component narratives;
- Design layouts/mockups (Web pages, reports, batch files, etc.);
- Database to layout/mockup mapping references;
- Database to report mapping references;
- Decision tables;
- System flowcharts;
- Detailed flowcharts;
- Data security;
- Coding time estimates; and
- Testing and implementation plan.

The HIT/IBM team will develop detailed design materials for IWISE. The design must include the layout of the Web portal, edits and validation routines, navigation, and security protocols and processing. The portal must support a role-based approach to accessing reports and other information. Roles required for the portal include:

- Educator and district administrator role that allows access to the private credential accounts of individual educators;
- Public search role that allows access to a set of predefined credential information for individual educators;
- ELIS administration role that allows authorized ISBE, regional office of education (ROE), and higher education users to view and edit ELIS information;
- Technical role that allows authorized ISBE users to author, stage, and schedule the display of reports and other information; and
- Administrator role that allows authorized ISBE users to manage the portal and portal content.

The portal must include the following features and capabilities:

- Present and provide access to reports and other information in an intuitive, user-friendly layout that minimizes the need for user training and support;
- Provide access to links for online user help and to other report portals and systems;
- When appropriate, supports drill-down capabilities into report data and parameter-driven reporting;
- Provide for the archiving of reports and for the display of archived report versions;
- Support the capability to execute reports in a batch mode;
- Support multiple output formats, including PDF, HTML, Microsoft® Excel, RTF, or CSV;
- Implement security to protect the privacy of ISBE educator data; and
- Capture audit information of report requests and data viewed.

HIT/IBM will develop report designs for the set of ISBE reports that are targeted for transition to each of the new systems. Report design content will include:

- Report layouts, including detail, subtotal and total report lines and report graphics and visualization features (e.g., bar graphs, pie charts, dash boards);
- Americans with Disabilities Act (ADA) presentation of data (if needed);
- Data sources and logic for accessing the data;
- Calculations and aggregations for the reports;
- If applicable, the use of parameters for selecting data subsets;
- Drill through, sorting and filtering capabilities for the reports;
- Execution information – batch on demand, etc.; and
- IWISE integration – how the reports are presented and integrated into the Web portal.

The detailed design will include performance-tuning information for components that access or present data.

HIT/IBM will define and document the security model. This includes the approach, including structure and processing, that implements security. The model includes security for IWISE and for reports and the data repositories and processes used to extract and populate them.
C.6 - Unit Test Plan

Purpose

Components include, but are not limited to, ETL processes, reports, the IWISE portal, security processes and tools. The test plan describes the scripts that guide testing activities and the tracking and recording mechanisms that support the management of the unit testing activities:

The Unit Test Plan will define and present the following components:

- Test processes and how each of the components will be unit tested, including the use of test tools
- Testing schedule – when in the development process are the components tested
- Format and quantity of test scripts and scenarios to be developed
- Physical location of the testing and testing procedures
- Establishment of test data
- HIT/IBM and ISBE resources – what staff and technical resources are required in the performance of the testing
- Management approach – how the testing processes are managed, tracked and reported

Content

The Unit Test Plan will test the following components, as appropriate:

- Test processes and how each of the components will be unit tested, including the use of test tools.
- Testing schedule – when in the development process the components are tested.
- Format and quantity of test scripts and scenarios to be developed.
- Physical location of the testing and any testing procedures.
- Establishment of test data.
- HIT/IBM and ISBE resources – staff and technical resources required to perform testing.
- Management approach – how the testing processes are managed, tracked, and reported.
C.7 - Software and Unit Testing Results

Purpose

The Software and Components Unit Test Results describes the construction and testing activities, summarizes the results, and as attachments includes unit checklists and other documentation that is produced during the construction and unit testing tasks. The deliverable presents the results of unit testing activities, and signals the completion of the construction and unit testing, and the transition of tested components to system testing.

Content

Construction and submission of the Software and Components Unit Test Results deliverable will align with and reflect the implementation approach proposed by HIT/IBM. Performing, tracking and management of the testing activities can be supported through the use of open source bug tracking software “Bug Tracker”.
C.8 - System Test Plan

Purpose

This report will serve as the draft test approach for the ELIS-IWISE-ESR System. The test approach sets the scope of system testing, the overall strategy to be adopted, the activities to be completed, the general resources required, and the methods and processes to be used to test the release. It also details the activities, dependencies, and effort required to conduct the System Test.

The deliverable will define and present test processes and how each of the components will be system tested, including the use of any test tools:

- Testing schedule – when in the development process are the components tested
- Format and quantity of test scripts and scenarios to be developed
- Physical location of the testing and testing procedures
- Establishment of test data
- HIT/IBM and ISBE resources – what staff and technical resources are required in the performance of the testing
- Management approach – how the testing processes are managed, tracked and reported
- Bug Tracking software

Content

The report will test the following components, as appropriate:

- Test processes and how each of the components will be unit tested, including the use of test tools.
- Testing schedule – when in the development process the components are tested.
- Format and quantity of test scripts and scenarios to be developed.
- Physical location of the testing and any testing procedures.
- Establishment of test data.
- HIT/IBM and ISBE resources – staff and technical resources required to perform testing.
- Management approach – how the testing processes are managed, tracked, and reported.
- Reports
C.9 - System Test Scripts

Purpose

The System Test Scripts deliverable is a set of HIT/IBM developed test scripts, test scenarios and materials used to guide integration and system testing of the ELIS-IWISE-ESR components. This report will provide information about whether software is of high quality and will support the intended business functions and achieves the standards required by ISBE for the development of the ELIS-IWISE-ESR System.

Content

HIT/IBM will develop test scripts and materials to be used for system testing, at a minimum, for the following components:

- Security access;
- Batch processes;
- Online processes; and
- Reports.
C.10 - System Testing Results

Purpose

The System Test Results describes the system testing activities, summarizes the results, and as attachments includes system checklists and other documentation that is produced during the system testing. The deliverable presents the results of ELIS-IWISE-ESR system testing activities, and signals the completion of the System testing, and the transition of tested components to user acceptance testing.

Content

Construction and submission of the System Test Results deliverable will align with and reflect the implementation approach proposed by HIT/IBM. Performing, tracking and management of the testing activities can be supported through the use of open source bug tracking software “Bug Tracker”.
C.11 - Acceptance Test Plan

Purpose

This report will serve as the final test approach for the ELIS-IWISE-ESR system. The test approach sets the scope of User Acceptance Testing, the overall strategy to be adopted, the activities to be completed, the general resources required, and the methods and processes to be used to test the release. It also details the activities, dependencies, and effort required to conduct the User Acceptance Test.

The deliverable will define and present test processes and how each of the components will be system tested, including the use of any test tools;

- Testing schedule – when in the development process are the components tested
- Format and quantity of test scripts and scenarios to be developed
- Physical location of the testing and testing procedures
- Establishment of test data
- HIT/IBM and ISBE resources – what staff and technical resources are required in the performance of the testing
- Management approach – how the testing processes are managed, tracked and reported
- Bug Tracking software

Content

The report will test the following components, as appropriate:

- Security access;
- Batch processes;
- Online processes; and
- Reports.
C.12 - Acceptance Test Scripts

Purpose

The User Acceptance Test Scripts deliverable is a set of HIT/IBM developed test scripts, test scenarios and materials used to guide integration and system testing of the ELIS-IWISE-ESR components. This report will provide information about whether software is of high quality and will support the intended business functions and achieves the standards required by ISBE for the development of the ELIS-IWISE-ESR system.

Content

HIT/IBM will develop test scripts and materials to be used for User Acceptance Testing, at a minimum, for the following components:

- Security access;
- Batch processes;
- Online processes; and
- Reports.
C.13 - Acceptance Testing Results

Purpose

The User Acceptance Test Results describes the system testing activities, summarizes the results, and as attachments includes system checklists and other documentation that is produced during the system testing. The deliverable presents the results of ELIS-IWSE-ESR system testing activities, and signals the completion of the User Acceptance testing.

Content

Construction and submission of the User Acceptance Test Results deliverable will align with and reflect the implementation approach proposed by HIT/IBM. Performing, tracking and management of the testing activities can be supported through the use of open source bug tracking software “Bug Tracker.”
C.14 - Operations Training Materials

HIT/IBM will provide user documentation in three (3) components: ELIS-IWISE-ESR Staff User Manual, Online ELIS-IWISE-ESR User Manual and Online Help Screens.

Purpose

This purpose of user documentation is to introduce the user to the ELIS-IWISE-ESR and provides the instruction to enable the user to utilize the system effectively in a short period of time. It explains how to accomplish the most common tasks and utilize the special features within the ELIS-IWISE-ESR system. The report will consist of the following instructions, as appropriate:

- Logon and security
- Navigation
- Accessing data
- Validations
- Transmitting data to ISBE
- Viewing editing ELIS-IWISE-ESR reports

Content

The Primary training materials distributed to the attendees will include the following:

- Help desk – The HIT/IBM team will define processes and procedures to be used for help desk calls regarding each new system. The processes and procedures will be designed to promote reliable, consistent, and effective responses by help desk personnel. The materials will address the communication approach, issue escalation procedures, and reporting requirements. Materials will address both level 1 (first response) and level 2 (high level troubleshooting) calls with procedures and information that allows help desk staff to validate problems and determine next steps towards resolving the calls.

- Software build – The HIT/IBM team will define and document the build processes for the software components of each new system and define the steps to be followed to change or update processes.

- Report development tools – The HIT/IBM team will provide training materials for the development tools used to construct reports. The materials will provide guidance on using filtering, standard reporting, extract functions and other features that are supported by the report development tools.

- Report publishing – The HIT/IBM team will provide information about how reports are published for each new system.
Scheduling and execution – The HIT/IBM team will provide information about how processes are scheduled, what steps are taken to view execution progress, and how processes are validated for completion. The information should also address what steps are taken to troubleshoot in the event of an issue and how to restart processes in the event processing halts unexpectedly.

Report execution scheduling and batch processing – The HIT/IBM team will provide information about how reports are scheduled for automatic execution and how batch or offline report execution is monitored. The information should also include how to troubleshoot report execution in the event processing halts unexpectedly.

Security setup and maintenance – The HIT/IBM team will define how security is maintained for each new system, including the maintenance or building of security for role based access. Security maintenance for the data repositories and processes must also be included.

Maintenance procedures – The HIT/IBM team will define and document maintenance procedures for the data repositories, including backup schedules, reorganization and rebuilding of database structures and other database maintenance procedures associated with the repositories, processes, and reports.

C-14.1 ELIS-IWISE-ESR Manual

HIT/IBM will deliver document to the ISBE project manager organized into two sections:

C-14.2 Developers Manual

This section will be outlining and detailing operating, maintenance, development, processes, standards, procedures, plus any other technical information required to fully support the components of each new system.

C-14.3 Operations Manual

This section will include the information needed to operate the components of each new system and troubleshoot issues that may arise.
C.15 - Operations Training Results

Purpose

HIT/IBM will provide operations and technical training on the ELIS-IWISE-ESR components, with sufficient detail and supporting materials that ISBE staff with the appropriate technical background will be equipped to operate and maintain the ELIS-IWISE-ESR environment and components. HIT/IBM will work with the State to identify knowledge gaps and training needed by ISBE staff to accomplish the ELIS-IWISE-ESR transition to State control.

Content

The ELIS-IWISE-ESR instructor-led classroom training will balanced lecture by the instructor with hands-on experience with the ELIS-IWISE-ESR system. The training may include:

- Overview
  - System Functions
  - Access Levels
  - Audit Functions
  - Edit Checks
- Accessing the Application
  - Connecting to the Secure website
  - Logging into the Application
  - Navigation
- System Functions
  - Report publishing
  - Report execution scheduling, batch processing, and troubleshooting
- Training Exercises
- Support
  - Help desk
  - Build processes for software components, including the IWISE portal
  - Report development tools
  - Jobs scheduling, execution, and troubleshooting
  - Security setup, administration, and maintenance
  - Maintenance procedures for the data repositories
- System Architecture Training, including:
  - Database structure and design, including longitudinal data structures and reporting data structures
  - Batch jobs architecture
  - Report and query architecture
- Data Quality Issues
- Maintenance Training, including:
  - System administration
  - System operation
  - Database management
  - Security administration
  - Web administration
  - Data administration
C.16 - Implementation Plan

Purpose

The plan will provide the approach, timeline and activities required to transition the knowledge and responsibility of operating, supporting and maintaining ELIS-IWISE-ESR from HIT/IBM to ISBE staff. The deliverable will define roles and identify ISBE staff (and backup resources) responsible for the roles so that staff are prepared to take over the responsibility. The scope of the plan will address the roles and responsibilities for the following areas:

- Legacy data migration including ETL processing, IWISE portal, and security
- Configuration and release Management
- Database Administration of the ELIS-IWISE-ESR RDBMS
- Development and testing environment maintenance
- Application, reporting, and data base server support
- Security configuration and maintenance
- Documentation
- Production monitoring and control
- Training support
- Help desk support

Content

HIT/IBM will develop a Implementation Plan that will detail the communication, coordination and training activities, performance criteria, assessment tools, and feedback processes for preparing for and conducting Pilot and then production implementation. The Implementation plan will validate the implementation process and tools, and certify the ELIS-IWISE-ESR application, technical environment, help desk and user support materials as ready to move to full production implementation.

The plan includes:

- Time line for Pilot of the ELIS-IWISE-ESR components production implementation timeline of the components
- Implementation communication plan, including internal and external web communications
- Technical readiness of the infrastructure to support implementation
- Documents how and when to monitor and report on implementation readiness
- Resources – the plan defines what HIT/IBM, ISBE, and education partner resources will participate in the Pilot activities and implementation, including what roles the resources will fill, and the timeline for resource support of the implementation effort. ISBE anticipates that our education partners will provide resources to support the Pilot and implementation activities
- Establishes pilot and production performance criteria that can be used to determine if the components are production ready
- Disaster recovery – the plan establishes the contingency plans that will be put in place in the event that unexpected circumstances occur during the implementation
- Initial or one-time execution or processing that may be needed to support implementation
- Defines the approach for reaching a go-live decision, including ISBE resources that will participate in the go-live decision for each of the ELIS-IWISE-ESR components
- Describes the baseline expectations for the new ELIS-IWISE-ESR at the time of turnover
- Defines approval and transitioning of the components to ISBE resources, and closeout procedures.
- Implementation Checklist
- Post implementation support – the plan defines the approach to providing post-implementation support and the timeline of the support activities
C.17 - Pilot Implementation

Purpose

Documentation of the results from the pilot to certify the components meet ISBE's requirements and the implementation process has been validated. During pilot, known and discovered system errors will be fixed HIT/IBM and updated software will be installed. Each category of work reflected in the ELIS-IWISE-ESR components will be part of Pilot activities. The Pilot activities will be aligned and performed with the User Acceptance Test activities, See 3.12.

Representatives from each user group will participate in the pilot. Support will be provided to Pilot users remotely from the project site and via the Help Desk with assistance from the HIT/IBM team. Software defects will be tracked and addressed via the application maintenance process. During the pilot, the HIT/IBM team will perform capacity benchmark tests to analyze the system performance and predict future requirements.

At completion of the Pilot, the Project Team will assess the results, modify implementation and support processes, and continue with implementation when ready and when the go-ahead is issued by the ISBE Project Sponsors.

Prior to Pilot, Help Desk staff will be trained in the new ELIS-IWISE-ESR functionality and supporting materials.

HIT/IBM will inform participants of their testing responsibilities and understand their important role in the ELIS-IWISE-ESR Project. User training and support materials will be incorporated into the Pilot. Along with the ELIS-IWISE-ESR application, documentation, system support, and Help Desk support are all part of the Pilot.

Content

The information included in the report includes:

- Pilot sites and users that participated in the Pilot activities
- The content or components that were included in Pilot
- Results of the pilot including incidents reported and resolved
- Recommendations in preparation for production implementation – this includes recommendations for adjustments to the implementation schedule or component implementation approach
C.18 - Training and Support Materials

Purpose

HIT/IBM will provide user training and support materials on the ELIS-IWISE-ESR components, with sufficient detail and supporting materials that which will be equip users to operate the ELIS-IWISE-ESR environment and components. HIT/IBM will work with the State to identify knowledge gaps and training needed for ELIS-IWISE-ESR users to accomplish the overall education needed to use the ELIS-IWISE-ESR system.

Content

The ELIS-IWISE-ESR instructor-led classroom training will balanced lecture by the instructor with hands-on experience with the ELIS-IWISE-ESR system. The training may include:

- Overview
  - System Functions
  - Access Levels
  - Audit Functions
  - Edit Checks

- Accessing the Application
  - Connecting to the Secure website
  - Logging into the Application
  - Layout of ELIS-IWISE-ESR portal
  - Navigation

- System Functions
  - Accessing reports
  - Entering of report parameters
  - Drill down and drill through navigation
  - Printing of reports
  - Extracting of report data (various output format selections)
  - Other features that may be implemented (email report distribution, links to external resources)
  - Report development and publishing (limited access)

- Training Exercises

- Support
  - Help desk
  - Report development tools
  - Jobs scheduling, execution, and troubleshooting

- Data Quality Issues
- Maintenance Training, including:
  - System administration
  - System operation
  - Web administration
  - Data administration
C.19 - Implementation Memo

Purpose

During phase 1 and phase 2 of implementation support HIT/IBM will:

- Perform Defect Resolution – HIT/IBM will resolve identified defects discovered during rollout.
- Perform Performance Monitoring and Tuning – HIT/IBM will identify and resolve potential performance issues and working with ISBE staff to manage and coordinate solutions. Performance monitoring results and summaries will be made available for review on a weekly basis throughout the transition period.
- Support help desk resources in resolving ELIS-IWISE-ESR related calls.

Content

The implementation memo will include at a minimum the lessons learned and evaluation of exit activities. Memo information also includes:

- How many records read from data sources and populated in the ELIS-IWISE-ESR
- Production jobs schedule implementation, including batch processing and batch report generation
- How many reports hosted in the ELIS-IWISE-ESR portal
- User access to the portal – what user interactions have occurred during the initial implementation period of four months
- Performance tuning recommendations – based on implementation results, what tuning is needed to enable optimal performance of the ELIS-IWISE-ESR components.
C.20 - Training and Support Memo

Purpose

HIT/IBM will work directly with the pilot participants (Limited to 10 resources) to introduce them to the ELIS-IWISE-ESR repository and to the end user support materials. HIT/IBM will deliver the initial user training and support over a period of thirty (30) business days surrounding Pilot. Support will include one day of classroom training and familiarization, and on call support provided on an as needed basis for the thirty day period. Based on feedback from this activity, HIT/IBM will refine the end user materials in preparation for statewide implementation of the ELIS-IWISE-ESR system.

As part of statewide implementation, HIT/IBM will monitor the online usage of training and support materials, and based on help desk calls and user feedback will implement updates and refinements in the materials as needed. HIT/IBM will monitor is for two months coinciding with production implementation of the ELIS-IWISE-ESR portal.

Content

At the completion of the production support period, HIT/IBM will develop and deliver a memo that documents the number of users trained (targeted to Pilot users only), the number of access requests made of the online training materials, the number of help desk calls received, general information regarding updates to materials and the support provided under this task and indicates the completion of the delivery of initial user training and support activities.
C.21 - Completion and Support Memo

After implementation of the ELIS-IWISE-ESR repository and portal, HIT/IBM will provide ongoing support and perform the following:

- HIT/IBM will provide Warranty support services – while under contract with ISBE, Warranty services will be as specified in the proposal response and mutually agreed upon with ISBE. Warranty will expire at the close of the contract.

- ELIS-IWISE-ESR Documentation for Turnover – HIT/IBM will prepare a library of the deliverables produced over the course of the project along with documentation created by HIT/IBM to assist them in their activities. In addition to assembling the documentation in a library HIT/IBM will provide a “table of contents” for the library that lists the name, type of document (e.g. design, operations, project management, and test) and document description.

- ELIS-IWISE-ESR Ongoing Support Completion Deliverable – Upon completion of successful turnover to ISBE and the completion of the post implementation support activities HIT/IBM will provide the State with a final ELIS-IWISE-ESR Ongoing Support Completion Memo. This memo summarizes the transition activities that took place, as well as current system status information, outstanding problems and recommendations for system enhancements, if any. The memo should provide assessments, conclusions and recommendations with regard to ISBE’s ability to perform maintenance, technical support and administrative support of the new ELIS-IWISE-ESR system.
D - Business and Technical Reqs

Hupp Information Technologies
D.1 - ELIS-IWISE-ESR Supplemental Reqs

A-1 Privacy protection and data accessibility.

(IWISE) IWISE must ensure the confidentiality of educator data, consistent with the Illinois Identity Protection Act (Public Act 96-0874, effective June 1, 2010). IWISE must support role-based access.

Meet Requirement: YES

The Hupp Information Technologies project team is very dedicated to protecting the identities of all educators. Our staff has an established culture of respect and dedication to the issues surrounding identity protection. The HIT-LS solution collects the SSN for the sole purpose of uniquely identifying an educator at the time of initial entry into the state's records. This allows that unique educator to be matched to their own testing results, the NASDTEC felony file import, and other data matches between governmental systems. This use is sanctioned by the Illinois Identity Protection Act, and is specifically listed as one of the exemptions that is allowed under the act.

Other than this very specific use, the SSN is never used for any other purpose. The SSN is never fully displayed to any external user. The screen shot below shows how the SSN (and other personal demographic data) is masked for district users. This screen shot also graphically demonstrates that the HIT-LS solution operates and displays different data depending on the role of the current user (in this case the user has the role of Superintendent).
A-2 **Mobile access.**

(IWISE) ISBE’s preference is for IWISE to include an application that educators can download to a personal mobile device (e.g., smartphone, tablet) and use for accessing their licensure information. Bidders must address whether they can provide an application. However, the nature of that response will not be the deciding factor in awarding a contract.

**Meet Requirement: YES**

Hupp Information Technologies is a registered developer with Apple. We are currently working on an iPhone, iPod Touch, and iPad mobile application. This application will allow educators to view their credentials, manage their credentials, and submit many of the applications that are available in the full version of HIT-LS. The new application, HIT-ILS, will be part of this RFSP response and will be incorporated into the overall ELIS solution that is developed in partnership with ISBE. Also, due to the fact that this application is currently in development, ISBE will have a significant influence into its overall functionality, as well as, its look and feel.

In addition, as part of this requirement, the Hupp Information Technologies project team will register to become an Android developer so that an Android version of the application can also be available for the educators wishing to become credentialed in Illinois. The Android version of the HIT-ILS solution will also be made available as part of this RFSP response.

A-3 **Interoperable solutions. (ELIS, ESR)**

ELIS and ESR must interface with each other and be able to exchange data with relevant systems and entities, both internal and external to ISBE. ESR must include physical data structures that allow educators to be linked to students enrolled in SIS.

**Meet Requirement: YES**

The ELIS and ESR solutions will be designed and developed so that they are completely integrated in all areas that make sense to integrate. For instance, an educator in ESR will be matched against ELIS to ensure the educator actually exists as an Illinois educator. The HIT implementation team will work with ISBE to ensure the two systems contain all necessary links to the data stored in SIS. Furthermore, with the assistance of our partner, IBM, the SIS system will be modified as necessary to ensure it contains all necessary information to integrate with ELIS and ESR. The fact that IBM is our partner on this RFSP will help tremendously in ensuring that the integration of ELIS, ESR, and SIS is complete and fundamentally sound. Our collective understanding of these solutions will ensure that the integration is done properly in a manner consistent with the design of these systems. This integration will not be superficial and will ensure a sound foundation for which other ISBE systems may depend on. The end result of this integration will be the ability to link the data from the three systems seamlessly; allowing a user of the ELIS solution to view all the employment and assignment records for any given teacher, along with the ability to see the students for that teacher, and even the students for an individual assignment.
A-4  **Ongoing data capture. (ELIS, ESR)**

*ELIS and ESR must be live, Web-based systems. ESR must capture educator employment start and end dates, teacher course assignment start and end dates, and teacher class attendance.*

**Meet Requirement: YES**

The ELIS, ESR, and IWISE solutions will be live, web based systems. These solutions will also be designed to operate with the largest number of web browsers. The development tool, Visual Studio .Net, will be set for maximum compatibility. Code scripted by the development team will be tested on numerous browsers on Windows and Apple platforms. The browsers that will be tested will include Internet Explorer, Firefox, Chrome, and Safari.

In addition, the ESR solution will capture appropriate employment and assignment data to include employment and course start and end dates, as well as, teacher class attendance.

A-5  **Data storage. (ELIS, ESR)**

*ELIS and ESR must include physical data structures for populating the database tables that capture the latest information collected.*

**Meet Requirement: YES**

The HIT implementation team will be customizing our HIT-LS solution. This solution is well established in multiple states and has a well designed and tested physical data structure for storing all of its data requirements. Our knowledge of the existing ISBE TSR system will allow us to implement an appropriate physical data structure that meets all the ISBE requirements and ensure all functionality is properly recorded and tracked. Furthermore, our team will leverage its collective experience with these implementations to ensure ISBE avoids the most common pitfalls a less experienced team would certainly encounter. Our proposed implementation team has experience with TCIS, ECS, IWAS, SIS, and TSR, and that just lists the ISBE experience in affected systems. We will also ensure other ancillary systems, such as SEDS, are properly integrated with the new ELIS, ESR, and IWISE solutions.

A-6  **Data history. (ELIS, IWISE, ESR)**

*ELIS, IWISE, and ESR must include physical data structures for populating a log of changes to the data captured.*

**Meet Requirement: YES**

The existing HIT-LS solution has been successfully customized and implemented for multiple states. This solution already includes logging of all data changes. This is a core feature of the HIT-LS solution and will ensure the new ELIS implementation has this capability built into its core functionality. This functionality will also be implemented in the new ESR solution. The HIT implementation team will work with the ISBE stakeholders to ensure the new solutions are tracking this information in a manner appropriate to the needs of the ISBE.
A-7  Customized reports.  (ELIS, ESR)

ELIS and ESR must allow the production of customized reports based on selected data elements, according to user role.

Meet Requirement: YES

The HIT-LS solution has a dynamic query tool integrated into it as part of its core offerings. This tool will be extended and customized to ensure complete integration with the ELIS implementation and ESR design and development. The tool will be available in either solution and be capable of querying both solutions simultaneously. The data integration will be seamless and all data connection and relation issues will be created for the user without any programming knowledge requirements.

The screen shot below shows the initial dynamic query tool screen where the user can decide which query to view. There are public queries that are viewable for selected users and private queries that are only viewable by the person who created the query. Labels can be generated for any query that includes the EducatorID. Once the queries are created, they can be edited and the query criteria can be modified. The query results can also be displayed in a report designer for those reports that require a more polished presentation. This allows the non technical users to produce professional looking reports with predefined agency headers and footers, all without any knowledge of programming or the use of a report designer.
The screen shot below shows the field selection screen where the current user can select the fields that need to be displayed in the query. The fields can also be filtered on any criteria the user wishes. The entry continues in wizard format with the system prompting the user for all necessary information to produce the desired query. This allows any user with the appropriate security role to produce professional queries and reports with no programming knowledge. A full treatment of the dynamic query tool is covered in the ELIS requirements section of this RFSP response.

A-8 ISBE audit system support. (ELIS, IWISE, ESR)

ELIS, IWISE, and ESR must include data structures and processing for the capture of audit information and trails.

Meet Requirement: YES

The current HIT-LS product tracks every data change and screen access that the users makes. The Single Sign on System (SSO) also stores all login attempts and the result of the attempt. This technology is a core part of the HIT-LS solution and will be incorporated into the ELIS solution as part of the customization of the HIT-LS solution. We also store the IP address that is accessing the system. This helps if there ever is a fraud situation because a user masquerading as a different user will undoubtedly come in under a different IP address.

These core features will also be incorporated into the new ESR effort. With the combination of the audit tracking and data change logging, it will be possible for ISBE to reconstruct the events and structure of nearly any online access of these systems.
D.2 - ELIS Feature Regs - General

A-1 Maintains all data and functions of the existing TCIS, ECS, and TCIS Scanning systems

Meet Requirement: YES

The Hupp Information Technologies project team is uniquely positioned to ensure all existing functionality is properly incorporated into the new ELIS solution. The project manager, Dean Hupp, personally maintained the TCIS system for five years, and wrote the ECS system. Another team member, Donna Schroeder, has continued to maintain these systems for the last five years. Our implementation team will leverage this vast reservoir of knowledge to ensure the new ELIS solution accounts for all the functionality of the existing systems. This becomes especially important when dealing with all the rules that have been implemented over the years. Our team does not have to relearn these rules. We coded them originally and already know them. This will allow the new ELIS solution to be implemented with a complete reproduction of the existing solutions’ data, rules, and requirements. Screens and menus will be modernized and streamlined. In some cases the screens will be removed and other cases screens will be streamlined and combined. The end result, however, will be a new ELIS solution that ensures no existing needed functionality is lost. No other company will have the experience and knowledge to reproduce these systems, or even know where to look for the special rules that have been implemented over the years.

The current TCIS scanning application is already configured to use the same toolset that our HIT-LS base product uses. Our new ELIS implementation will be able to integrate with the current PDF scanned images with no changes or customizations. The big change from ISBE’s perspective will be the complete integration of the scanning functionality into the main body of the ELIS solution. Scanning personnel will use the same application as evaluators. This integration will significantly improve the workflow of the scanning application.

A summary, but by no means complete, list of existing functionality that will be reproduced is itemized below. The menus will, of course, be reorganized and the current menu structure will be replaced with a newer, more intuitive approach, which has been refined in several other state implementations. Also, it is worth noting that the two existing systems, TCIS and ECS, will be combined into one system that combines all the functionality of both systems into one integrated consistent interface. This will obviously require restructuring of how information is presented to the end users (compared to the way it is presented now in the current systems). Some functions may even become obsolete.

TCIS – Teacher Certification Information System Overview
Credential Management

Application Entry: Enter/update and view educator’s name, address, degrees, enter new and existing certificates, view TSR data, view ROE information (fingerprinting/background check dates), enter/view approvals and paraprofessional approvals, enter subsequent endorsements, enter reinstatements, register certificates, print receipts, request duplicate certificate, and view ROE notes.

Inquiry Information: View name, address, previous names, degrees, exemptions, certificates, endorsements, approvals, deficiencies, images, paid fees, NCLB subjects, notes, and tests taken.

Notification Entry: Universities enter their entitlements here (completed and non-completed).

Notification Complete: Universities mark entitlements as completed - these are a batch of entitlements that were entered before the educators graduated.

Recommend Endorsements: Universities enter subsequent endorsements on existing certificates.

ICTS Title II Data Export: Data export for ICTS Title II

Case Management: Shows all certificates and endorsements. Allows evaluators to change status of certificates, exchange certificates, add approvals and endorsements, add/update degrees, add deficiencies, print certificates and deficiency letters, view images, view tests taken, and add evaluator notes.

Newly Scanned Images: Notifies evaluators that a document has been scanned in to one of their cases.

Cash Entry: Allows ROE to add cash to educators account without applying it to a certificate or registration.

Cash Batch – for ROE: Application forms and fees that are collected for the issuance of certificates have to be batched and sent to the Springfield ISBE office on a periodic basis.

ROE Credit Card Report: Because the ROE may not batch their fees everyday or for the same period that ACH Direct/Illinois Funds E-Pay settles the
credit card payments, a new report has been added to allow ROEs to print the daily credit card payments received. This report should match their Illinois Funds Deposits and ACH Direct Reports.

Cash Batch Accept: Once applications have been batched and transmitted to ISBE they are reviewed and accepted or rejected by the teacher certification cash clerk. No certificates will be printed and mailed to applicants until this process is complete.

Cash Receipts Listing: Once the batches of applications have been accepted the money is transferred to the CRS system.

Cash Special Processing: This process is used to re-accept payment of an application when it was returned to the ROE and comes back to ISBE.

Returned Check Report: Lists all of the returned fees for a time period – used to balance at the end of the month.

Deposit Report: Lists the amount of money received into each of the accounts (016 EVALs and ENTLs, 159 REG)- used at the end of the month to balance totals.

Approve Pending Degrees: Educator submit changes or new degrees through ECS. They are approved once ISBE received the official transcripts.

Approve NCLB Application: NCLB applications submitted by the teacher are approved by ISBE using this screen.

Professional Development Management

Process Paper Application: ROEs can enter a SOA for an educator (doesn’t list the professional development activities) and they are automatically approved at the ROE level.

ROE Staff Approval: SOAs are approved or returned at the ROE staff level and if approved forwarded to ROE Superintendent level for approval.

ROE Superintendent Approval: SOAs are approved or returned at this level and if approved forwarded to ISBE for approval.

ISBE/STCB Staff Approval: SOAs are approved or returned at the ISBE/STCB Staff level and if approved forwarded to ISBE level for approval.

ISBE/STCB Approval: SOAs are approved or returned by ISBE/STCB.
SOA Search: Displays a list of SOAs that can be filtered by Region, dates, SOA type (Initial/Standard/Admin/School Service Person) and SOA status (approved/returned/pending).

Educator Search: Search for SOA based on educator (SSN or IEIN).

LPDC Maintenance: Add/update/delete LPDC – first level of approvals for some SOAs – not all Regions have them.

PD Audit: Ran yearly to pull random SOAs to be audited – checking for paperwork for the Professional Development Activities claimed on SOAs.

SOA Approval Report: Report to show the SOA approved for a specific time period for a specific region.

Administration Management


Code Table: Maintenance screens for the following code tables: approved institutions, institutions’ approved approvals, program codes, spec ed. reimbursement, certificate type and levels, endorsement types, approval types, fee codes, document codes, position codes, subject codes, etc.

ECS Code Tables: Maintenance screens for the following code tables: LPDC, activity type, application status, application type, credit type, career status, PDA type, qualification, exempt reason, etc.

Deficiency Statement: Code table maintenance screens for deficiency statement codes, deficiency groups, certificate deficiency assignment, endorsement deficiency assignment, and approval deficiency assignment.

Testing Information: Maintenance screens for educator’s test scores, test codes, evaluation tests, entitlement tests and waived/forced tests.

Revoked Certificates: List of educators on NASDTEC alert.

ISBE Alerts: Educators not necessary on NASDTEC alert list but need to be watched.

Utility Overview
Imports/Exports: Chicago Public School Export
ISAC Import
Revoked Certificate Import
NES Test Score Import
Spec Ed Personnel Interface
Misc Conversion Program

Create PDFs for Deficiencies: Tool to create PDF documents for the deficiency letters that have been sent out. Educators can then view these in ECS.


Report Overview

ROE Reports: Reports that are available for ROE users. There are 19 reports that are accessed by the ROEs. These range from Active and Inactive Teacher Reports to Mailing Labels and Professional Development Cycle Reports.

Case Management Reports: Reports on credentials that are accessed by DOE users. There are 22 of these reports and they range from several productivity reports to pending work to summary reports.

Administrative Reports: Administrative reports that primarily deal with printing values stored in code tables and how various data elements relate to other data elements. There are roughly 25 of these reports.

Scanning Reports: Summary reports on scanning productivity. There are 4 of these reports.


ECS – Educator Credentialing System Overview

Profile Management

Personal Profile: Educators can edit their personal profile, address and DOB only.

Educator Profile: The educator’s region, district, and career status.

Substitute Teacher Info: They can edit the grades, subjects, and schools in which they have taught.
Credential Management

Current Credentials: Allows viewing of the educator’s current certificates, endorsements, and approvals.

Pending Credentials: Allows viewing of the educator’s pending certificates, endorsements, and approvals.

Expired Credentials: Allows viewing of the educator’s expired certificates, endorsements, and approvals.

Previous Qualifications: The educator met previous requirements for the assignment at a time when the requirements were different from the current requirements.

Highly Qualified: View and enter subjects in which educators are Highly Qualified.

Teaching History: View Official TSR data or make changes to their self-reported TSR data.

Document History: View a static listing of documents that were received at ISBE. (Specific documents only – cannot see actual document).

Degrees: View degrees on file or submit changes/new degree for ISBE’s approval.

Tests: View a static listing of test taken (passed/failed/Incomplete).

Applications: Register certificates
Apply for entitlement certificate
Apply for subsequent endorsement recommended by University
Move from Initial to Standard certificate
Apply for a substitute certificate
Request duplicate certificate
Apply for a subsequent endorsement on an existing certificate
Professional development
Add Professional Development Activities
Apply for Exemptions
View Administrator Academy Courses Taken
Submit, View, or withdraw pending Statement of Assurances
A-2  **Allows real-time updates, while maintaining history**

*Meet Requirement: YES*

As previously mentioned, the new ELIS solution will be a web based solution that allows real-time updates from anyone and anywhere in the world with Internet access and the appropriate security roles. History is maintained for all data any time it is changed. This log makes it possible to see all values that a particular record set has held over time. In addition to this, all historical credential information is stored separately so that it can be easily viewed and considered by evaluators. Historical information for data like Fees, Certificates, Endorsements, Applications, and Degrees is always saved, and never replaced when new information is entered into the system.

One of the drawbacks of historical data is that it can become cumbersome to look through when just wanting to view an educator’s current credentials. The HIT-LS solution solves this nuisance by hiding historical information over one year old. This allows a user to see the information they are most interested in for the majority of their work while also easily allowing them to see the historical information as needed. The screen shot below shows the link that displays the historical information.

When initially looking at the above credential screen, it is easy to see the current credentials the educator holds. This particular educator holds an alternative certificate with the displayed endorsement areas. The historical information is hidden but can be easily displayed by hitting the Show All links (See the yellow arrows in upper left corner). The next screen shows the same educator with the historical information displayed. Notice the link that was originally used to show the historical information has changed. It now reads Hide Old to indicate that it hides the historical information that is now being displayed. You can also independently show or hide the applications and credentials.

A-3  **Provides role-based access and adequate security at every user level**

*Meet Requirement: YES*

Every user in the HIT-LS solution has security role. These security roles will be customized for the ELIS implementation. The HIT-LS solution then uses the assigned role to determine which menus and screens are appropriate for the current user. The menus and screens that are assigned to roles can be customized in the HIT-LS security module. This module allows security to be created for each role. The security can be at the menu, screen, or control level. It can enable/disable or show/hide controls depending on the current security role. All these user interface elements can be controlled automatically without any customized programming. The next screen shows the security menu and its capabilities.

The previous screen shot shows the menu options that allow the security within HIT-LS to be
completely customized. Groups can be added. Roles can be added. Screens and menus can be assigned to roles. Roles can be assigned to groups. Groups and individual roles can be assigned to users.

The general process for HIT-LS security is to create groups that match the user groups using the application. These are generally very high level users like Superintendent, Educator, and Institution Certification Officer. Once the groups have been established, roles in HIT-LS are then created. Examples of roles are Batch Print, Test Import, and Educator Summary. A role is generally a combination of one or more screens. The screens and menus that define the role are then added to the role. A role can also have individual controls on a screen disabled or hidden. Once the role is configured to allow appropriate security access to that functionality it is added to the appropriate groups. All groups that are assigned the role will be able to see all the screens and menus under the role. All groups that are not assigned the role will not be able to see or access the screens and menus under the role.

The screen below shows how security roles can be customized for the Educator group.

As you can see the educators can access a few different screens in the system. In this example, Educators have access to their credentials, renewals, duplicate certificates, and the educator summary screen.

It is worth noting that the security system is designed so that if a screen is visible to all user roles then no security needs to be placed on it. When security is placed on a screen, that screen will immediately become inaccessible to all users except those belonging to a group that holds the role that has access to the screen. In summary, if no security is assigned to a screen everyone can see it. The next screen shows the role settings that allow menus, screens, and controls to be assigned to a role. The ability to set controls disabled or invisible is highlighted with arrows.

Security Summary

The HIT-LS solution, as part of its core functionality, already has an extensively adaptable security module. This core security module will become part of the ELIS implementation and be customized as needed to meet the requirements of the Illinois State Board of Education as laid out in this RFSP. The security described in this requirement has been implemented in three states without any customization required and we expect the same for the State of Illinois.

A-4 Allows applicants to apply and view their files online

Meet Requirement: YES

The HIT-LS solution, as part of its core functionality, has the ability to collect all applications online and allow educators to view all aspects of their credential file. The exact menus that are displayed and the information they show will, of course, be at the discretion of ISBE. The next screen shows the educator's view of their own credential screen. In the Oklahoma implementation of the HIT-LS solution, the educators can see their credentials, degrees,
background check information, tests, scanned images, and assignments (see Educator Options on the left side of the screen).

The HIT-LS solution also analyzes each educator as they log in to see if there are specific applications that the educator is eligible to submit. For instance, if an educator is up for renewal, the HIT-LS solution will automatically bring this to the educator’s attention with new menu options tailored for this purpose. The following screen shot graphically demonstrates this concept. The current user has a certificate up for renewal and the system automatically alerts the user to this fact. The ELIS implementation of the core HIT-LS solution will incorporate this technology to identify and automate the various online application processes.

The previous screen shows an educator being prompted to enter their renewal application. The HIT-LS solution analyzed the educator’s record and determined the educator was eligible to renew. Also, notice the informational welcome text alerting the current user to new functionality.
A-5  Allows electronic submission of documents by outside users to ISBE, based on electronic signature

**Meet Requirement: YES**

The HIT-LS core solution allows external users to submit documents, applications, and approvals online with an electronic signature. Institution Certification Officers, District Superintendents, School Principals, Career Tech Officers, and Educators all have functionality to submit electronic signatures, documents, and approvals. These functions will be customized to meet the needs of ISBE as laid out in this RFSP. The next screen shows the first step of an institution entitling a student who recently completed an approved program. Once the institution enters the entitlement online, the student can then apply online for that certificate.

The next image shows the screen where district superintendents can see renewing educators and electronically approve their professional development for renewal. The superintendent uses the checkbox to select the educators who meet the requirements and then clicks the Recommend Selected Educators link to approve (electronically sign off on) them for renewal. The approved educators are then alerted through email and have a prompt to renew their certificates the next time they log into the system. This process will need to be customized for the Illinois State Board of Education because of the fact that LPDS’s and ROE’s are the ones approving the SOA’s for renewal.

Only a few examples have been shown of the HIT-LS solution’s ability to collect and accept applications and electronic sign offs. There are many more and the core capabilities will be customized as needed to meet the requirements listed in the RFSP.

A-6  Includes programming to convert all certificates to one of three licenses with endorsements and/or approvals

**Meet Requirement: YES**

The HIT-LS core solution has the ability to handle numerous certificate types or a few certificate types. Part of the design process will be partnering with the ELIS stakeholders to map the dozens of existing certificates into the new licenses. Our implementation team will work with the ELIS stakeholders to determine the best conversion approach.

The most obvious simplification can be made by ensuring all initial, standard, and master level credentials all issue and print their endorsements on the same level of certificate. For instance, the standard elementary certificates (03) print on a separate certificate from the standard level secondary certificates (09). These could be easily combined to print on one five year standard certificate with an identifier added to the endorsements to indicate whether they should be considered elementary or secondary endorsements. The grade levels of the endorsements also communicate this information without any additional flag.

School Service Personnel could also be combined into that same single 5 year certificate, or a
A separate certificate type could be created where all School Service Personnel are listed. This would at least resolve the issue of a person holding multiple type 75 certificates. They could hold one type 75 certificate with all the associated school personnel endorsements listed.

There are many approaches to this issue and our implementation team has experience with multiple states. They will leverage this knowledge to suggest areas for simplification.

The programming effort to move and condense similar license types also provides ISBE with the unique opportunity to simplify the various certificate codes used. This effort could potentially condense the dozens of existing codes to less than twenty. Again, our implementation team will work with ISBE to determine the best way to configure the certificates in the new ELIS solution. While the core HiT-LS solution is already configured to handle the existing and proposed certificate structures, any customization that would be required will of course be performed so that the resulting ELIS solution meets all requirements of the RFSP.

In summary, our implementation team has extensive experience with numerous states. They have reproduced and implemented the certificate structures differently for every state. The team will leverage this experience to suggest improvements and simplifications so that ISBE can take advantage of the unique opportunity that is presenting itself. This redesign effort will be a partnership between our team and the ELIS stakeholders to ensure the end result addresses the issues ISBE faces with their current certificate/license structure.

A-7 Maintains the history of all previous certificates/licenses, endorsements, and approvals when deficiency updates or certificate/license exchanges occur

Meet Requirement: YES

The HiT-LS core solution stores extensive historical information. In addition to saving every change of data and the history of all credentials, the HiT-LS solution also saves a copy of every single document that is ever printed and mailed from ISBE to the applicant/educator. The Print History Educator Option will show all documents that have ever been sent to the educator. This is an actual PDF copy of the document that identically matches what was mailed to the educator. Any time a Deficiency, Certificate, or Approval is sent to print a copy of that document will be stored. This makes it possible to see everything an educator has ever received from the State Board of Education regarding their credentials. The Print History screen also allows the document to be easily deleted from the print queue if it has not yet been printed. For example, if the evaluator sends the certificate to print and then realizes it should not have been, the evaluator can delete it out without having to go to the Batch Print screen and search through all documents waiting to be printed.

The Print History can also be made available to the Educators so that they can easily access the information that has been sent to them. In the case of the educators, we generally recommend only showing them the most recent versions of a document. For instance, if the educator is working through deficiencies it is possible that they have received several different deficiency letters. Only the most recent letter has the current requirements so showing the old ones has the potential to confuse the educator and provide no functional benefit. The next screen shows the Print History for an Educator that has received both a certificate and a deficiency letter.
This screen will be customized to add a table for Approvals so that an educator’s historical Approvals can be viewed as well. As a side note, notice in the screen below that the educator has met the requirements for adding an endorsement area (the blue band at the top). The ELIS solution will be customized to bring key items of information to the evaluator’s attention. Our implementation team will work with the ELIS stakeholders to ensure the new ELIS solution notifies the evaluators of important facts and data elements relating to the currently viewed educator. These notifications may also be optionally displayed to the educator when they view their own online record.

A-8 Archives data on deceased educators

Meet Requirement: YES

The HIT-LS solution has dealt with this issue in other states. The availability of storage makes this requirement somewhat outdated. It is much better to have an educator’s electronic file immediately available when needed. The advantage to not archiving data (and making all data immediately available) verses the relatively small storage saved if you do archive suggests that this requirement be reviewed with ISBE to confirm they want to archive deceased educators. Also, running historical reports becomes much more complicated if data has been archived. Our project team will review this requirement with the ISBE during the general and detail design phase, and if necessary ensure it is met. This will require a minor customization to the core HIT-LS solution functionality. Again, this requirement will be met if the ISBE stakeholders agree that the advantages outweigh the disadvantages.

A-9 Includes programming to convert data from the original to the new format

Meet Requirement: YES

The HIT-LS team has performed the data conversion/migration for numerous state wide certification systems. In all cases we have successfully converted the data, and most importantly, modified the core HIT-LS structure to ensure no legacy data was ever lost. This effort will be aided by the fact that the implementation team has several team members with intimate knowledge of the ISBE certification data structures. Dean Hupp, our project manager, personally maintained the existing systems for five years. He is knowledgeable about the existing system structure, data structure, and process flows. The team will leverage this knowledge to ensure a smooth painless migration from the legacy systems to the new ELIS solution. More importantly, this knowledge will significantly reduce the time spent trying to learn the data elements. The reduced learning curve and inner knowledge of the legacy systems will be crucial to meeting the aggressive time line that has been presented in the RFSP. Also, our team converts the data at the very beginning of the customization phase. This ensures that all historical data elements are accounted for and present when users are testing each module. This approach also provides ample opportunity to identify and correct data quality issues. An overview of our approach is outlined below.
Data Conversion/Migration Overview

Importing mission-critical data from a legacy system into a new system can be a daunting task. Conversion programs must be written and interfaces must be coded. The legacy data needs to be mapped and cleaned before it can be presented to the users of the new system. Hupp Information Technologies has extensive experience in data conversion and as such has the knowledge needed to guide the conversion development process.

Hupp Information Technologies begins every data conversion project with a plan that is coordinated with the timetable of the overall software development lifecycle. Due to the potential for problems with the conversion process, that plan is constantly reviewed to ensure that all timelines and milestones for the conversion process are met.

Conversion Plan

The conversion process starts with developing an understanding of how the legacy data is going to be used from a business perspective. We can then build the results of that perspective into a comprehensive conversion plan. The conversion plan includes the following:

- Determine the scope and definition of the conversion process.
- Determine the cleansing needed to be able to effectively map the data into the new system.
- Determine the mapping strategy for legacy data into the new system.
- Perform the conversion utilizing established conversion methods.
- Validate the conversion process through testing.

By starting the conversion process with an understanding of the legacy data from a business perspective and implementing the conversion plan as a joint effort between Hupp Information Technologies and the client, we can ensure that the end result of the conversion process is a successful implementation of all legacy data into the new software system.

The conversion effort cannot be seen as a lesser project of the overall software development lifecycle. Conversion is usually the highest risk area of the entire development effort and the overall success of the project hinges on its outcome.

Conversion Methods

Hupp Information Technologies has found that there are two standard methods for converting legacy data into a new system:

- Automated processing by migrating the legacy data to a universal data store, creating programs which utilize the developed mappings to import the data from the universal
data store to the new system.

- Manual processing by user input of data into the new system.

Which process to be used is mainly determined by the amount of data and the amount of time needed to convert that data as opposed to simply re-entering it. It has been our experience that most data can be converted automatically and it is only that rare condition which warrants manual processing by direct user input.

Data Cleansing

The primary goal of data cleansing is to eliminate data inconsistencies, invalid values and other shortcomings in data integrity from the legacy databases. This cleansing process will greatly facilitate converting the existing data to the format required for the target system. The overall objective would be to cleanse the data in a universal data store and not on the legacy databases so that production systems are not affected. The cleansed data will then be available for use by the conversion process. Hupp Information Technologies will work together with the client to assist in the data cleansing efforts. A group effort will be needed to ensure a complete and proper cleaning of the data.

A secondary goal of the data cleansing process is that all personnel participating in that process will have developed an in-depth knowledge of both the legacy data structures and the data structures within the new system.

Data Mapping

Data mapping is the process used to identify legacy data elements that will need to be converted to the new system. These data elements may include entire tables or discrete columns from particular tables in the legacy system. The process of data mapping results in defining a relationship between data elements in the legacy system and data elements in the new system.

The data mapping process, like the data cleansing process, is essential to a successful conversion and therefore a successful project implementation. To facilitate the efficient and effective management of the conversion process we recommend beginning that process as early as possible in the software development lifecycle. Hupp Information Technologies will work together with the client to assist in the data mapping efforts. A group effort will be needed to ensure that a complete and proper mapping of legacy data is successful.

Conversion Milestones

Hupp Information Technologies proposes that milestones be structured within the conversion process so that progress of the conversion can be properly tracked. Since conversion is typically a high-risk area of the development process it is important variance in the schedule be monitored closely.

Conversion Validation
To ensure that the conversion process is being implemented without error the development and implementation of conversion processes should follow the same strategy on testing as outlined in this proposal. The final validation of a successful conversion will be during the user acceptance test phase when the users of the system can validate that the data is as expected.

**Outcome of a Successful Conversion Strategy**

Hupp Information Technologies has successfully developed and implemented many systems utilizing the conversion strategies outlined in this section. Our experience has shown that it is critical to begin conversion planning and implementation at the beginning of the project in order to ensure the successful implementation of the project from the start. By planning for conversion at the beginning of the project we ensure that all requirements are met by performing conversion testing throughout the software development lifecycle. By performing the conversion processing early on we can identify potential issues and risks before they become difficult or expensive to correct.

**A-10** Allows new codes to be added for existing data elements

**Meet Requirement: YES**

By implementing a newly designed ELIS system the Illinois Board of Education has the opportunity to become a national leader in the handling of educator credentialing. The new technology will automate many tasks that are currently done manually, reducing the time required to get applications processed. The new technology will better position ISBE to react to future requirements by being more manageable, more streamlined, and easier to use.

Hupp Information Technologies has many years of experience in the design of dynamic table driven software. Table driven design is an approach to software creation that stresses the users' ability to modify the system through maintenance screens. For instance, using the checklists for certificate issuance as an example, table driven software would allow an administrator of the ELIS system to change the order and type of documents that are needed prior to an evaluator reviewing the case. By using a maintenance screen (which only administrators of the system could access) an administrator could change the requirements. After the requirements have been changed the system will automatically start tracking the new document requirements prior to displaying the application as being ready for review by a staff member. The exciting thing is that this is possible with no program changes to the application. No program code changes means that support and maintenance costs will be inherently lower over the life of the ELIS solution. Hupp Information Technologies has extensive experience in this type of design and implementation and we look forward to partnering with ISBE to make the ELIS system a model of user control and management.

We are proposing that the new ELIS solution be table driven. This will ensure the maximum flexibility of the new system. It will also allow administrative users of the system to modify system settings through the use of maintenance screens.

Examples (but by no means comprehensive) of data that will be defined in maintenance tables are:
Certificate types and duration  
Certificate areas  
Approved programs  
Approved institutions  
Degree majors  
Degree types  
Test codes  
Mapping of required tests to certificate types  
Mapping of certificate areas to certificate types  
Mapping of approved program institutions to certificate types  
Mapping of required documents to certificate application types  
Mapping of deficiencies to certificate types  
Mapping of requirements to applications  
Mapping of application routing to evaluators

By configuring these requirements in tables, administrative users will be able to add new certificates, endorsements, tests, grades, and process flow without the involvement of a programmer. This will save tremendous time and money during the support and maintenance phase. New enhancements can be the focus of maintenance instead of the creation of new certificate types. The next screen shot is an example of a wizard screen that allows a new approved program to be added to the system. All drop down list fields (on this screen and any other screen in ELIS) can be customized by users with appropriate security roles.
D.3 - ELIS Feature Reqs - Interface

B-1 Interfaces with ESR to verify educator name, SSN, Illinois Educator Identification Number (IEIN), and date of birth and to obtain ESR data, including teacher and administrator performance evaluation data

Meet Requirement: YES

The HIT-LS implementation team has experience in numerous states tying related systems together. At a minimum we will establish the necessary web services so that any system can query an educator's information from the ELIS solution. For example, in Oklahoma, all educators are verified against the certification system from wherever they are collected by the use of web services. We have also created special views that allow other systems to directly join against the certification system (the Oklahoma implementation is called OECs) by setting up linked servers and in some special cases even setting up server replication. The point is that we have extensive experience with agency integration of multiple solutions and our team can suggest approaches that leverage this experience in multiple states. Once the complete requirements are established in the design phase our team will work with the ISBE stakeholders to implement the best overall approach for the given requirements. As a side note, our implementations of the HIT-LS solution have frequently displayed data from other systems seamlessly so that users of the HIT-LS implementation can access all the needed information without having to log into multiple systems.

We envision that the ELIS solution will display information from the ESR solution and vice versa. This will minimize users having to switch between systems. A user in the customized ELIS implementation will be able to view a teacher, see the assignments that were entered through ESR, and then see the students for those assignments that were originally reported in SIS. This integration will be seamless and consistently presented to the users of the customized ELIS solution. Other opportunities for integration will be identified during the design process and implemented as well.

B-2 Interfaces with applicable systems to allow for document scanning and the production of quality scanned documents

Meet Requirement: YES

The core HIT-LS solution has many value added components. One module that provides the most value added functionality is a completely integrated scanning module. Integrated right into the record of an educator is the ability to scan newly received documents to the educator's record. The module can read bar codes so that the type of document does not have to be assigned by the user. Only ISBE users are given the ability to scan documents into the system, but this could be assigned to any user group at the discretion of the Illinois State Board of Education.
The imaging screen also allows electronic PDF documents to be added to the educator's electronic record. We do not currently support other file formats but they could easily be accepted if this were a requirement. The main reason we do not accept other file formats is that a read only file format was desired so that there was no possibility of modifying a file added to an educator's record. Again, this is just a matter of easing the edit that checks for PDF files.

Electronic correspondence such as emails can easily be added to an educator's record as well. For instance, email text can be copied into the new ELIS solution and the system will automatically convert it into an electronic read only PDF for permanent inclusion in the educator's electronic record. The next screen shows the imaging module.

A new image can be included in the record of the current educator by just pressing the Begin Scanning link. The scanning software looks for a bar code and then automatically assigns the appropriate document code.

ISBE has well established document scanning procedures. All ISBE forms are already bar coded and have been in circulation to the public for many years. This means that there are a considerable number of scanned images that need to be incorporated into the new ELIS solution. Fortunately, the core HIT-LS solution, and subsequently the customized ELIS implementation, are 100% compatible with the current scanning procedures. A small customization will be performed to save the images to disk rather than to a SQL database.

A new concept that will be introduced with the new ELIS implementation is the tracking of applications. The current TCIS system does not track actual applications. It tracks credentials applied for but not the actual applications that are submitted, especially if those applications do not result in a credential of any kind. The new ELIS implementation will track every application that is received by ISBE. Every single mailed document that results in work being performed will be tracked in the applications area of the credentials screen. Individual credentials that are issues as a result of that application are directly tied back to the application in which they were initiated. Applications are then tracked with a status. Generally speaking they are either OPEN (need worked by evaluators or other staff), or closed (all required work is completed).

The reason this background on applications is mentioned in this scanning requirement response is that these application records are automatically created when a document is scanned. All documents are assigned a code in the system. The codes used will be the existing codes that ISBE has already assigned to their incoming documents. If the document being scanned requires work (documents like applications, duplicate requests, registrations, name and address changes, approvals) then the scanning module will recognize this and automatically add the application record. The application will then be automatically placed into the appropriate queue of the staff member handling that application type. So, in summary, a document gets scanned, and by that one act, if it requires work, it is automatically put in the queue of the appropriate person.
handling that application type (the system also accounts for multiple people handling the same application types). The staff members processing those applications no longer need case files piled on their desks. The scanned image is in the system and the work that needs performed is routed to the appropriate staff through the work flow queue.

The next screen shows the images Educator Option menu. The scanned images can also be managed once they are in the system. Managing an image allows the image to be combined with another, split in two images, delete individual pages from an image, delete the image entirely, edit the image information, and of course view the image. The application data, displayed below the scanned images table, displays the applications that were automatically entered when the documents were scanned. Notice that there is an Information Update form that is OPEN which means it is currently waiting to be worked in someone’s queue (in this case Stephanie’s – see the Evaluator column of the table).

All the above descriptions are based on the assumption that the incoming documents are already bar coded. The core HIT-LS solution has two processes to handle occurrences where the incoming documents are not bar coded. The first option is to create labels that can be added to the paper document. The scanning software will then read the bar code from the label. The second option is to create a header page with nothing on it but the bar code and insert it in front of the document missing the bar code. Each approach has its benefits. The scanning software can handle either case and it generally becomes a matter of personal preference for the scanning clerk.

Additional scanning module screens are displayed below.

The screen shot to the left shows the Add Image wizard. This wizard only allows PDF documents to be added to the educator’s permanent electronic record as if they were scanned. The user simply enters the document type, assigns the confidentiality level, enters a description, and finally hits the ‘Browse’ button to select the PDF to add. Once Submit is selected the PDF is uploaded and saved to the educator’s electronic record. It can then be viewed like any other scanned document.

The screen to the left allows any text to be converted to a PDF and saved to the educator’s electronic record. This screen is
used mostly to save electronic correspondence such as emails that are received from educators. The text is converted to a PDF so that it becomes read only and then it is added to the available image list for the selected educator.

In summary, the scanning module has been refined in multiple states. It is integrated in the application work flow process. The HIT-LS implementation team will work with the ISBE stakeholders to ensure that all scanning requirements listed in this RFSP are met. The only customization identified at this time will be saving the scanned images to file rather a SQL database. However, our team will work with ISBE to ensure all necessary customizations are made to guarantee the new scanning processes are successful and result in real time savings. Most cases worked by evaluators in the states using our HIT-LS solution no longer require a hard copy file. This results in tremendous time savings and the foundation of this success is our integrated scanning module.

**B-3**

Allows electronic batch interface with the licensure testing contractor, the National Association of State Directors of Teacher Evaluation and Certification (NASDTEC), the National Board for Professional Teaching Standards, colleges and universities, and transcript clearinghouse companies

**Meet Requirement: YES**

The core HIT-LS solution has several imports already built in. These will obviously be customized to meet the formats being received by the Illinois State Board of Education. The core functionality already has an interface to import test results, the NASDTEC felony file, and NBPTS certified educators.

The testing import is a very advanced tool. In many cases (such as entitlement applications), certificates can be set to automatically issue once the testing results are present. If a certificate is an entitlement certificate, and ISBE wishes to configure the system to automatically issue the certificates, the import tool will identify those entitlement applications whose only deficiency was a missing test and then automatically issue them and put them in the print queue. This will save a tremendous amount of time. The current procedure involves printing a report after the test import is performed that shows all the certificate entitlement applications that were waiting on test results. A staff member must then look up each certificate application individually and issue them. The automatic issue will make this manual process obsolete and allow the certification staff to focus their attention on applications that require their review and skilled knowledge. Additionally, by automatically issuing these certificates, the educators and districts of Illinois are better served by getting these certificates processed faster. This has proved to be a tremendous time saver in other states using the HIT-LS solution. For those certificate applications that have additional deficiencies, or cannot be automatically issued based on test results, the ELIS implementation will automatically reopen the application and put it back into the original evaluator’s queue.
The NASDTEC felony file also is a core feature of the HIT-LS solution. Once the NASDTEC import has been performed all educators listed will automatically be flagged. This alerts the evaluator to the fact the educator is on the felony file, and also prevents the system from ever automatically issuing a certificate. The screen below shows a flagged educator. (Also, notice the invalid address flag).

When the educator felony flag banner is present the ELIS implementation will always automatically place a felony file deficiency on the application and then route the application to the appropriate evaluators. The core HIT-LS solution can be configured to route all felony issues to a specific evaluator or the normal application routing can be used. Another useful feature of the HIT-LS solution is the NASDTEC felony file information for the educator also displays with that educators information. The next screen shows the Background Check educator screen and the felony file information can be seen below the background check record. This is a time saver because the evaluators do not have to go to the NASDTEC felony file screen and look up the educator to review the issue.

In many cases educators can appear on the felony file for issues that would not prevent them from receiving a certificate in Illinois. If this is the case, the felony file record can be cleared which will then allow the system to ignore the felony record and issue the certificate.

The NBPTS import is similar to the test and NASDTEC imports. In Illinois, educators that complete the NBPTS certification process are eligible to receive a Master level certificate. This process can be automated as well. We propose that the ELIS solution be customized to either automatically issue the new Master level certificates, or notify the educators that they qualify for the certificate when they log into the system and then collect the application online. The certificates can be automatically issued because Illinois does not collect a fee for them. Obviously new certificates would not be created if the educator already holds the master certificate. Also, the core HIT-LS solution has screens to manage the stipend paid to educators for completing the NBPTS certification process (these screens can also manage other professional credentials like ASHA, ABCTE, and nurse’s licenses if needed). Another feature of the core HIT-LS solution is the ability to automatically highly qualify the educator in their assignments matching the NBPTS endorsement areas. These features may need slight customization to match the specific requirements of Illinois. The HIT-LS implementation team will work with the ISBE stakeholders to fully implement customizations that allow all requirements of the RFSP to be met.

The implementation team will add additional interfaces to allow the colleges and institutions of Illinois to submit their program completers in batch mode, as well as, add new capabilities to handle electronic transcripts. These new imports will be customized in partnership with ISBE to ensure all appropriate requirements are met. The project team will work with the ISBE stakeholders to identify areas for work flow automation. For instance, if an electronic transcript is received and a deficiency letter requesting a transcript had been mailed to the applicant, that deficiency can be automatically removed and the application can then be automatically placed in the queue of an evaluator. Other areas for work flow automation will be identified as part of
the design process.

**B-4**  
*Allows institutions of higher education to entitle applicants for licenses and/or endorsements*

**Meet Requirement: YES**

The HIT-LS solution has completely automated the credentialing of students completing approved teacher education programs. The general workflow is detailed below.

1. An Institution Officer at the university enters the students. There is an option to present the students in a “Pending” status prior to their actual completion of the program. This assists large universities with a high number of graduates. They can have all the graduates entered prior to graduation and then just switch them to “Completed” once they actually complete the program. Whether starting in the “Pending” status or “Completed”, the institution officer actually enters the credential data earned into the HIT-LS system.

When entering the data multiple edit checks are performed. The HIT-LS solution will only allow an institution to grant endorsement areas that have been assigned by ISBE. So ISBE actually enters each approved program for an institution and then sets the endorsements that can be granted for completing that approved program. An example would be an educator completing the World Languages approved program and then being granted a German endorsement. The Institution Officer enters the program the student completed and what endorsements they earned. The institution Officer could not enter the World Languages approved program unless their institution offered that program. The officer also could not enter German as the endorsement unless the institution actually offered that endorsement. These features prevent mistakes where an Institution Officer at a university can grant an approved program and endorsement to a student that the university does not even offer.

The next screen shows what institutions see when they first log into HIT-LS.

The institution officer clicks on the “Click Here to Add a New Recommendation” link to add a new student graduate. The institution enters the SSN and Last Name of the student. The HIT-LS solution will check to ensure the name and SSN match and if they do it will continue to the next step. This match is performed to prevent duplicate records for an educator. Due to testing, every educator an institution electronically entitles should already be in the system. When the automated tests are loaded, the test takers are added to the system if they are not already present. If a match is not found then an error condition exists; either the educator’s name is misspelled in the system, they have changed names, or the SSN in the system is incorrect.

The next step of the wizard collects the degree that was earned. It defaults to the current university but can be changed if the student completed their degree at a
different institution and then just transferred to complete the education program.

The next step of the wizard is the certificate that the educator has earned by completing the approved program. Notice the Credential Source is set to tradition teacher education program. This is the source that is used if a student completes a teacher education program. This field makes it possible to run reports on all the educators who completed a teacher education program. This source is equivalent to the current Entitlement/Evaluation flag that is currently used in TCIS except that it allows for many more options (Out of State, Out of Country, Traditional, Alternative, Emergency, ABCTE, Teach for America, etc...). It is effectively the path they used to become certified. In this case of course, because an institution is entering the information, the source is defaulted to Traditional and cannot be changed.

The type of certificate, in this case a License (first credential earned in Oklahoma), is entered next followed by the rules used to grant the certificate. The most important field is the last one which indicates which approved program was completed. This drop down will only contain programs that the listed university has been allowed to offer by ISBE.

The Certificate Class is the current TCIS Certificate Code. In Oklahoma all new teachers are assigned a License. If the teacher has already acquired a standard level certificate then this field would have defaulted to Standard. Customization will be performed for the ELIS implementation to ensure the proper Certificate Code is automatically assigned.

The Certificate Rule is a field that is new to ISBE. In Illinois, as in other states, the rules regarding teacher certification have tended to change over time. Depending on how a state handles out of state transcript evaluations, different sets of rules may be applied to an incoming educator depending on what rules were in place at the point they first became certified. This field allows an evaluator to mark which set of rules were used during that evaluator’s transcript evaluation. It is unclear if Illinois would benefit from this field. It will be removed if it is not needed.

The next wizard page shows the endorsements. This endorsement list will only contain endorsements that can be offered in the selected approved program. Since Foreign Language was the approved program we are only seeing language endorsements that are offered by the current university.

The next screen is where the institution certification officer indicates if the student has met all the requirements. If the educator has not completed all requirements then the entitlement is marked “Not Complete”. This usually means the university user is entering the recommendation prior to the completion of the school year.
If the institution certification officer marks the graduate “Complete” then the applicant will be able to apply immediately for the certificate when they log into their educator account.

2. Once the institutions have entered the certificate and marked it “Completed Program” the applicant can immediately apply. The applicant submitting the electronic application is the next step.

3. The applicant submits the application and numerous edit checks are performed. The list of automated edits can be modified if needed. The core HIT-LS solution edits are tests, felony file, background check questions, and background check results. If the system can automatically issue the certificate and finds no deficiencies then the certificate is issued and sent to the print queue.

4. If deficiencies are found then they are assigned to the certificate and the application is placed in “Pending Review” status. It is then routed to an evaluator’s queue for review.

ISBE staff can also enter entitlement certificates. When an ISBE staff member enters an entitlement application, the key is to be sure the source is marked Traditional (this is intuitive because the user will only be prompted for the institution if the source is traditional). The wording of the source can also be customized as needed to use ISBE’s wording (for instance changing Traditional Teacher Education Program to Entitlement).
D.4 - ELIS Feature Regs - Functionality

C-1 Auto-populates data after initial entry, within and across applicable systems

Meet Requirement: YES

The HIT-LS solution only requires data to be entered one time. To facilitate integration with other systems we also have several web services that come with the core product. Entry is streamlined as much as possible to ensure a clean and functional workflow. Some data is displayed but can be changed. For instance, every application requires the educator to verify their personal demographic information. The data is pre-populated but can be changed if the educator's address or other personal information has changed. Another example is the collection of credit card information. The address for the credit card is defaulted with the educator's address but can be changed if credit card from a different person is used (such as a parent).

C-2 Provides system-wide automatic checks of spelling and grammar, except for names and addresses

Meet Requirement: YES

The current HIT-LS solution does not have spell check capability. This is however, on our feature list to add for all states. This feature will be back filled in all states that are current on their license fees and is a good example of how the license fees benefit our customers. The ELIS implementation will be customized to ensure this feature is present. In fact, our team will work with ISBE and allow it to have input on which spell check tool best matches their needs. This will be fully explored during the design phase. There are several options available that we have been evaluating that will be present to the ELIS stakeholders.

C-3 Allows the use of a mouse or the <TAB> feature to move between fields within a screen

Meet Requirement: YES

The core HIT-LS solution fully supports both mouse and keyboard entry. Every function in the ELIS solution can be performed with either feature.

C-4 Date- and time-stamps records/accounts to indicate when a change is made, by whom, and what was changed (updated or added)

Meet Requirement: YES

Every table in the HIT-LS solution has four fields. These fields are CreateDate, CreateUserID, UpdateDate, and UpdateUserID. The Create Date and Create User ID record the user that created the record. The Update Date and Update User ID show the last person to update the record. Every person who ever changed the record can be accessed if needed because every data change is logged. The four mentioned fields are the only ones displayed on a regular basis.
These fields are standards of the HIT-LS solution and all new tables created as part of the customization effort would also contain these fields. The next screen shows how these fields are generally displayed. The screen is the edit screen for an application.

C-5 Provides automatic status updates, e.g., expired endorsements, removed deficiencies, suspensions

Meet Requirement: YES

The core HIT-LS solution automates many status updates. Some examples are automatically expiring certificates that are past their expiration date. Other automations involve removing deficiencies upon passing a test (and issuing the certificate if applicable).

The educators and districts have several status updates that are communicated when they log in to their account. For instance, educators that are eligible to renew automatically are notified when they log into the system. In New Hampshire, for example, these educators are also notified by email. District Superintendents are sent an email when they have application approvals pending their queue. They are also notified of special concerns, such as educators teaching on expired certificates, when they log in.
The screen above shows the status notifications that are currently pending for the district superintendent at a school in New Hampshire. This superintendent has six license upgrades, six renewals, and 5 alternative education plans awaiting her approval. These menus are not present if the superintendent does not have anything pending approval. There are several other notifications in the Hit-LS implementation in New Hampshire that are not displayed on this screen because this district has no teachers who need approvals or attention. Also, notice the informational home screen (the first screen they see) also has information in the blue highlight area about new tasks and functions that are available or required.

The screen below shows the renewal notification that is communicated to educators in Oklahoma that have not yet renewed their certificates. Only educators who are eligible to renew and have not renewed will see the highlighted renewal menu. Examples of other notifications for educators are pending entitlement applications and certificate upgrades.

Status updates for ISBE evaluators and other staff are reviewed in detail under the work flow requirement C-26.

Our implementation team will work with the ELIS stakeholders to identify all the status update processes and ensure proper customizations are in place to automatically update the appropriate users. This can be performed through emails, additional menus on the home screen, and even paper mailings as the requirements demand.

C-6  Automatically imports a deficiency letter when the —complete button is hit, to eliminate printing and manual scanning

Meet Requirement: YES

The core Hit-LS solution already stores a copy in PDF format of every mailing generated by the system. This includes certificates and deficiencies. This core feature set will be customized to include approval letters, as well. The screen below shows the Print History which allows the users of the new ELIS solution to see all the documents that have been sent to an educator.

It is worth noting that the Hit-LS implementation team will convert all the PDF deficiencies that are currently stored for educator online viewing. They will appear in the print history as if they were generated by the ELIS solution.

The automatic creation of PDF deficiencies and certificates was covered in detail under requirement A-7 in section D.2 ELIS Feature Requirements – General.

C-7  Allows a deficiency to be retrieved and deleted within the same day

Meet Requirement: YES

The core Hit-LS solution allows deficiencies and deficiency letters to be created and removed repeatedly at any time. Deficiency letters that are sent to the batch print queue can be immediately deleted by just going the Print History screen (above) and hitting the Delete link.
Once the Deficiency Letters are printed they can no longer be deleted from the Print History because that means they were printed and mailed.

C-8  Allows deficiency and other form letters to be customized, to address individual circumstances

Meet Requirement: YES

The core HIT-LS solution includes the complete automation of the deficiency process. An application check list is created for each application type. When the application is received this check list is automatically reviewed against the educator’s records to see what is present and what is missing. Predefined deficiency statements are automatically generated for each missing item in the check list. These deficiencies are then used to generate an automatic deficiency letter and that letter is placed in the print queue and eventually mailed to the applicant.

As items are received the matching automated deficiencies are removed and a new deficiency letter is generated with the remaining deficiencies. This process continues until all items on the check list are received. Once all items are received and no deficiencies remain, the application is placed in an evaluator’s queue for review or automatically issued if the application is eligible for automatic issuance (for instance an entitlement application). This highly streamlines the work flow for an application because evaluators do not see an application in their queue until the minimum documents to process the application are received. For instance, evaluators would not see an out of state application in their queue until the application, fees, out of state certificate, state approved program form, and transcripts were received. The intervening deficiency letters would be automatically sent out by the system until all the listed items were received. The system knows when these items are received due to the bar code of the document type when scanned into the ELIS solution.

Once all items in the application check list are received, the evaluator works the application. Additional deficiencies can be added by the evaluator. Most deficiencies are already defined and can be added with the click of a button. A free form deficiency exists that allows the evaluator to type anything desired. The evaluator then sends the new deficiencies to the print queue which triggers the generation of a deficiency letter that is sent the print queue and viewable in the Print History of the educator.

This process can be customized as needed to conform to the needs of ISBE. For instance, some states elect to not have the application check list deficiency letter automatically mailed. Instead, they have the application check list deficiencies added but then route the application to the evaluator’s work queue for further review instead of sending out the initial deficiency letter. This is primarily intended to allow the evaluators to do an initial review of the application so that as many items are listed on the deficiency letter as possible. This somewhat prevents the scenario where the applicant gets a sequence of application check list deficiency letters, and finally resolves all those deficiencies, and to get another deficiency letter with a whole new set of deficiencies.
The HIT-LS implementation team will meet with the ISBE ELIS stakeholders and determine the best approach for their workflow and office policies. The ELIS implementation will also be customized as needed to produce deficiency letters in the format desired by ISBE.

The screenshot below shows an individual deficiency that has been added to a certificate application. In this case, the educator has not paid his Oklahoma taxes and therefore is not eligible to have certificates issued or renewed. This is also a good example of how the new ELIS solution can be customized to integrate with other state systems and agencies. This deficiency was automatically placed on the educator as the result of an import process performed on a file sent to the Oklahoma State Department of Education from the Oklahoma Tax Commission.

The actual printed deficiency letter is shown below. The letter would be customized to match the desired ISBE format.

Each pre-defined deficiency can have enclosures associated with it. If enclosures exist, the evaluator can choose to include them with the deficiency letter when the deficiency letters are printed from the batch print queue. This can be useful in cases where a paper application of some kind is required. For instance, in Illinois, out of state certificates require the completion of a State Approved Program (SAP) form. The deficiency statement requesting the SAP form would have the enclosure field set to Yes. The system would require that an electronic PDF of the SAP form be attached to the pre-defined SAP deficiency statement. At that point, the evaluator would have the option of having the blank form printed right after the deficiency statement. File clerks that perform the printing and mailing would then insert the form in with the deficiency letter as the letters were printed.

An infinite number of predefined deficiency statements can be created. The core HIT-LS solution has an entire Deficiency Maintenance module designed for this purpose.

The Deficiency Maintenance screen is shown below. This is where new deficiency statements can be created so they are available to select by evaluators. The screen is displayed with the deficiency group filter expanded to show how each deficiency statement is assigned to a group.

When evaluators assign a deficiency to a certificate application they select the group and then get a filtered list of the deficiencies under that group. This makes finding a particular deficiency much easier.

The core HIT-LS deficiency processing should meet all of ISBE’s application deficiency needs. It is more straightforward that the TCIS deficiency processing. The most significant difference is that
deficiencies requiring evaluator entry (for instance, required course hours) are handled differently. Consider the following deficiency statement.

In the description of the deficiency are three entries that are required by the evaluator. They are embedded in the test as [***]. When the evaluators go to assign the deficiency, the deficiency text is displayed with the placeholders. The evaluators just modify the text to put in the appropriate value. So in the text above, “in the amount of [***] payable” will be changed to “in the amount of $10.00 payable”. The changed text is then saved with the deficiency statement. This also suggests another subtle point. The wording of predefined deficiencies can be changed if needed to fit the current application circumstances. So instead of being a rigid, predefined statement that is unchanging, the deficiency statements can be added and then tweaked as the situation demands. This significantly reduces the number of free form text deficiencies that are required because generally there is a predefined deficiency statement that is close to meeting the current need.

Again, the deficiency module is one of the most important tools of any certification system and it is our intent to partner with the Illinois State Board of Education to ensure the ELIS deficiency implementation is customized to meet all requirements.

C-9 Allows ROEs and educators to view deficiency letters

Meet Requirement: YES

The print history will allow any user with the appropriate security to view certificates and deficiency letters. This is a core HIT-LS feature and can be customized for the various roles of the system without any additional programming. The HIT-LS implementation team will work with the ELIS stakeholders to ensure all roles are configured properly to meet this requirement.

C-10 Allows information entered into notes to be viewed by users, based on designated role

Meet Requirement: YES

The ability to enter notes is a core HIT-LS feature. The notes are currently implemented with security levels. Each user role is assigned a security level. Each user can see notes entered by a user with an equal or lesser security level as defined by their current role. The HIT-LS implementation team will review the current security handling of notes and customize as needed to ensure this requirement is met.

C-11 Incorporates drop-down boxes, check boxes, and radio buttons where appropriate

Meet Requirement: YES

The core HIT-LS solution uses all these control types everywhere appropriate. Any new customization will also continue this practice to ensure users are only given choices of valid data for entry. Also, the values of all drop down lists can be modified in the Code Table Maintenance module. The numerous screen shots in this RFSP response demonstrate that this requirement is met.
C-12  incorporates barcodes on forms, so form number can be scanned

Meet Requirement: YES

The scanning module that is integrated into the core HIT-LS solution requires bar codes for proper scanning of documents. These bar codes are then used to automatically enter applications into the evaluator’s queues. This functionality has been reviewed in detail in requirement B-2 of the section D.3 ELIS Feature Requirements – Interface.

C-13  Maintains secondary and history of previous names, addresses, phone numbers, and e-mails

Meet Requirement: YES

The core HIT-LS solution tracks all history for all demographic information. This history can be viewed from the History menu of the Educator Options. This history is also integrated into the Educator Search. Any search of an educator name will automatically search the primary name fields, all previous names in the history, and the maiden name. The history screen is shown below. The core feature set will be customized to add email address to the history screen.

C-14  Maintains a list of incorrect addresses and e-mails based on returned mail and undelivered e-mails

Meet Requirement: YES

The core HIT-LS solution automatically tracks invalid addresses. Its core functionality also includes the ability to import the US Postal Service Invalid Address file. The Oklahoma State Department of Education submits a file to the US Postal Service with the current addresses for all active educators (those with current assignments). The US Postal Service then returns an invalid address file that is imported. All invalid addresses are marked invalid in the system so no new mail is sent to those educators until they update their address. The invalid address flag can also be manually set by an ISBE user with the appropriate security role. A customization will be made for the ELIS implementation to also allow email addresses to be marked invalid.

C-15  incorporates pop-ups to force confirmation by educators of information such as e-mail and date of birth

Meet Requirement: YES

The core HIT-LS solution requires the entry of email address and birth date when an educator creates an account. This information is also confirmed on every online application that is submitted. The email address is also double entered to ensure no unintended misspellings occur. The ELIS implementation team will work with the ISBE stakeholders to ensure this requirement is met if the core functionality does not meet the intent of this requirement.
C-16  Tracks SSN changes and red-flags any record/account with the same SSN when the change is entered

**Meet Requirement: YES**

The core HIT-LS solution does not allow a given SSN to appear on more than one educator. This functionality does not appear to be needed simply because the ELIS implementation would not allow an SSN to be changed to an existing SSN.

All SSN changes are recorded and can be viewed on the History screen. The SSN tab of the History Screen is shown below. Both the old and new SSN’s are shown.

The HIT-LS implementation team will work with the ISBE stakeholders to ensure the intent of this requirement is met in the customized ELIS implementation.

C-17  Provides automatic edit check of SSN against name

**Meet Requirement: YES**

The core HIT-LS solution uses the SSN and Name in several edit checks. Educators must verify their SSN and name when making an account. Also, institutions must confirm the name and SSN of their students when entering the online entitlements. The HIT-LS implementation team will work with the ISBE stakeholders to ensure this requirement is met, and if necessary, additional customizations will be made to the ELIS implementation.

C-18  Maintains the use of name, SSN, IEIN, and date of birth for search capability and adds previous name and SIS student ID

**Meet Requirement: YES**

The core HIT-LS solution has multiple fields in the Educator Search screen. A customization will be made in the ELIS implementation to add the SIS Student ID. All other fields are already present (although the Educator ID/Teacher Number will be renamed to IEIN).

The standard HIT-LS search screen is displayed below. All searches in the core HIT-LS solution are already designed to search current name, previous names, and maiden name.

C-19  Provides print screen capability

**Meet Requirement: YES**

The core HIT-LS solution is a web based system. All screens can be printed from the user’s browser of choice.
C-20  Allows credentials to be printed on-demand, individually or in batch

Meet Requirement: YES

The core HIT-LS solution has the ability to print a certificate on demand and batched. An evaluator can print a single certificate when on an educator's record. An evaluator can also send a certificate to the batch print queue where a print clerk can print them all at once. Minor customization will be required to ensure our certificate print format matches the needs of ISBE and its standard certificate stock. The Batch Print screen, shown below, will require additional customizations. The current ISBE Batch Print screen in TCIS has several more options that allow various specific certificate types to be printed separately from the rest of the batch. All of the functionality in the current TCIS Batch Print screen will be customized into the ELIS implementation.

C-21  Produces a variety of reports and mailing labels

Meet Requirement: YES

The HIT solution addresses reporting using two approaches. The reports that are viewed from TCIS using the Reports menu will be reproduced. The ELIS Implementation team will work with the ISBE stakeholders to ensure that each TCIS report is actually used, and then implement the necessary reports. In addition to these reports, we have an entire module dedicated to the creation of ad hoc on demand reports. These reports, once created, can be named and saved for future use. In addition to this, the reports once saved, can be specified as Public or Private. If a report is private then only the person who created the report can view it. If a report is public then all users with access to the Query and Reporting Tool can view the report. The screen below shows this screen. Labels can also be created for any report that includes the EID.

The screen to the left shows the start of the dynamic ad hoc query tool. The programmers who support the new licensure system can select Advanced and just enter the query they wish to base the new report on. Power users and other designated staff members can choose the Wizard option to be walked through the creation of a new report.
The next step to creating a new report is to select the
type of data you would like to report. We are going to
produce a list of all certificates that are currently
pending in an evaluator’s queue. Since we want
certificate information we need to select the Certificate
Data Group.

The next step of the wizard displays all the available
fields that belong to the selected Data Group. We have
cropped the screen because the list is fairly long but it
gives you the idea. The EducatorID (same as the tEID)
field is checked which means it will be included in the
report. If you want to filter a field by a certain value,
click the filter link. In this example we have selected
several other fields that are not visible due to the
cropping of the screen.

In the example to the left, we have selected the filter
link for the Certificate Status Code field. We are
filtering the status code by the value 'PR'. PR stands for
Pending Review which means the certificate is waiting
to be reviewed by an evaluator.

Step three of the wizard shows all the selected fields
and allows them to be positioned. By clicking the 'Up'
and 'Down' links the fields can be rearranged into any
desired order.

Step four is where the user indicates if the query should
bring back unique records. This would be important if
you were going to make mailing labels. If an applicant
had two pending certificates then they would have two
mailing labels generated if you did not select distinct.
Most of the time this will just stay set to Show All
Records (thus the default to that setting), but it can be
changed if needed.

Step five of the wizard allows the sort order of the
returned data to be defined. In this example, we have
indicated we want the data to be sorted in ascending
order by Certificate Description.

The last step is to name the report for future use. You
will notice that there is a visibility option that allows
other users to see (and run) the newly created report. Once the report is created it can be run at any time. The report can also be pulled into a designer for additional user formatting.

All reports/queries in the dynamic query and reporting tool can be exported to other tools using HTML or CSV formats.

The default reporting tool for the HIT-LS solution is Microsoft SQL Server Reporting Services. A customization will be required to change the reporting tool to Crystal Reports. A complete review of the reporting requirements will be performed during the design phase. All necessary customizations to implement the required reports will be performed for the ELIS implementation.

C-22 Provides text or numerical data that can be exported to standard desktop word processing and spreadsheet applications

Meet Requirement: YES

The core HIT-LS reporting tool has the ability to export any report in HTML or CSV format. A full review of this functionality is reviewed in the previous requirement C-21. A customization will be necessary to convert the reporting engine from Microsoft SQL Server Reporting Services to Crystal Reports. Crystal Reports also has several export options and the conversions are relatively straightforward.

C-23 Creates and maintains evaluation-file status levels

Meet Requirement: YES

The core HIT-LS solution has built in functionality to track the status of all applications received by the agency. Our solution actually has two status fields, the status of the application and the status of the certificate associated with the application. Initially, the application is assigned to an evaluator. The application is in an OPEN status and the certificate associated with the application is in a Pending Review status. The certificate can end up in several different statuses. The most common statuses are Issued, Deficient, Lapsed, and Expired. These certificate statuses very closely match the current TCIS statuses. The application status moves from Initial to CLOSED. The closed status means the evaluator has completed their review of the application and either issued the appropriate deficiencies or issued the certificate. If deficiencies were mailed out, the application can return to a RE-OPENED status if any changes are detected in the associated educator’s electronic record. The application statuses and how they affect work flow are reviewed in detail in the requirement C-26 below. The ELIS implementation team will work with ISBE to ensure all existing statuses are accounted for in the new ELIS implementation.

C-24 Auto-checks applications against revocations, suspensions, ISBE alerts, and NASDTEC alerts

Meet Requirement: YES
The core HIT-LS solution has several alerts that are displayed automatically when an educator is displayed. The core alerts include a NASDTEC felony file match, missing bachelor's degree, tax compliance, and new endorsement eligibility. The tax compliance and new endorsement alerts are not applicable to Illinois and will be removed. The core HIT-LS solution will be customized so that revocations, suspensions, and additional ISBE alerts are also included in the ELIS implementation. Our implementation team will work with the ISBE stakeholders to determine the required additional alerts and ensure they are included.

The screen below shows how alerts are communicated in the HIT-LS solution. The banner at the top of the screen shot is the alert banner. Not all alerts are bad. The first example is from Oklahoma. In Oklahoma educators can add additional endorsement areas to the certificate by passed the corresponding test. If an educator has a passed test on file but has not added the area the blue alert banner is displayed to the evaluator and to the educator. The alert banner is color coded to indicate the nature of the alert. In this case, the blue banner is a positive alert.

The example below shows the alert that is displayed if the educator is on the NASDTEC felony file. This alert is communicated with a red banner, indicating it is serious. If the educator was on the NASDTEC felony file but has been cleared to have certificates issued, the banner would have been yellow. This indicates that the certificate can be issued with caution.

C-25 Verifies application completeness before assigning to an evaluator (would automatically read for completeness and know to send)

Meet Requirement: YES

The core HIT-LS solution has a comprehensive application tracking and deficiency system. The core functionality allows a document check list to be defined for each application type. This check list is tracked against the scanned documents to determine what is already present in the current educator's electronic record. If there are missing documents a deficiency letter is automatically generated that requests the missing documents.

This requirement is part of the core HIT-LS solution and is provided by the integration of the Scanning, Work Flow, and Deficiency modules. This functionality, and specifically how this requirement is handled, has already been covered in the following module descriptions.

The scanning module and how it interfaces with the applications was described in section D.3 ELIS Feature Requirements – Interface, requirement B-2.

The deficiency module and how it interfaces to automate the deficiency process is described in section D.4 ELIS Feature Requirements – Functionality, requirement C-8.

The work flow module and how applications are assigned to evaluators is described below in section D.4 ELIS Feature Requirements – Functionality, requirement c-26.
C-26 Places application in work queue for evaluator once in complete/pending status (would automatically distribute based on selected option, e.g., specialty area)

Meet Requirement: YES

The HIT-LS solution is designed to offer maximum flexibility in creating an effective work flow. We have already reviewed many of our work flow automations up to this point. The work flow of credentialing college graduates has been covered, along with the renewal of teachers with district approval. The core HIT-LS solution has work flows for every different scenario.

The automation of applications is another area where optimized work flows have helped numerous customers.

The HIT-LS solution is designed at its very core to track multiple applications per educator. In fact, our licensure system actually tracks which credentials are issued from which application. A screen shot of the application table that is displayed on the Educator Summary screen is shown below.

Our licensure solution has a very unique approach to applications and how we track them. Each application has a status that is visible in the above screen shot in the Status column. When an application is newly added to the system it is assigned to an Evaluator automatically by document type (each application has an associated document type – see Document column). This assignment is very sophisticated and can work several ways. Our solution can automatically divide new applications among several evaluators in a round robin fashion or it can divide the applications by name range (so all A-F names go to one evaluator and G-L go to another evaluator). It can also assign them on a load basis so that the evaluator with the fewest apps in their queue gets the new applications. This assignment is of course completely user defined using maintenance screens.

Once the application is assigned the status comes into play. If the status is OPEN then the application automatically appears in the work queue of the assigned evaluator. In the example above, the second application is open and if we were to log in as the evaluator assigned, the application would appear in the OPEN queue in the descending order it was received (oldest applications are displayed first). The screen shot below shows the queues.

The application queues are the backbone of the whole licensure system. They replace the old file drawers that were traditionally used to hold applications waiting for review. The work flow for the HIT-LS solution is as follows:
1. If applicant applied with paper, mail is received
2. Mail is opened and scanned, bar codes are used to indicate the type of document received
3. When mail is scanned, if the documents received are applications, the applications records are automatically added to the application table for the selected educator
4. If the applicant applied online then the process starts here, the above steps are skipped because the application was received online and no mail or scanning had to take place
5. At this point, whether the application in question was mailed in or received online, two things have happened: the application has been assigned to an evaluator and the application has been placed in that evaluator's work queue in an open status in the order it was received.
6. The evaluator works the first application in his or her work queue. The application is completed when a deficiency is sent out or a certificate is printed.
7. A finished application is closed, at which point it no longer appears in the work queue.
8. The evaluator starts working on the next application in the queue (which is now the first application in the list)
9. Every evening the system reviews all incoming mail, tests, fees, NASDTEC, etc. to see if any new activity occurred for any application that was closed with a deficiency. If there is new activity the application is RE-OPENED and appears in the RE-OPENED queue.
10. The first thing every morning the evaluators go through the RE-OPENED queue seeing if any certificates can be issued, new deficiency statements sent out, or if the activity was not related and the application can be CLOSED again.

This application queue workflow is the backbone of our licensure system and has significantly improved the performance of the evaluators. The chart below is for the Oklahoma State Department of Education and graphically shows the difference in pending applications from the summer of 2009 to the summer of 2010. When the OECS system (the HIT-LS solution in Oklahoma) went into production they had file cabinets full of applications waiting to be worked. Looking at the chart below, the red bar shows that on 06/19/2009 there were 7,673 applications waiting to be worked. One year later, on 06/19/2010, there were on 897 applications waiting to be worked. The work flow improvement processes introduced by the HIT-LS solution were so remarkable that the pending applications for the same period of the year before and after implementation changed by almost 7,000 applications. Also, it is worth noting that the graph below was not created especially for this RFSP response. It is displayed at all times on the home screen of managers so they can gage their current application load over the same period the prior year. The core HIT-LS solution offers work flow process improvements that are industry leading and WILL lead to a significant improvement in the Illinois State Board of Education's productivity.
C-27  Maintains checklists of all application requirements, including documentation already on file and new documentation submitted electronically

Meet Requirement: YES

The core HIT-LS solution has a comprehensive application tracking and deficiency system. The core functionality allows a document check list to be defined for each application type. This check list is tracked against the scanned documents to determine what is already present in the current educator’s electronic record. If there are missing documents a deficiency letter is automatically generated that requests the missing documents.

This requirement is part of the core HIT-LS solution and is provided by the integration of the Scanning, Work Flow, and Deficiency modules. This functionality, and specifically how this requirement is handled, has already been covered in the following module descriptions.

The scanning module and how it interfaces with the applications was described in section D.3 ELIS Feature Requirements – Interface, requirement B-2.

The deficiency module and how it interfaces to automate the deficiency process is described in section D.4 ELIS Feature Requirements – Functionality, requirement C-8.

The work flow module and how applications are assigned to evaluators is described in section D.4 ELIS Feature Requirements – Functionality, requirement C-26.

C-28  Provides a comment field for missing documentation, e.g., lacks original signature

Meet Requirement: YES

The core HIT-LS solution has a list of deficiencies for every application. This list can have system generated deficiencies or manually assigned deficiencies. The core HIT-LS solution also provides the ability to enter notes. These features have been described in detail previously in this RFSP response. If this requirement is not met by these features then the HIT-LS implementation team work with the ISBE stakeholders to ensure this requirement is met.

C-29  Automatically calculates expiration date of licenses

Meet Requirement: YES

The core HIT-LS solution automatically calculates all dates. The rules governing the calculation of these dates are programmed into the solution. This will require minor customizations to ensure that all dates are calculated correctly for the various certificate types. The automatically calculated dates can be overridden if necessary by users with the appropriate security roles.

C-30  Sends e-mail to educator six (6) months prior to license expiration, as a reminder

Meet Requirement: YES

The core HIT-LS solution has the ability to send emails for numerous scenarios. The ELIS
implementation team will review this functionality with the ELIS stakeholders and ensure this requirement is met. A small customization will be needed to adjust the wording of the email. Educators are also notified that they are up for renewal upon logging into their account.

C-31 Generates and e-mails to each local education agency (LEA)/ROE a list of employed educators up for license renewal

Meet Requirement: YES

The core HiT-LS solution has the ability to send emails for numerous scenarios. The ELIS implementation team will review this functionality with the ELIS stakeholders and ensure this requirement is met. A small customization will be needed to adjust the wording of the email. The core HiT-LS solution also includes an entire renewal module specifically designed for school districts. This module will also be customized to include the needs of the Regional Offices of Education. The screen below shows the district renewal screen in the ELIS implementation in New Hampshire (New Hampshire's HiT-LS implementation is called ElIS). There are three tabs: one for those educators who need to renew, one for those educators who have been approved to renew but have not yet renewed, and a tab for those educators who have successfully renewed. The customizations for Illinois will result in a renewal screen that has four tabs. An additional tab might be needed for the LPDC but the general ideas is the same, educators move from the left to the right as they progress through the renewal process.

Tab 1 – SOA Required: This tab will show educators for the current ROE, district, or school who are up for renewal and have not submitted an SOA. These are the educators that the LPDC/ROE needs to notify about the renewal process. These educators will also get an email from iSBE and see a renewal notification when they log into their online account.

Tab 2 – SOA Submitted: This tab will show the educators for the current ROE, district, or school who are up for renewal and have submitted their SOA to the LPDC/ROE for approval. This tab needs to be monitored by the LPDC/ROE to ensure it is always empty. Any educators appearing in this tab are effectively stalled until the LPDC/ROE approves their SOA.

Tab 3 – SOA Approved: This tab will show the educators for the current ROE, district, or school who’s SOA has been approved by the ROE but who have not yet renewed their certificate. These educators will receive an email when the ROE approves their SOA. The educators in this list are stalled until they submit their renewal application.

Tab 4 – Completed: This tab will show the educators for the current ROE, district, or school who have completed the renewal process.

C-32 Generates and e-mails to each LEA/ROE a list of employed educators who have not properly registered their license(s)

Meet Requirement: YES
The core HIT-LS solution has an extensive district renewal module that will be customized to meet this requirement. It was reviewed in detail in requirement C-31 above.

C-33  Automatically accepts documents in PDF format and seamlessly stores and integrates such documents into the application process

Meet Requirement: YES

The core HIT-LS solution includes the ability to accept documents in PDF format with conversion or printing. This functionality is incorporated into the scanning module which was described in detail in section D.3 ELIS Feature Requirements – Interface, requirement B-2.

C-34  Scans all microfilm records into the appropriate individual’s file, per SSN

Meet Requirement: YES

Hupp Information Technologies has extensive experience dealing with importing historical documents. The effort to get the historical information digitized can be very daunting. We are assisting the Oklahoma State Department of Education with the scanning of all their historical file information. This requirement adds an additional level of complexity in that the images are historical microfiche rather than historical paper files. Another issue that complicates this process is the number of microfiche cards. At 1.1 million cards and an average of 15 images per card, the total number of images to be scanned is 16.5 million.

While this may seem daunting, a well prepared approach can get this work performed in under a year. The top of the line Titan scanner marketed by nextScan, will scan 230 images or COM microfiche per minute. This is equivalent to 15 cards per minute or 900 cards per hour. Using one machine, it would take 1,222 hours to scan all the images. If an assumption of six productive hours of scanning will occur in every standard eight hour work day, this brings the total number of days to complete the work to 203. There are an estimated 240 work days in a year based on the estimate of 20 work days per month. Completing the work in 203 days would bring the scanning effort to a close in under a year, with almost two months to spare.

The real effort that results from the scanning will be to take the scanned images that are stored in a PDF and then associate them with the appropriate educator. HIT will work with the microfiche scanning vendor see if the hardware can be integrated into the core HIT-LS solution. It is unclear at this time if that will be possible. At a minimum though, additional screens are envisioned to assist with the educator assignment process. That process will need to be as streamlined as possible to maximize the number of images per hour that can be assigned. A custom effort will help greatly in reducing the number of required staff and ensuring the assignment is done properly.

It is unlikely that a person doing this assignment, even with customized tools, will be able to do 900 assignments per hour (to keep up with the microfiche scanning machine). HIT is proposing a microfiche scanning clerk and two educator assignment clerks. Their overall productively will be measured after three months and additional steps will be taken to ensure the scanning effort is complete within the required two year period. These resources will be subcontracted through a
local BEP staffing firm called Alice Campbell Staffing.

C-35  Allows counts to be generated by degree type, major, and year awarded

Meet Requirement: YES

The core HIT-LS solution has an integrated dynamic query and reporting tool that has been described in section D.4 ELIS Feature Requirements – Functionality, requirement C-21. This tool can easily handle reports and queries that include counts by degree type, major, and year awarded. The HIT-LS implementation team will work with the ELIS stakeholders to ensure all needs are met for this requirement. The appropriate reports will be added to the report menu as part of the customization effort required to implement the new ELIS solution.

C-36  Allows users to select data elements for the production of customized reports, based on designated role

Meet Requirement: YES

The core HIT-LS solution has an integrated dynamic query and reporting tool that has been described in section D.4 ELIS Feature Requirements – Functionality, requirement C-21. This tool can easily handle reports and queries that allow the user to select data elements. The HIT-LS implementation team will work with the ELIS stakeholders to ensure all needs are met for this requirement.

C-37  Provides cumulative reports for various types of transactions, e.g., entitlement evaluations, registration, overdue fees

Meet Requirement: YES

The core HIT-LS solution has an integrated dynamic query and reporting tool that has been described in section D.4 ELIS Feature Requirements – Functionality, requirement C-21. This tool can easily handle reports and queries that allow the user to generate cumulative reports of any transaction type. The HIT-LS implementation team will work with the ELIS stakeholders to ensure all needs are met for this requirement. The appropriate reports will be added to the report menu as part of the customization effort required to implement the new ELIS solution.

C-38  Produces a report of applications that cannot be processed due to unacceptable payment format

Meet Requirement: YES

The core HIT-LS solution has an integrated dynamic query and reporting tool that has been described in section D.4 ELIS Feature Requirements – Functionality, requirement C-21. This tool can easily handle reports and queries that allow the user to generate reports on applications that cannot be processed because of unacceptable payment format. The HIT-LS implementation team will work with the ELIS stakeholders to ensure all needs are met for this requirement. The appropriate reports will be added to the report menu as part of the customization effort required to implement the new ELIS solution.
C-39 Provides each applicant an individualized checklist of all application requirements, indicating documentation and/or fees received and processed by ISBE, by date, and documentation and/or fees that still need to be submitted

Meet Requirement: YES

The core HIT-LS solution will be customized to present the required documents for an application in a list format. The system already displays the missing information in the incomplete application deficiency letter. The customization will show the application requirements in a list format that can be viewed at any time for any pending application.

D.4 ELIS Feature Requirements – Functionality, requirement C-21

C-40 Allows applicants to use the State's standard electronic payment processor for credit/debit cards

Meet Requirement: YES

The core HIT-LS solution is designed so that the payment processing is all contained in one code module (CPayment class to be specific). This module will be customized to integrate with the ISBE's standard electronic payment format. Fortunately, the project manager, Dean Hupp, wrote the original code and is very familiar with its function. This customization required to integrate the new ELIS solution with ISBE's online payment processing solution is minor.

C-41 Balances fees paid online by verifying payment of fees by credit card company

Meet Requirement: YES

The core HIT-LS implementation team has extensive experience with the tricky business of balancing credit card deposits to the actual applications submitted. In the state of Oklahoma our team has implemented an automatic download of the deposit details from the credit card processing company. This information is imported into the OECS system (HIT-LS implementation in Oklahoma) and then balanced against the fees record in the system. Each transaction in the OECS system that is collected online can be traced back to the actual deposit it appeared in. The HIT-LS solution is PCI compliant and stores the last few digits of the credit card number and the type of credit card for each online transaction. This makes balancing much easier than what ISBE has traditionally experienced. The HIT-LS solution for the ELIS implementation will be customized as needed to ensure that the credit cards can be balanced as needed to meet this requirement.
C-42  Provides alert to ISBE of any batches of fees paid out to ROE over 30 days

Meet Requirement: YES

The core HIT-LS solution has many alerts and reports. A customization will be performed to add a screen that displays all payments from ROE's that are over 30 days old. This screen will allow the user to drill down into the applications that make up that payment, as well as, see the due dates, total amount owed, and total of all pending payments.
D.5 - ESR Feature Reqs - General

A-1 Maintains all existing TSR data currently stored in TCIS

Meet Requirement: YES

The ISBE ESR system will maintain all TSR data currently stored in TCIS. The HIT/IBM team will work with ISBE to migrate all data from the current Teacher database to the new ESR database. HIT/IBM will perform a one-time data migration of the legacy TSR data (TCIS database) into the new ESR database. The following diagram depicts the data migration process. HIT/IBM will work with ISBE staff to validate the data migration process, its associated business rules, and data cleansing rules and methods. HIT/IBM will produce a data migration strategy document and a detail data mapping document with associated business rules and data conversion rules for TSR to ESR data migration. For more detail on the data conversion process and plan, please refer to section D.2 ELIS Feature Requirements – General, Requirement A-9.

Figure 1: Data Migration Process

A-2 Allows real-time updates, while maintaining history

Meet Requirement: YES

The new ISBE ESR system will be real time. The data will be available to the teacher or school districts at anytime for necessary updates. Like the current ISBE SIS system the news ESR system will collect data both Online and Batch and available to users 24 Hours a day, 7 days a week. Users will access the system via IWAS and IWISE to enter data or see updates as soon as files process or teacher data is submitted online.

ESR will also interface with ELIS to verify educator name, IEIN, and date of birth and to provide ESR data, including teacher and administrador performance evaluation data. The ESR system will collect Teacher data according to the School Year and Teaching Location. The Serving school will provide the information regarding teachers. When ESR collects the teacher course assignment data elements (online or batch) such as Teacher IEIN, First name, Last name, and Birth date; ESR will call web service to ELIS to validate Teacher IEIN, First name, Last name, and Birth date. Once the IEIN or the Last name, First name and Date of Birth have been entered a summary screen will display to the user. The illustration below is an example search results screen from the Teacher search in the current IBM SiS system.

Once the user verifies that the search results match the teacher searched, the “View Details” link must be selected to advance to the next screen. The user will then select the School Year and Teaching Location. The Teaching location is the Serving school where the Teacher is instructing the course. Below is an illustration of the Teaching Location screen.
Once the School Year and Teaching location are selected, any additional data that for the Teacher can be entered. For example Teacher Course Assignments, including Start and End Dates, Teachers Role, Teachers Full time Equivalency (FTE).

Data for the ESR system will also be collected via a Batch File process similar to the batch files currently collected in the SIS system. Files will be accepted from the users 24 hours day 7 days a week. Files will be processed one at a time in the order they are received. A Hierarchy will be created to handle the multiple file types and the order in which they will process. Validations will be done on upload (Level 1) to ensure the user is submitting the correct file format. Once the file format is accepted, further validations will be run on each individual record. Records will be processed and Result Codes and Messages will be appended to each record. Result Code and Messages will be both Positive (Record Updated, Record Added, etc...) or Negative (Record Failed). The file will be submitted through the ESR system using a file upload function similar to what is in SIS currently.

Below is an illustration of the SIS Upload File screen.

Once the file is processed it will be returned to the user through the ESR system Download File screen similar to the Download File screen currently in SIS.
Below is an illustration of the SIS Download File screen.

A-3 Provides role-based access and adequate security at every user level

Meet Requirement: YES

The new ISBE ESR system will utilize the existing IWAS approval groups to allow access as needed. IWAS will be utilized to assign user accounts which can be granted access to the ESR system by the District Administrator. Accounts are created in IWAS by the user.

Below is a example of the IWAS New User Sign Up

After the requestors information has been entered and the Continue button selected the next screen is displayed.

Below is an example of the IWAS New User Sign-Up Confirmation Screen.

An IWAS user account allows the user access to the list of systems provided by ISBE. The user must select to Sign-up for the ESR system from this listing.

Below is an illustration of the current list of ISBE Systems.

Once this has been selected a request will be sent to the Administrator of the Serving Facility for Access to the ESR System.

Similar to the current ISBE SIS system six types of user roles can be assigned to ESR users. Each ESR user role will have certain access rights to system functions that one can operate. These roles include:

- **View Only**
  The View Only user access level grants view only access to district personnel.

- **RCDT General User**
  The RCDT General User role has access to functions that include search for IEIN for Teachers, and all existing teacher data records. The RCDT General User must enter, at a minimum, the key Teacher attributes when searching an IEIN, or viewing Teacher data.
- **ROE Administrator (ROE Admin)**
  The ROE Administrator role is in charge of a district or a private entity that has been granted access to IWAS/ESR from the Illinois State Board of Education. The role of the ROE Administrator is managing and granting user access to those in his or her district or private entity. The ROE Administrator role also includes, at a minimum, all of the attributes of the RCDT General User role, plus the ability to utilize the online and Batch Processing to Search the IEIN, to change Teacher Demographics and Teacher attributes after an IEIN has been assigned, and to view system reports.

- **RCDT Administrator (District Admin)**
  The RCDT Administrator role also includes, at a minimum, all of the attributes of the RCDT General User role, plus the ability to utilize the online and Batch Processing to Search the IEIN, to change Teacher Demographics and Teacher attributes after an IEIN has been assigned, and to view system reports.

- **Special ED Coop User**
  The Special ED Coop approval group grants limited access to Special Ed facilities.

- **ISBE Administrator (Admin)**
  The ISBE Administrator role is appointed by ISBE personnel for administrative purposes at a state level.

**A-4** Allows authorized district users to report ESR data through either an online or batch file process

**Meet Requirement: YES**

When ESR collects the teacher course assignment data elements (online or batch) such as Teacher IEIN, First name, Last name, and Birth date; ESR will call web service to ELIS to validate Teacher IEIN, First name, Last name, and Birth date. Once the IEIN or the Last name, First name and Date of Birth have been entered a summary screen will display to the user. The illustration below is an example search results screen from the Teacher search in the current IBM SIS system.

Once the user verifies that the search results match the teacher searched, the “View Details” link must be selected to advance to the next screen. The user will then select the School Year and Teaching Location. The Teaching location is the Serving school where the Teacher is instructing the course.

Below is an illustration of the Teaching Location screen.

Once the School Year and Teaching location are selected, any additional data that for the Teacher can be entered. For example Teacher Course Assignments, including Start and End Dates, Teachers Role, Teachers Full time Equivalency (FTE).
Data for the ESR system will also be collected via a Batch File process similar to the batch files currently collected in the SIS system. Files will be accepted from the users 24 hours a day 7 days a week. Files will be processed one at a time in the order they are received. A Hierarchy will be created to handle the multiple file types and the order in which they will process. Validations will be done on upload (Level 1) to ensure the user is submitting the correct file format. Once the file format is accepted, further validations will be run on each individual record. Records will be processed and Result Codes and Messages will be appended to each record. Result Code and Messages will be both Positive (Record Updated, Record Added, etc...) or Negative (Record Failed). The file will be submitted through the ESR system using a file upload function similar to what is in SIS currently.

Below is an illustration of the SIS Upload File screen.

Once the file is processed it will be returned to the user through the ESR system Download File screen similar to the Download File screen currently in SIS.

Below is an illustration of the SIS Download File screen.

A-5 Collects all required ESR data elements, including teacher course assignment data and teacher and administrator performance evaluation data

Meet Requirement: YES

All required ESR data will be collected. Teacher Course assignments which include start and end dates will be matched to Student Course assignments located in SIS. (This includes student start and end dates within the course). The identified students state test score can be provided back to the teacher for evaluation.

The following is a list of Entry Data Elements that will be collected as of August 1, 2011 upon the initial submission of Teacher Course Assignment data.

- IEIN
- Local Teacher ID
- Teacher Last Name
- Teacher First Name
- Teacher Birth Date
- School Year
- Teacher Serving Location RCDTS
- Term (Semester)
- State Course Code
- Local Course ID
- Local Course Title
- Section Number
- Teacher Course Start Date
- Role of Professional
- Teacher to Course Commitment
- FTE

The following is a list of Exit Data Elements that will be collected as of August 1, 2011 upon the submission of Teacher Course Assignment Exit data.

- IEIN
- Local Teacher ID
- Teacher Last Name
- Teacher First Name
- Teacher Birth Date
- School Year
- Teacher Serving Location RCDTS
- Term (Semester)
- State Course Code
- Section Number
- Actual Attendance (Classes)
- Total Attendance (Classes)
- Teacher Course End Date
- Reason for Exit

Any additional data requirements defined in this RFSP will be included.

Below is an illustration of the Teacher Course Assignment collection that is currently being developed as part of SIS.

A-6 Collects the variables necessary for linking teachers to students in meaningful ways, e.g., teacher attendance, teacher role

Meet Requirement: YES

The HiT/IBM team will work with ISBE to ensure all requirements are identified and the correct information is being collected to meet ISBE's future goals. Teacher Course assignments which include start and end dates will be matched to Student Course assignments which include students start and end dates. This will allow all student data to be linked to all teacher data; this includes attendance, program participation, and performance data.

Additionally we could also collect services provided for one student by one teacher.

The following is a list of Entry Data Elements that will be collected upon the initial submission of One Teacher to One Student data.

- IEIN
- Local Teacher ID
- Teacher Last Name
Teacher First Name  
Teacher Birth Date  
Student ID  
Student Last Name  
Student First Name  
Student DOB  
School Year  
RCDTS for Serving School  
Term (Semester)  
State Course Code  
Local Course ID  
Local Course Title  
Services Provided Start Date  
Services Provided  
Teacher to Student Commitment  
Teacher Full Time Equivalency (FTE)

The following is a list of Exit Data Elements that will be collected upon the submission of One Teacher to One Student Exit data.

IEIN  
Local Teacher ID  
Teacher Last Name  
Teacher First Name  
Teacher Birth Date  
Student ID  
Student Last Name  
Student First Name  
Student DOB  
School Year  
RCDTS for Serving School  
Term (Semester)  
State Course Code  
Local Course ID  
Local Course Title  
Services Provided End Date  
Reason for Ending Services

Below is an illustration of the teacher-student Linkage.

Below is an illustration of a more detailed layout of the teacher-student Linkage.
A-7 Maintain the use of name, SSN, IEIN, date of birth, gender, and race/ethnicity as personal demographic information

Meet Requirement: YES

The ISBE ESR in correlation with ESL is designed to assign a unique Teacher Identifier (IEIN) to each Teacher; collect demographic, performance, and program participation data for each Teacher; track teachers from school to school and district to district within Illinois; and report timely and accurate information and data through standardized reporting capabilities. This system serves as the vehicle to collect teacher-related information electronically from school districts. The result of successful implementation is the ability to provide the state education agency, state and federal entities, the education community, and the public with timely and accurate data collection and reporting for Teachers, schools, school districts, and the state.

Below is an illustration of the Individual Student Demographic Enrollment report composed of data currently collected in SIS. The below report is an example of how Teacher Information collected in ESR can be displayed back to the user.

A-8 Allows new codes to be added for existing data elements

Meet Requirement: YES

The ESR will be implemented using lookup tables which conform to ISBE programming standards. New codes can be added to the data element tables for the ESR at any time. Currently in SIS there are over 450 Data elements with 75 look-up tables. Data elements are added and removed as needed while keeping historical data intact.

Below is an illustration of how the Race codes were updated to conform to ISBE standards.

<table>
<thead>
<tr>
<th>chrRaceCode</th>
<th>vchrRaceDesc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RETIRED 2010 - American Indian or Alaska Native</td>
</tr>
<tr>
<td>2</td>
<td>RETIRED 2010 - Asian/Pacific Islander</td>
</tr>
<tr>
<td>3</td>
<td>RETIRED 2010 - Black or African American</td>
</tr>
<tr>
<td>4</td>
<td>RETIRED 2010 - Hispanic</td>
</tr>
<tr>
<td>5</td>
<td>RETIRED 2010 - White</td>
</tr>
<tr>
<td>6</td>
<td>RETIRED 2010 - Multiracial</td>
</tr>
<tr>
<td>11</td>
<td>Hispanic or Latino</td>
</tr>
<tr>
<td>12</td>
<td>American Indian or Alaska Native</td>
</tr>
<tr>
<td>13</td>
<td>Asian</td>
</tr>
<tr>
<td>14</td>
<td>Black or African American</td>
</tr>
<tr>
<td>15</td>
<td>Native Hawaiian or Other Pacific Islander</td>
</tr>
<tr>
<td>16</td>
<td>White</td>
</tr>
<tr>
<td>17</td>
<td>Two or More Races</td>
</tr>
</tbody>
</table>
Final Orders

David Costello, Lake, 8/20/12

Deborah J. Cox, Will, 3/22/12

Leonard M. Drake, Cook, 3/13/13

Jennifer Espinosa, Cook, 3/17/12, news account on inappropriate relationship

Tammy Guenter, Cook

James B. Guttridge, McHenry, 2/29/12, We sent Tribune all releasable records for this case

Laurie Margotta, Will, 3/6/12, news accounts on inappropriate relationship

Kimberly A. Mason, DuPage, 9/5/12 – Have released records in response to previous FOIA from Tribune (Rhodes)

Robert J. Mueller, Jr., DuPage, 9/17/12

Jose Raya, Cook, 1/12/12 - We sent Tribune all releasable records for this case

Manuel Reyes, Lake, 10/22/12, news accounts on inappropriate relationship

Steven E. Reynolds, DuPage, We provided some records to the Tribune

Darrell J. Stephenson, Will, 1/23/13

Jeffrey L. Tackes, Cook, 9/12/12

Letters from superintendents notifying ISBE that an individual has possibly committed an intentional act of abuse or neglect as defined in Section 3 of ANCRA

John Blumthall, Naperville SD 203, DuPage & Will, 5/21/13

Charles Borcher, Jr., Naperville 203, DuPage & Will, 9/27/12

Peter Goss, Township High School District 211, Cook, 5/24/13

Elizabeth Horvatin, Naperville 203, DuPage & will, 5/3/13

Theresa Kettwig, Orland SD 135, Cook, 4/17/13

Joseph Mendez, Community High School District 218

Amy Mueller, Wauconda 118, Lake, 7/3/12

Todd Roberts, Woodland SD 50, Lake, 5/31/13
Includes programming to transfer to the ESR system existing TSR data currently stored in TCIS

Meet Requirement: YES

The new ESR system will include programming that will allow the transfer of existing TSR data to the ESR system. The ISBE ESR system will maintain all TSR data currently stored in TCIS. The HIT/IBM team will work with ISBE to migrate all data from the current Teacher database to the new ESR database. HIT/IBM will perform a one-time data migration of the legacy TSR data (TCIS database) into the new ESR database. The following diagram depicts the data migration process. HIT/IBM will work with ISBE staff to validate the data migration process, its associated business rules, and data clearing rules and methods. HIT/IBM will produce a data migration strategy document and a detail data mapping document with associated business rules and data conversion rules for TSR to ESR data migration. For more detail on the data conversion process and plan, please refer to section D.2 ELIS Feature Requirements – General, Requirement A-9.

Figure 2: Data Migration Process
A-10 Archives data on deceased educators

Meet Requirement: YES

Archives of deceased or retired educators will be created based on information gathered with the ESR system. ISBE Rules and requirement will be applied to the archived data. ESR application uses a stored procedure to archive all table records in the ESR database that belong to a deceased educator. Archives of deceased or retired educators will be created based on information gathered with the ESR system. ISBE Rules and requirement will be applied to the archived data.
D.6 - ESR Feature Reqs - Interface

B-1 Interfaces with ELIS to verify educator name, SSN, EIN, and date of birth and to provide ESR data, including teacher and administrator performance evaluation data

Meet Requirement: YES

The new ESR / ELIS systems will share the same databases and have real time access to all Teacher related information. ESR will Interface with ELIS to verify educator name, EIN, and date of birth and to provide ESR data, including teacher and administrator performance evaluation data. When ESR collects the teacher course assignment data elements (online or batch) such as teacher EIN, first name, last name, birth date ESR will call web service to ELIS to validate teacher EIN, first name, last name, birth date.
**B-2 Interfaces with iWISE to allow educators to view their service record information and to allow teachers to view and verify student rosters for their course assignment sections**

*Meet Requirement: YES*

Reports from the new ESR system will also be accessible via iWISE to allow teachers to view and verify rosters. The ESR/ELIS applications will be linked to the SIS database allowing secure access to Student Course assignments. ESR provides Interfaces with iWISE to allow educators to view their service record information and to allow teachers to view and verify student rosters for their course assignment sections. ESR application will maintain security data (name and role) for ELIS users in the ESR database so that ELIS users that login through iWISE can access their service record information and to view and verify student rosters for their course assignment sections. Reports from the new ESR system will also be accessible via iWISE to allow teachers to view and verify rosters. The ESR/ELIS applications will be linked to the SIS database allowing secure access to Student Course assignments.

**B-3 Interfaces with SIS to allow teacher course assignment data to be linked with student course assignment data**

*Meet Requirement: YES*

The ESR/ELIS applications will be linked to SIS to allow access to the necessary data based on School Year, Teaching Location, State Course Code, Term and Section Number. Other information may be required (both teacher and student start dates, end dates and attendance). HIT/IBM will design and develop the student-teacher linkage using the ESR and SIS database. The following diagram depicts an example of student-teacher linkage. The ESR/ELIS applications will be linked to SIS to allow access to the necessary data based on School Year, Teaching Location, State Course Code, Term and Section Number. Other information may be required (both teacher and student start dates, end dates and attendance).

Below is an illustration of the teacher-student linkage.

Below is an illustration of a more detailed layout of the teacher-student Linkage.
D.7 - ESR Feature Reqs - Functionality

C-1  Allows point-in-time data extractions by authorized users, based on specified saved history

Meet Requirement: YES

With teachers and students having start dates and end dates and the use of transaction tables (which will meet ISBE standards) we will be able to create specific point in time collections that will be saved in the appropriate databases.

Below is an illustration of the Student Demographics Report in the current SIS System. The "Enrolled as of Date" field allows users to see data at any point in time specified. This will also be applied to teachers.

C-2  Allows the use of browser buttons to move back and forth between screens

Meet Requirement: YES

ESR programming will allow the use of browser functions back and forth between screens according to ISBE standards and ISBE approved browsers.

The illustration below is an example in SIS of Searching for a student SID number. Notice that both browser arrows are available for use. The same technology currently applied in SIS will be available for users of the ESR system.

C-3  Allows the use of a mouse or the <TAB> feature to move between fields within a screen

Meet Requirement: YES

ESR programming will allow use of a mouse or the <TAB> feature to move between fields within screens similar to how SIS currently functions.

C-4  Incorporates drop-down boxes, check boxes, and radio buttons where appropriate

Meet Requirement: YES

ESR programming will incorporate drop-down boxes, check boxes, and radio buttons where appropriate similar to how SIS currently functions. For data quality purposes free form text fields are avoided.
The illustration below is an example of a SIS Report Criteria screen. Drop-down boxes, radio buttons, and text fields are incorporated in SIS. The same technology currently in SIS will be available for users of the ESR system.

C.5  Incorporates pop-ups to force confirmation of information where necessary.

Meet Requirement: YES

The illustration below is an example of a pop-up that is currently used in SIS for providing information on RCDTS numbers for Home and Serving Schools. The same technology will be used in the ESR system.
C-6 Date- and time-stamps records to indicate when a change is made, by whom, and what was changed (updated or added)

**Meet Requirement: YES**

The creation date, update date, IWAS/IWSE User ID and the batch file ID will be kept as part of each record in each table. Along with the transaction logging, all changes will be tracked. ESR will insert date- and time-stamp records to indicate when a change is made, by whom, and what was changed (updated or added). ESR record will have the following fields: create time, create user id, last update time, update user id. ESR application will log the create time with user id and last update time with user id for online or batch insert and update operation.

Example:

```
    dtmRaceCreateDate    dtmRaceUpdtDate
    1/12/05 4:33 PM      1/12/05 4:33 PM
    1/12/05 4:33 PM      1/12/05 4:33 PM
    1/12/05 4:33 PM      1/12/05 4:33 PM
```

C-7 Automatically calculates full-time equivalency (FTE)

**Meet Requirement: YES**

The HIT/IBM team will work with the ISBE stakeholders to determine an appropriate automatic calculation that will work in all cases. If this is not possible, a hybrid approach will be used that allows FTE data to be entered and then verified against multiple edits. In the hybrid case, the user will provide the information value via ESR that will be used to automatically calculate the FTE. The system will not allow the user to successfully submit data that exceeds ISBE FTE limitations. All calculations will be in real time.

Below is an illustration from the SIS system showing the FTE is automatically calculated to ensure the student does not exceed the set FTE limit of 1.0.
C-8  Provides print screen capability

**Meet Requirement: YES**

The ESR system will provide screen print capabilities. The User must select the Print Screen button on the terminal keyboard. Once the Screen is captured the user can paste the image into a document using the Edit → Paste Command. On indicated screens in the ESR application a print Screen function can also be offered to the user in the form of a button or link.

C-9  Allows data to be reported for an employed active-service educator with no SNN match in ELIS

**Meet Requirement: YES**

The ESR system will contain similar matching logic to what is used in the ISBE SIS. Users will have the ability to search teachers using IEIN, or Last Name, First name and DOB. SSN is not a require data element for teacher course assignment. Users will have the ability to search teachers using IEIN, or Last Name, First name and DOB. (Soundex values may be used if applicable and acceptable to ISBE). The Teacher SSN will never be displayed on any screen within the ESR system. Below is an example of the Teacher search function located in the SIS system. The User must select the IEIN or the Last Name, First name and Date of Birth to search the Teacher.

C-10  Allows an educator to be associated with more than one district and/or more than one school within a district, with time employed by/working at each reported as a portion of 1.0 FTE

**Meet Requirement: YES**

The ESR system will create a record for each teacher assignment. If a teacher is in multiple locations, each location will report records separately with start dates and end dates. The system will determine the combined FTE value across all assignments at all times.

Below is an example of a teacher Course Assignment records located at different teaching locations.

C-11  Allows an educator to be associated with more than one position, with time working in each position reported as a portion of 1.0 FTE

**Meet Requirement: YES**

A teacher can be performing multiple roles at one time. The ESR system will create a record for each teacher assignment. The role of the teacher will be captured on each assignment, if a teacher is in multiple locations, each location will report records separately with start dates and end dates. The system will determine the combined FTE value across all assignments at all times.
Below is an illustration from the SIS system showing the FTE is automatically calculated to ensure the student does not exceed the set FTE limit of 1.0.

C-12 Provides reports of data-entry and submission status

**Meet Requirement:** YES

All data provided by the school district or the teacher will be reported back in summary (Aggregate data) and detail (individual Teacher Records) reports. If missing data an error will appear on the reports, other error logic can be provided as needed. When submitting batch files to the ESR system, files will be returned with Result Codes and Messages appended to the end of each record. These result codes and messages give a status regarding the last update of the record.

Example 1 – Accepted and Updated Student Demographic records from a processed and returned batch file

```
20040262003,05,2011,1.00,01,updated Student Demographic information; updated enrollment information
```

Example 2 – Rejected Early Childhood Outcomes records from a processed and returned batch file

```
01,01,02,02,02,……….,35, No ECO Record exists for Student Id 676643206
01,01,02,02,02,……….,35, No ECO Record exists for Student Id 683831811
```

C-13 Allows counts to be generated for selected data elements and codes

**Meet Requirement:** YES

The data is being collected at the most detailed level possible. Data will not be collected at a summary level. The data is placed in a relational database and any individual field can be accessed. In general reports can be created for all data elements collected in the ESR system.

Below is an example summary report that is currently used in SIS. This type of reports will also be used in the ESR system.
C-14 Allows users to select data elements for the production of customized reports, based on designated role

Meet Requirement: YES

The ESR system is a role-based system. Users will have different access levels. Access levels will have the ability to use predefined reports or customizable reports based on security.

Below is an illustration of a SIS Report Criteria Screen. After the report is selected, users must specify the parameters.

C-15 Provides ESR data reports by school year for authorized district users to view and print

Meet Requirement: YES

The data is being collected at the most detailed level possible. Data will not be collected at a summary level. The data is placed in a relational database and any individual field can be accessed. The ESR system is a role-based system, allowing users to create reports by school year for authorized district users to view and print.

Below is an example of a SIS report being generated. The user is able to view and print the report in PDF format.

This is an example of a Detailed SIS Enrollment report.

C-16 Provides an NCLB highly qualified report for authorized district users to view and print

Meet Requirement: YES

Data collected with the ESR system will be used to provide reports for NCLB highly qualified teachers. Validations against the Illinois State Course System (ISCS) can be provided for NCLB highly qualified teachers. The ISCS is an IWAS application.

The diagram below illustrates the relationship between the NCES Federal Courses, ESR system, and the SIS system. This will allow reports to be created from all three data sources.

C-17 Provides summary and detail reports of educators employed and working as of October 1 for authorized district users to view and print

Meet Requirement: YES
The ESR system will create a record for each teacher assignment including start and end dates. This will allow the ESR system to produce summary and detail reports of educators employed and working as of October 1 or any date specified. The role base system will provide authorized (district) users to view and print reports.

Below is example of SIS Detail and Summary Report Screen, reports can be produced at any date specified.

C-18 Provides summary and detail reports of educators employed and working at any time during the school year for authorized district user to view and print

Meet Requirement: YES

The ESR system will create a record for each teacher assignment including start and end dates. This will allow the ESR system to produce summary and detail reports of educators employed and working as of any date specified. The role base system will provide authorized (district) users to view and print reports.

Below is example of SIS Detail and Summary Report Screen, reports can be created at any time during the school year for authorized district users to view and print reports.

C-19 Provides automatic retrieval and upload of files posted by large districts (i.e., over 500,000 students enrolled) to a secure FTP site and automatic download of error reports to the FTP site for retrieval by the districts

Meet Requirement: YES

ISBE SIS currently has a FTP process which could be modified to meet this ESR requirement.

Below is an illustration of the SIS Upload File screen.
D.8 - Additional Requirements

Hupp Information Technologies
**D.8.1 - Project Structure**

Bidders must describe their project structure and delivery approach to performing the requested work. ISBE prefers a phased delivery approach to reduce project risk and allow for the workload and availability of ISBE resources that are required to support implementation. Bidders are free to propose a timeline that will provide best-value implementation for ISBE. The response should consider that pilot implementation of each new system is to be accomplished by June 30, 2012. Bidders are reminded to align the production of contract deliverables and the project work plan with their implementation approach.

**Meet Requirement: YES**

The HIT/IBM project teams agree that a phased approach is the best possible scenario for bringing all the required systems live. The project team will construct a phased implementation plan based on the information discovered during the requirements and design phase of the project. Obviously IWISE has to be live before ELIS. ESR has more flexibility and can be brought up independently of the other two. Also, modules within ELIS and ESR can be in a second implementation if needed. The HIT/IBM project team will review the most logical scenarios with the IBSE stakeholders prior to the start of the development phase. A detailed project plan with the approved phased approach will be created at the conclusion of the development phase. This project plan will become the baseline for measuring the project success.

One key date on the mind of the HIT/IBM implementation team is May 2012. It is our goal to have the ELIS solution, (or at least the most important elements of it) live by May 1st, 2012 so that spring graduates can be electronically recommended in the new system. It is our belief that this is very possible, but until a complete understanding of the required certificate changes and their corresponding rules are understood, it is difficult to be certain. This would be the most obvious example of what can be expected in the project plan work plan produced at the conclusion of the design phase.

HIT staff will primarily focus on the IWISE and ELIS implementations, while IBM staff focuses mainly on the ESR and SIS integration implementations. Dean Hupp, the HIT project manager, will be responsible for both teams and they will ultimately answer to him. The two teams expect to have overlap in their responsibilities to ensure all the systems are properly integrated and share appropriate data elements.

At a minimum, all systems will be in a pilot implementation by June 30, 2012.

The project structure is shown on the following page. All team members ultimately report to Dean Hupp. Dean Hupp reports to ISBE.
D.8.2 - Information Maintenance

Bidders must describe their approach to maintaining information to meet long term data-retention requirements, ISBE reporting and data extract requirements, and system performance requirements.

Meet Requirement: YES

The HIT/IBM implementation teams have several approaches to maintaining long term data retention. The first, and most important, is that all data changes are logged in the database through the use of triggers. This ensures that all data changes can be recorded and reconstructed if necessary. Secondly, the most important types of data are logged more formally so that a backup of entire records is kept in the database. Thirdly, when data is replaced with newer versions because of an action (such as renewing a certificate), the prior data is stored with a new status indicating it is not active. No data is written over or replaced. Lastly, snapshots of data are taken at key times of the year and used as the basis for reporting and data extracts.

Despite all the efforts, without effective backups, the data retention is still in question. The HIT/IBM teams agree to work with ISBE to ensure all backup procedures are in place and working in compliance with the ISBE network policies.
D.8.3 - IWISE Web Portal

The contractor will be required to provide an IWISE Web portal to be maintained by ISBE. Bidders must describe their approach to building the portal, to include the following features:

Supports role-based access, including the following roles:

Educator and district administrator role that allows access to the private credential accounts of individual educators;

Public search role that allows access to a set of predefined credential information for individual educators;

ELIS administration role that allows authorized ISBE, regional office of education (ROE), and higher education users to view and edit ELIS information;

Technical role that allows authorized ISBE users to author, stage, and schedule the display of reports and other information; and

Administrator role that allows authorized ISBE users to manage the portal and portal content.

Provides a user-friendly, intuitive layout that minimizes the need for user training and support;

Supports the display of links to other portals, applications, and resources;

Provides links to online user help;

Implements security to protect the privacy of educator data;

Supports multiple output formats, including PDF, MS Excel, RTF, CSV and HTML; and

Captures audit information regarding data accessed by users.

Meet Requirement: YES

The HIT/IBM team is proposing that the Hupp information Technologies Single Sign On System (SSO) be used as the base product for the IWISE solution. SSO is used as the authentication portal for all users in New Hampshire, Mississippi, and Oklahoma.

This portal is designed to authenticate users with the State Educator Agency and then, once authenticated, allow access to all appropriate systems.

The core functionality of SSO already allows for role based security. All security roles are customizable by users with administrative security rights (to SSO). There are numerous roles already defined and the implementation team will ensure the listed roles above are present. New roles that are discovered during the requirements and design process will be added as well.
The HIT/IBM implementation team envisions the district staff logging into IWAS to access the ELIS solution but if needed those roles (District Administrator was mentioned in the text above) will be provided in the IWISE solution as well. The team intends to modify the ELIS implementation to accept logins from the IWISE and IWAS solutions. For the district and school discussion below assume that the authentication of the user takes place in IWAS, but if needed that can be changed to IWISE with little customization.

The security module and associated systems are described in detail in section D.8.21 - Security Architecture and section D.8.22 - Managing security.
D.8.4 - Implementation Approach

Bidders must present the implementation approach to be used for the project. The approach includes design and development, testing, and pilot and production implementation of the components for each new system.

Meet Requirement: YES

Application Development Engagement Model

When implemented in its entirety, the Application Development Engagement Model starts with a discovery phase wherein the client’s business issues, needs or problems are transformed into a set of prioritized initiatives and an infrastructure plan is developed to support these initiatives. Then, the business requirements and the minimum architecture requirements of each release are iteratively defined and developed. The engagement model supports and expects that, with the addition of each subsequent development effort for a particular client’s business need, the entire solution takes on the rigor and maturity of a traditional, comprehensive, full life cycle application.

The following figure represents the typical process flow through the various modules of the HIT/IBM Application Development Engagement Model.

Figure 3: HIT/IBM Application Development Engagement Model

The Global Services Method, Application Development Engagement Model consists of the following seven (7) modules:

- Solution Startup: Focuses on the activities and tasks needed to define, plan, and start a project. It is important to carefully define and plan a project up front. In addition, all key stakeholders must clearly understand and support the scope and objectives of the project. This will allow you to avoid unforeseen risks that could negatively impact the project and the team’s ability to deliver.

- Requirements Phase: Focuses on collecting requirements and architecture so that all requirements have been identified. Any requirements that are missing or incomplete must be corrected. Once all requirements are validated HIT/IBM can begin to outline a detailed solution.

- Design Phase: Intended as the “scoping” phase and is designed to accurately gather the information needed to proceed with the development of a web-based Application Development solution.

Once we understand the complexity and scope of the solution we can proceed in making
informed business and technical decisions.

- Macro Design: Whereas Solution Outline "scopes" the engagement, the three phases which comprise a release (Micro Design, Build Cycle, and Deployment) deliver a specific release. Macro Design is the phase in-between that prepares for agile releases and develops a robust architectural framework upon which to build them. Macro Design also addresses the global, architectural issues which affect all the releases.

- Micro Design: Prepares for the build cycle of a specific release of the system by driving the architecture and design to a release-specific and implementation platform view.

- Build Phase: Incrementally develops and tests the system until the objectives of the release are achieved.

- Test, Training, Implementation and Support: Deploys the system and prepares for the next release of the system.

The entire engagement model is seldom applied in its entirety in a single client situation. Rather, the appropriate work products, accompanied by their related activities and tasks, are collected into an engagement approach tailored for each client's needs. This is exactly the philosophy HIT/IBM proposes herein for the ISBE engagement.
D.8.5 - Design and Dev Approach

Bidders must describe the approach to be used for designing and developing the three new systems. Bidders must present their System Development Lifecycle methodology, describing the overall process they will use to plan and execute the tasks needed to develop and/or customize, test, and implement the components for each new system. The methodology includes the bidder's approach to each phase or stage, as required by the bidder's proposed project structure, implementation approach, and the respective techniques that will be used.

In order to satisfy the technical and business requirements identified in this RFSP, the selected contractor may be required to make customizations to existing software they have developed (e.g., software developed for another state), make customizations to public domain software, and/or make customizations to an existing commercial off-the-shelf (COTS) software package. Bidders must provide the proposed approach for determining and developing software package customizations and performing configuration management of software and tools used or constructed for the project. Bidders must adhere to ISBE development standards in the use of application modules or systems necessary to meet project requirements.

Meet Requirement: YES

As you might know, many vendors in the marketplace may offer one or a handful of the components that comprise an enterprise quality Application Development (AD) solution. Additionally, as you speak with other State departments of education, school districts, or even private organizations that have implemented an AD solution, you will also come to realize that while this can be a very rewarding undertaking, it is a complex one. As such, many departments of education and companies have failed in their efforts by using a faulty approach or choosing the wrong solution and services provider.

IBM’s deployment of a repeatable, structured, and proven consulting and services methodology for the creation of high value data repositories, centered around answering key business/education questions, is a prime aspect of this proposal that will greatly increase your likelihood of success. IBM’s proven methodology, HIT/IBM Global Services Methodology AD Engagement Model, is not merely a “paper tiger” but rather an approach that has been deployed and refined before reaching its current state. It is a solid guide on how to build an Education web-based Application. This methodology, when followed, creates a comprehensive strategy and Enterprise application architecture — an architecture that will serve as the framework for a flexible repository, one that can meet an ever-changing education environment.

Global Services Methods is a set of activities, tasks, and deliverables designed to take business opportunities and evolve them into solutions that meet or exceed the user's expectations. The methodology serves as a guide for defining an engagement, and thus, provides the basis for the development of a project plan that supports that engagement. In effect, it is a guide for the definition, generation, and deployment of BI solutions and has been designed to address the total implementation life cycle.
An Application Development environment is not a single solution, application, product or architecture. Rather it is a collection of techniques and technologies that together can provide a pragmatic and systematic approach to dealing with the problem of end-user accessibility to information that has been historically been distributed across an organization. As organization requirements grow and change, the AD environment and architecture must provide flexible support.

The HIT/IBM methodology is designed such that each pass through for each new solution area delivers incremental functionality to the application development environment and incremental benefit to the end user. The sequence of these activities and tasks is meant to represent a logical flow of work and to produce deliverables that are to be refined and enhanced throughout the methodology. It is expected that not all activities and tasks defined in the methodology will be used on each engagement. To that end, as activities and tasks are included/excluded based on business requirements, the deliverables will be altered to reflect this.
Testing Strategy

Bidders must include their approach to performing testing activities for the components of each new system. Testing is performed to validate that the components implement the technical and business requirements and will operate in the production environment. The contractor is responsible for establishing appropriate testing environments to support testing activities. ISBE anticipates that testing will include unit, system, and acceptance testing. The contractor is responsible for planning, managing, and performing the testing activities for unit and system testing and for working with ISBE resources as they perform acceptance testing. Development of test plans and the performance of testing activities should support the contractor’s proposed implementation approach for the project.

The contractor’s approach to testing must be comprehensive and include a series of test plans as described in the Contract Deliverables section of this RFSP. The test plans must describe in detail the contractor’s specific process for each level of testing. The test plans must include the format and quantity of test scripts and scenarios to be developed, testing participants (including ISBE roles and responsibilities), physical location, testing procedures, test data tables and files, acceptance testing criteria, test tracking systems and processes, problem resolution approach, structured walkthroughs, and the content of deliverables for testing results. The contractor will develop and implement the test environment and software, test cases, and test data during the testing phases. ISBE will provide the hardware and infrastructure required to implement the testing environments and perform the testing activities.

The contractor must also identify and describe any proposed testing tools in the test plans, including the features provided in the proposed testing tools, and identify the levels of testing which will use the tools. Currently ISBE does not use automated testing tools in their development environment.

Meet Requirement: YES

IBM utilizes the Full Life Cycle Testing (FLT) component of HIT/IBM Global Services Method to accomplish the objectives of improving the quality of applications and reducing cycle time. In the traditional systems development process, testing began in earnest only after the code had been written and was capable of being exercised. That testing approach has proven incapable of delivering the high-quality applications and improved development productivity that are demanded by businesses in the competitive climate.

The HIT/IBM Team FLT approach adopts a broader view of testing by:

- Starting much earlier, at the beginning of the development life cycle
- Supplementing the traditional or dynamic testing techniques with static testing techniques. Dynamic testing techniques operate the system in a simulation mode using test cases, whereas static testing techniques remove defects in the work products, well in advance of being able to use traditional dynamic testing
• Attempting to detect and remove defects as close to their source as possible by introducing testing for the interim work products throughout the full development cycle

**Figure 4: Full Life Cycle Testing**

Testing proceeds through various physical levels in the application development life cycle. Each completed level represents a milestone on the project plan and each stage represents a known level of physical integration and quality. These stages of integration are known as Testing Levels. The Levels of Testing used in the application development life cycle are:

• Unit testing
• Integration testing
• System testing
• Performance and stress testing
• User acceptance testing
• Operability supportability review

For each of these levels, the methodology documents:

• Objectives
• When to perform the tests
• Inputs/outputs
• Who performs the tests
• Methods
• Tools
• Education/training pre-requisites

Testing types are logical tests, which may be conducted in isolation or as combined exercises. They are performed during the physical levels of testing as previously described. Types of testing are broadly classified as:

• Functional Testing: This includes audit and controls testing, migration testing, documentation and procedures testing, error handling testing, functions/requirements testing, interface/inter-system testing, installation testing, parallel testing, regression testing, transaction flow (path) testing and usability testing; and

• Structural Testing: This includes backup and recovery testing, contingency testing, job stream testing, operational testing, performance testing, security testing and stress/volume testing.

These testing categories and their relationships are illustrated below:

**Figure 5: Work Breakdown Testing Structure**
During the Design and Development stages, the HIT/IBM Team will define test cases, entrance & exit criteria, and expected results as well as the data required to execute the tests. The test conditions will be derived from the Phase 1 Detailed Business Requirement s Document (i.e., the Requirements Traceability Matrix) and the System Design.

Each test will be carried out by executing one or more test cases with some test cases being associated with more than one test. In some instances a feature will be acceptable if the test results lie within specified tolerances; in other cases, exact results may be required. Test execution procedures will be developed and will indicate any special skills or environmental requirements necessary for carrying out the test. These procedures will define the steps to be carried out, including but not limited to:

- Preparation for executing the test
- Starting the test
- Monitoring the actions while the test proceeds
- Measuring results
- Stopping the test (normal termination)
- Suspending the test prematurely
- Restarting a suspended test
- Dealing with unexpected contingencies while the test is being performed
- Logging test results, including events that occurred during testing

Each test case processed by the HIT/IBM test team during internal testing will be assigned a unique testing identifier. This identifier will be the mechanism to track and control each test case and the test case's corresponding documentation.

In the event of a test failure during testing, a Software Test Report (STR) will be initiated and tracked by a Hit/IBM test team member. Supporting documentation of test failure will be attached to the STR (e.g., reports, screen prints). The STR form will be assigned a unique STR #.

The HIT/IBM Team will perform the following steps to accomplish rework on a STR:

- Convert test findings into rework action items.
- Develop, construct, and implement corrective solution. This step entails several activities which include:
  - Describe the approach to be followed for corrective action, identifying risks/uncertainties and plans for dealing with them. Cover contractual clauses pertaining to corrective action
  - Perform corrective action, to include problem/change reports processed through a project-level or higher configuration control
  - Classify the problem (e.g., design, code, test information) and assign a priority to each corrective action.
  - Request the ELIS-IWISE-ESR Team perform a review of test findings and corrective action.
  - Provide HIT/IBM Team members with rework assignment listing corrective action(s).
- Review updated project documents and ELIS-IWISE-ESR Team when documents are finalized.
- Perform regression test analyses to determine which tests must be performed again.
- Determine if additional tests are necessary, and add required integration and/or unit tests.
- Re-execute related test case(s) when necessary through regression testing.
- Validate that requirement specifications have been met.
- Track each STR through resolution.
D.8.7 - Implementation Strategy

Bidders must define a structured implementation approach and present this strategy as part of the proposal response. The goals of the implementation approach must be to reduce project risk, minimize operational disruption, and provide for successful implementation of the components for each new system. The contractor is required to provide an Implementation Plan as identified in the Contract Deliverables section of this RFSP, which will serve as an implementation guide.

ISBE prefers a phased implementation, and bidders have the flexibility to propose an implementation approach that provides a best-value solution for ISBE.

Bidders must describe the evaluation criteria for determining readiness to implement and their recommended implementation approach, including pilot activities, the proposed production implementation schedule, impacted stakeholders (e.g., ISBE, LEAs), system functionality to be included in each implementation phase, and advantages and disadvantages of the proposed implementation strategy and approach.

Meet Requirement: YES

IBM will create the following environments to develop the ESR application.

- Development environment,
- Test environment, and
- Production environment.

Each environment will be built, with supports from ISBE staff, in the ISBE virtualized environment (ESX 4.1). Each environment will look like the following diagram:
D.8.8 - Maintenance and Support

The contractor is responsible for configuring and maintaining the development, test, training, and pilot system environments during development and testing. Starting with production implementation, the contractor will work closely with the ISBE to implement and support the production environment as appropriate. System maintenance includes maintaining hardware and software components, including managing and tracking the release of application, database, and operating system software and source code, new releases and upgrades of software packages that are integrated into the environment, and tuning, modifications, and upgrades related to the operating system, database management system, network, and hardware environments.

During the contract period, the contractor must provide application and system update support for all proposed application and system software. ISBE will have the option to upgrade to new versions of the software offered by the contractor. Whether or not ISBE accepts the upgrades, the contractor must provide ongoing application and system software support for the duration of the contract.

The contractor is responsible for defining and maintaining version control methods and tools used to control the release of software versions and source code. This includes the development and identification of a baseline software version and the tracking and deployment of subsequent software versions. The contractor must also ensure that all software upgrades operate with the customizations made by the contractor while designing, developing, and implementing each new system and any subsequent customizations made by the contractor after implementation.

The contractor must also provide routine maintenance and support of the system repositories and components. This includes supporting all services required to maintain system operations, including the help desk, failure recovery, release of components into the production environment, and supporting disaster recovery services. The support activities will be coordinated with ISBE staff supporting implementation of the components.

Meet Requirement: YES

IBM will perform a one-time data migration of the legacy TSR data into the new ESR database. The following diagram depicts the data migration process. HIT/IBM will work with ISBE staff to validate the data migration process and its associated business rules. HIT/IBM will need support from ISBE staff to capture a snapshot of the legacy database TSR and SIS that will be used for developing and testing the data migration process and student-teacher linkage.
In order to support the phase development and deployment as described in the ESR project work plan, HIT/IBM will create separate work streams (using branches) in the SourceGear Vault for each phase and then using merge to incorporate fixes (e.g., TR/CR) for each ESR build for deployment. A release manager document will be distributed for each ESR build that will list all source items and versions and associated TR/CR numbers. The version control approach is described in section 4.8.12.

HIT/IBM will work with ISBE staff to set mutually agreeable criteria (include functionality) for promoting code from development to test/pilot and to production as well as the build contents.

HIT/IBM will develop the cut-over plan to go-live in production with list of task and owner with timeline and dependencies.

HIT/IBM will configure and maintain the ELIS-IWISE-ESR development, test, training, and Pilot systems environments during development and testing. The test environment will simulate the pilot system. For production and post implementation the HIT/IBM team will work closely with the ISBE to implement and support the production environment as appropriate. Systems maintenance includes maintaining hardware and software components, including managing and tracking the release of application, database, and operating system software and source code, releases and upgrades of software packages that are integrated into the ELIS-IWISE-ESR environment, and tuning, modifications, and upgrades related to the operating system, database management system, network, and hardware environments.

During the contract period, HIT/IBM will provide application and system update support for the proposed application and system software. Whether or not ISBE accepts the upgrades, the HIT/IBM team will provide on-going application and system software support for the duration of this contract.

Lastly, HIT/IBM proposes having two maintenance programmers on site supporting the ELIS, ESR, and IWISE systems for the entire contract period. These programmers would also be available beyond the initial contract period at the discretion of ISBE per the RFSP guidelines for future maintenance and support.
D.8.9 - Maint and Support Approach

Bidders must describe their proposed system maintenance and support approach and plan, including the products and services the maintenance plan covers, the approach to upgrades and new releases, and the approach for maintaining database structures and processes. ISBE requires detailed information regarding the terms and conditions of the maintenance approach, including the specific products and services that fall under the maintenance agreement.

The system maintenance and support approach must provide ISBE the ability to obtain new releases of and associated documentation for any proposed proprietary, custom, or COTS software that is not supported in the ISBE environment but is included in the contractor’s solution. ISBE must be able to obtain the software as available from the contractor or software manufacturer, at no additional cost to ISBE for the duration of the contract.

The system maintenance and support plan must address the following:

- Preventative maintenance;
- On-call remedial maintenance;
- Bidder’s response time for remedial maintenance;
- Maintenance personnel qualifications; and
- Procedure for contacting the contractor for maintenance (e.g., help desk).

The system maintenance and support approach must meet the Service Level Objectives (SLOs) response times (defined as the time elapsed between the placement of the call and the start of remedial maintenance activities by maintenance service personnel) defined in this RFSP.

The contractor must provide software support during the warranty period of the contract. The support approach must include, but is not limited to, the following:

- Detailed description of the proposed approach to managing and supporting system environments;
- Defined process flow for the method ISBE will use to inform the contractor of a required change, including point of contact; and
- Defined process flow for the contractor’s response to ISBE, including:
  - Turnaround time (in business days) for the contractor to respond to an ISBE request for a required change;
  - Approach to assessing the impact of the required change;
  - Approach to detailing the level of effort necessary to make the required change; and
  - Approach to presenting the plan, schedule, and resources for completing the required change by the due date.

Meet Requirement: YES

The system maintenance and support approach will provide ISBE the ability to obtain new
releases of the proposed proprietary, custom, or COTS software and associated documentation
not supported in the ISBE environment but included HIT/IBM’s solution, as they will be available
from HIT/IBM or the software manufacturer at no additional cost to ISBE for the duration of the
contract.

HIT/IBM will provide routine maintenance and support of the ELIS-IWISE-ESR repositories and
components. This includes supporting the services required to maintain system operations,
including the help desk, failure recovery, release of components into the production
environment, and supporting disaster recovery services. The support activities will be
coordinated with ISBE staff supporting the implementation and transition of the components.

Source code for ELIS-IWISE-ESR components is stored locally and specific code changes are
made by the HIT/IBM Support Team. Changes in the application software generally fall into one
of two categories. (1) Minor Fixes or Enhancements; (2) Major Fixes or Enhancements:

**Minor Fixes or Enhancements.** Minor fixes are items that generally can be applied as simple
patches to the application. These require some level of testing and validation but often times
may not need a new requirement design process or deliverable. Depending on the severity,
minor fixes can be applied daily, weekly or monthly. These fixes or enhancements will also go
through a standardized build process, testing, and deployment. The specific timeline for these
will be further refined through the user acceptance testing and pilot phases. Examples of minor
fixes or enhancements include:

- Fixing an edit button that malfunctions
- Remediating an Extract, Transform, and Load (ETL) script that is transforming data
  incorrectly

**Major Fixes or Enhancements.** Major fixes or enhancements are items that generally will
require a full development life cycle or touch a significant area of the application. Examples of
major fixes or enhancements:

- A new set of screens or a new data collection process
- Release of new functionality which spans weeks or months in development and can address
  multiple system components at a lower level such as database servers and application
  servers

Major and minor fixes will be addressed immediately upon formal approval of the request. Upon
commencement of the system maintenance period, minor and major fixes will be performed by
the HIT/IBM Team. It is important to note, provision of the services beyond the base contract
period is not included in the scope of this contract and will require a formal project change
request.

**Documentation**

The ELIS-IWISE-ESR solution will comprise of custom developed software. Upon installation user
guides will be created for custom development. These guides will be accessible from within the
ELIS-IWISE-ESR web application. Some of the documentation included will be:
User Guide: This will describe the screens, the features available on each screen, and provide shortcuts to get to a desired functionality quickly. This will be available over the web and will be a mix of graphics and text however more emphasis is on graphics.
D.8.10 - Help Desk Support

Bidders must provide their proposed approach to help desk support, including information ISBE can use to evaluate the bidder’s knowledge of help desk support. Bidders must include a description of the help desk services they intend to provide; problem initiation, escalation, and resolution procedures; methods and service hours for contacting the contractor with problems; and the roles and responsibilities of ISBE and the contractor.

Current ISBE help desk staff will provide level 1 (initial contact) support for help desk calls, and the staff will receive additional procedures and training to be able to perform level 2 (high-level troubleshooting) help desk support. The help desk will be responsible for documenting problems reported by users, providing assistance, and referring outstanding problems to the infrastructure support team, the application development team, or other resources required to resolve user inquiries.

Meet Requirement: YES

HIT/IBM will provide ISBE with a level 2 help desk from 8 a.m. until 5:00 p.m., Monday through Friday with the exception of state observed and/or HIT/IBM observed holidays. Problems would be submitted to the current ISBE level 1 help desk and escalated to level 2 when appropriate. All return help desk calls will be logged and any user that is not directly connected to a help desk representative will be contacted the same day. HIT/IBM will handle technical calls related to the ELIS-IWISE-ESR. Policy calls will be directed to the appropriate ISBE personnel.
D.8.11 - Warranty

The contractor must provide a warranty upon successful implementation of the components for each new system. The warranty effectively ensures that each system functions as intended, in a reliable and stable manner. Bidders must describe the warranty, including the period of and items covered by the warranty. ISBE expects a warranty period of one year after production implementation, with warranty costs included in the cost submitted with this proposal response.

Meet Requirement: YES

HIT/IBM will provide Warranty support services while under contract with ISBE. Warranty services will be as specified in the proposal response and mutually agreed upon with ISBE. Warranty will expire at the close of the contract.
D.8.12 - Version Control Approach

Bidders must describe their approach to managing multiple versions of software throughout the development, test, production, and post-implementation cycles. Configuration management must address all components of each new system that are subject to change control, including processes, database structures, reports, and the IWISE Web portal software.

ISBE currently uses SourceGear Vault to manage repositories of source code and documentation. Other configuration management tools or software not currently supported by ISBE must be included in the cost proposal, along with justification for their use on the project.

Meet Requirement: YES

HIT/IBM will be responsible for defining and maintaining version control methods and tools used to control the release of software versions and source code. This includes the development and identification of a baseline software version and the tracking and deployment of subsequent software versions. HIT/IBM will also enable software upgrades operate with the customizations made during the design, development, and implementation of ELIS-IWISE-ESR and subsequent customizations made by the HIT/IBM post-implementation team. Configuration management must address the components of the ELIS-IWISE-ESR that are subject to change control, including ETL processes, database structures, reports, and the ELIS-IWISE-ESR portal software. HIT/IBM will utilize the SourceGear Vault version 4.1.4 ISBE currently utilizes, to manage repositories of source code and documentation. Version control for files will be implemented adding the date, initials and version number in the filename when saving the ELIS-IWISE-ESR data files. Documents and deliverables produced will also contain a change history, date and a version number.
D.8.13 - Training Approach

Training and training and support materials are to be delivered primarily online. To minimize the need for support resources, the contractor is required to develop easy-to-navigate training materials. Users should be able to search and quickly find training materials targeted to supported functions, with navigation assisted by links and other methods that quickly direct users to the information.

Bidders must describe their approach to the development, publication, and maintenance of training materials that support users in accessing IWISE and using ELIS and ESR.

Meet Requirement: YES

Training will be given in two major cycles, Pilot training and Production training. Both training periods will offer the ELIS-IWISE-ESR Portal Features and Content training prior to Pilot Implementation and prior to Production Implementation respectively. Formal user training will be train-the-trainer based. The training courses will balance lecture by the instructor with hands-on experience with the ELIS-IWISE-ESR System. The training will introduce participants to the functionality of the ELIS-IWISE-ESR application and provide the opportunity to have hands-on experience with the system in a training environment.

The first round of training will occur during the implementation phase for the Pilot of the ELIS-IWISE-ESR System. A review will take place after the Pilot training to determine the effectiveness of the training program. User comments and feedback, through the use of evaluation questionnaires, will be used to refine the program before the production training. The training materials will be updated after the Pilot implementation phase is complete in order to reflect system changes, process changes, and improved training explanations. Prior to Statewide implementation of the ELIS-IWISE-ESR System, HIT/IBM will provide the second round of training to personnel from the Statewide School Districts.

Specifically, the HIT/IBM Team will:

- HIT/IBM will perform (3) training sessions held at (3) locations in Illinois (northern, Southern, and Central) for approximately 2 users per district
- HIT/IBM will conduct 3 Webinars with up to 1,000 attendees for training of the ELIS-IWISE-ESR portal features and content
- HIT/IBM will provide ISBE ELIS-IWISE-ESR e marketing support for state sponsored conferences
- Attend state sponsored conferences and other activities that promote the solution
- Update the training documentation, based on the results of pilot testing
- Our Training Services and Materials

Our Training Services and Materials

HIT/IBM has trained thousands of end-users across the globe in support of HIT/IBM clients’
large-scale system implementations. HIT/IBM consultants will provide training program design, and training materials development, for the ISBE ELIS-IWISE-ESR project. HIT/IBM core services are illustrated in Figure 30.

**Figure 6: Core Services**

HIT/IBM's training approach is performance-based, customized, integrated, flexible, and proven. HIT/IBM training philosophy focuses on supporting human performance in complex work environments similar to the environment of ISBE's targeted training audience. The HIT/IBM team will provide the following training services and materials as part of this effort:

- Electronic copies of training materials and user documentation that can be adapted for audiences
- Consult with the internal ISBE Training Department to develop content which reflects relevant ISBE scenarios, customizations, and data
- Develop a training curriculum based on a detailed analysis of the user community
- Deliver train-the-trainer sessions to ISBE staff

A well-executed training plan allows users to quickly become efficient in their jobs under the new system. The HIT/IBM Team's strength lies in HIT/IBM capability to provide training strategies, methodologies, and work plans necessary to facilitate the user confidence and success in the face of complex change.

**Training Strategy**

In addition to training ISBE trainers on how to use the new ELIS-IWISE-ESR system, the users must also understand how to use the system to conduct the business. HIT/IBM curriculum trains staff in the new business processes, policies and roles that is implemented within the software. We will leverage HIT/IBM experience with ELIS-IWISE-ESR implementations in K-12, Higher Education, knowledge we will acquire about ISBE procedures during the implementation, as well as the State's knowledge of its workforce capabilities, to devise a training plan and curriculum that establishes the right mix among software training, business process training and core skills training. Based on the implementation schedule that is developed during planning, we will assist ISBE in identifying the appropriate timing and approach to training delivery. Finally, we use training as an important knowledge transfer opportunity from consultants and software product specialists to the ISBE staff by using a train-the-trainer approach.

To assist ISBE in developing a training approach, we draw upon Ascendant's eight-phase methodology that incorporates a leading practice approach to performance-based training (Figure 7).

**Figure 7: Training Methodology**
D.8.14 - Technical Environment

Bidders are expected to propose a best-value solution for meeting the business and technical requirements identified in this RFSP. The solution must provide environments compatible with ISBE operating and database system standards, Microsoft® Windows Server, and Microsoft® SQL Server 2008. In addition, the contractor must adhere to ISBE development standards if customization is necessary. All operating environments will reside at the ISBE data center located in the Springfield office. The contractor’s proposed solution must operate on platforms currently supported by ISBE and be aligned with the agency’s standard architecture and toolsets. The contractor must work with ISBE resources to define the hardware and software specifications for the development, test, training, and production environments. The following table provides a summary of the standard platforms and tools upon which ELIS, IWlSE, and ESR must be developed and hosted.

Meet Requirement: YES

HIT/IBM’s solution, together with its superior skills and experience, provides the State of Illinois with the opportunity to build an ELIS-IWISE-ESR application suite that provides technical, program, and policy integration of the educational data from various source systems housed within ISBE and external education partner systems. HIT/IBM is invigorated by the opportunity to assist ISBE in this undertaking, and we describe below our approach to successfully meeting ISBE’s goals.

HIT/IBM has an in-depth understanding of the State’s education business processes thanks to our many years of successful collaboration on Illinois’ Student Information System and Teacher Licensure System. This understanding allows us to build a solution that closely matches the business processes of ISBE and Illinois LEAs.

HIT/IBM and its partners have an in-depth understanding of the Educational Performance Management process as performed by the large school systems as well as insight to what the ISBE is striving for. This perspective allows HIT/IBM to propose a solution that closely matches the business process of the ISBE. IBM’s solution offers tremendous value by integrating widely proven, best-in-class products and experienced practitioners utilizing leading practices. We describe our vision for the overall system and each of the prescribed components in the section below.

The approach to building the new ELIS-IWISE-ESR application suite for the ISBE is based up the principles of:

Simplicity without reduced capability
Flexibility without unneeded maintenance and complexity
Modularity and use of open standards to improve maintainability
Introduction of best-of-breed and off-the-shelf capability from the best tools for needed functionality
Integration to leverage the strengths of the individual components
Automation of repetitive processes for reduction of manual effort
To understand our solution offering and associated services, we refer the reviewers of our proposal to the following sections below which will:

Detail the functionality that we propose to deliver to meet the business requirements.
Provide our technical solution approach.

The following diagram provides a high-level technical conceptual overview of our proposal solution components.

Each of our ESR solution components will be built within the current ISBE virtualized environment in ESX 4.1 i.e., operate on platforms currently supported by ISBE and be aligned with the state’s standard architecture and toolsets. HIT/IBM will work with ISBE staff to define hardware and software specification for the ESR development, test/pilot, and production environments which will reside at the ISBE data center located in the ISBE Springfield office. Each ESR server will run with Microsoft Windows Server 2008 R2 64 bit operating system or most current release adopted by ISBE. The database server will additionally run the Microsoft SQL Server 2008 or the most current release adopted by the ISBE. The ESR application server will additionally run the Microsoft application server and Microsoft Active Server Pages (ASP .NET 4.0) or most current release adopted by ISBE. For application development HIT/IBM will use the Microsoft Visual Studio 2010 as an Integrated Development Environment. The main Server side programming language will be VB.NET and the client programming language will be JavaScript. The ESR web server will additionally run the Microsoft Internet Information Services (IIS). HIT/IBM will use SourceGear Vault 5.0.4 or most current release adopted by ISBE for software development source control software which is capable of supporting parallel software development (i.e., multiple branches and merge). Crystal Reports XI release 2 will be used for developing ESR reports.

ESR will use the existing IWAS for ESR user authentication based on user roles. The ISBE standard desktop operating system is Microsoft Windows XP, Vista, Windows 7 or most current release adopted by ISBE that also has Microsoft Office 2007 Professional installed.

In order to access the ESR application the user can use one of the following internet browser:

- Microsoft Internet Explorer 6.0 or higher,
- Firefox 2.0 or higher,
- Safari 2.0 or higher,
- Opera 9 or higher.

*Figure 8: ESR technical environment*
D.8.15 - Solution Infrastructure

Bidders must provide diagrams and thorough descriptions of the hardware and network infrastructure being proposed for use. The proposed solutions must be capable of operating in the ISBE network environments. Bidders must describe their proposed hardware and operating system platform and the software components for each new system. The systems must be built and implemented in accordance with ISBE standards, as presented in the ISBE Standard Development and Operating Environment table (see Proposed Technical Environment above).

The contractor must use a standard ISBE reporting tool, i.e., Crystal Reports XI Release 2, for all new report development. In addition, integrated reports requiring major modification must be rewritten using Crystal Reports XI Release 2. For the purposes of this RFSP, major report modifications are those requiring 20 or more hours of effort.

*Meet Requirement: YES*

For ELIS and ESR, HIT/IBM proposes an architecture which will build and deliver a robust solution based on Microsoft platform similar to the ISBE SIS system while leveraging the ISBE virtualized environments. This architecture has been refined over a period of multiple projects and years. At the heart of the solution reside two robust databases for ELIS and ESR. The ELIS and ESR Architecture is separated into three areas, the Information Management on the database server, application layer on the application server, and Portal Dashboard on the web server. The ELIS and ESR architecture is also scalable. Both applications and their associated databases can reside on different servers from the ISBE SIS servers or collocate with the SIS application on the same server as depicted in the following diagram.

*Figure 9: ESR environment*

Portal Dashboard area will encompass the services and tools which will allow the end user to perform trending, ad-hoc queries and view Dashboards and Scorecards. Since security of the data is of the utmost importance and necessity the solution will use the existing Illinois Web Application Security (IWAS) interface to implement.

The IWAS portal is web accessible, and support role based access to reporting features including accessing existing reports, entering parameters, drill down/drill through for reports. Authorized users will have access to analysis and ad hoc reporting capabilities, and access to multiple output formats including PDF, HTML, CSV, Microsoft Excel and text.

The portal will provide an intuitive single point of access for the state’s stakeholders, users. The Web Portal is designed to be accessible via the internet and intranet 24 hours per day x 7 days per week, except during scheduled system outages. The content presented by the Web Portal will be personalized for each user based on their defined role.
Information Management
The Information management area handles the staging of source applications/databases, the Microsoft SSIS which then populate the staging databases. This area defines the major components which will be used to build the ELIS and ESR databases. Legacy data from TCIS and TSR will be migrated into ELIS and ESR using ETL processes and the staging area.

ESR Application
Leveraging the ISBE IWAS which will be the primary interface for all users of ESR. Accessible over the web the portal provides a unified approach to manage student and teacher information. The ESR application provides the functions needed to support data collection, reporting, and data interoperability at the teacher, school, school district, state, and higher education levels. Collectively, our assets deliver the data for decision making purposes.

Since HIT/IBM will use the current ISBE virtualized environment on ESX 4.1 to build the ESR development, Test/QA/Pilot, and Production environments. The following table depicts the number of required virtual servers with number of virtual processors and amount of virtual memory in GB for each environment:

<table>
<thead>
<tr>
<th>ESR</th>
<th>DEV WEB SERVER</th>
<th>APP SERVER</th>
<th>DATABASE SERVER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 PROCESSOR</td>
<td>1 PROCESSOR</td>
<td>2 PROCESSORS</td>
</tr>
<tr>
<td></td>
<td>2 GB MEMORY</td>
<td>4 GB MEMORY</td>
<td>4 GB MEMORY</td>
</tr>
<tr>
<td>ESR</td>
<td>QA WEB SERVER</td>
<td>APP SERVER</td>
<td>DATABASE SERVER</td>
</tr>
<tr>
<td></td>
<td>1 PROCESSOR</td>
<td>1 PROCESSOR</td>
<td>2 PROCESSORS</td>
</tr>
<tr>
<td></td>
<td>2 GB MEMORY</td>
<td>4 GB MEMORY</td>
<td>4 GB MEMORY</td>
</tr>
<tr>
<td>ESR</td>
<td>PROD WEB SERVER</td>
<td>APP SERVER</td>
<td>DATABASE SERVER</td>
</tr>
<tr>
<td></td>
<td>1 PROCESSOR</td>
<td>4 PROCESSORS</td>
<td>8 PROCESSORS</td>
</tr>
<tr>
<td></td>
<td>3 GB MEMORY</td>
<td>8 GB MEMORY</td>
<td>32 GB MEMORY</td>
</tr>
</tbody>
</table>

Each ESR server will run with Microsoft Windows Server 2008 R2 64 bit operating system or most current release adopted by ISBE. The database server will additionally run the Microsoft SQL Server 2008 or the most current release adopted by the ISBE. The ESR application server will additionally run the Microsoft application server and Microsoft Active Server Pages (ASP .NET 4.0) or most current release adopted by ISBE. For application development HIT/IBM will use the Microsoft Visual Studio 2010 as an Integrated Development Environment. The main Server side programming language will be VB.NET and the client programming language will be JavaScript. The ESR web server will additionally run the Microsoft Internet Information Services (IIS). HIT/IBM will use SourceGear Vault 5.0.4 or most current release adopted by ISBE for software development source control software which is capable of supporting parallel software development (i.e., multiple branches and merge). Crystal Reports XI release 2 will be used for developing ESR reports.
ESR will use the existing IWAS for ESR user authentication based on user roles. The ISBE standard desktop operating system is Microsoft Windows XP, Vista, Windows 7 or most current release adopted by ISBE that also has Microsoft Office 2007 Professional installed.

In order to access the ESR application the user can use one of the following internet browser:

- Microsoft Internet Explorer 6.0 or higher,
- Firefox 2.0 or higher,
- Safari 2.0 or higher,
- Opera 9 or higher.

Secured FTP Site

ESR system will have a secured FTP site similar to ISBE SIS to provide automatic retrieval and upload of files posted by large districts (i.e., over 500,000 students enrolled) to a secure FTP site and automatic download of error reports to the FTP site for retrieval by the districts.
D.8.16 - Database

ISBE requires that SQL Server 2008 be used for the database platform.

The contractor will need to work with ISBE operations staff in the development of maintenance procedures, including the backup and recovery strategy and procedures for production, development, and testing environments.

Meet Requirement: YES

The HIT/IBM team will use ISBE SQL Server 2008 to create databases for the IWISE, ELIS, and ESR development. The following depicts the number of databases that will be used for this collective development and deployment effort. The HIT/IBM team will work with ISBE staff on the backup schedule and restore process for each database.
D.8.17 - Software

Bidders must describe their proposed software, including software language, software modules, public domain software, COTS software products, and standard and ad hoc reporting software. For each software product, the bidder must identify the company, version, key features of the product, and planned number of installations needed to support development, testing, training, and production environments.

Proposal responses must include an overview of any required build processes. Bidders are encouraged to propose solutions that automate and streamline build processes. For any solutions capable of detecting business rules and schema changes through the use of automation, bidders should present the relative advantages and disadvantages for ISBE to consider as part of the evaluation process.

Meet Requirement: YES

The HIT/IBM team will use ISBE existing software in order to develop the new ELIS/IWISE/ESR application suite.

Development Software

<table>
<thead>
<tr>
<th>Solution/Component</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDBMS</td>
<td>SQL Server 2008 R2</td>
</tr>
<tr>
<td>Reporting</td>
<td>CrystaI Reports</td>
</tr>
<tr>
<td>Data ETL</td>
<td>SSIS/SQL Scripts</td>
</tr>
<tr>
<td>Dashboard</td>
<td>Custom Development</td>
</tr>
<tr>
<td>Operating System</td>
<td>Microsoft Windows Server 2008 R2</td>
</tr>
<tr>
<td>Programming Tools</td>
<td>Visual Studio 2010</td>
</tr>
<tr>
<td>Programming Languages</td>
<td>VB.NET/TSQL/JavaScript</td>
</tr>
<tr>
<td>Version Control</td>
<td>SourceGear Vault</td>
</tr>
<tr>
<td>Web Hosting</td>
<td>Internet Information Services</td>
</tr>
<tr>
<td>Frameworks</td>
<td>.NET Framework 3.5/4.0</td>
</tr>
<tr>
<td>Scanning Toolkit</td>
<td>LeadTools</td>
</tr>
<tr>
<td>PDF Toolkit</td>
<td>iTextSharp</td>
</tr>
<tr>
<td>Scanning DLL Utility</td>
<td>HuppScan.DLL</td>
</tr>
</tbody>
</table>
## Project Support Software

<table>
<thead>
<tr>
<th>Solution/Component</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Suite</td>
<td>Microsoft Office</td>
</tr>
<tr>
<td>Project Tracking</td>
<td>Microsoft Project</td>
</tr>
<tr>
<td>Charting</td>
<td>Microsoft Visio</td>
</tr>
<tr>
<td>Remote Access</td>
<td>GoToMyPC</td>
</tr>
<tr>
<td>Bug Tracking</td>
<td>IBM Bug Tracker</td>
</tr>
<tr>
<td>Browser</td>
<td>Internet IE 6.0 or higher</td>
</tr>
<tr>
<td></td>
<td>Firefox 2.0 or higher</td>
</tr>
<tr>
<td></td>
<td>Safari 2.0 or higher</td>
</tr>
<tr>
<td></td>
<td>Opera 9.0 or higher</td>
</tr>
<tr>
<td>Programming Languages</td>
<td>VB.NET/TSQL/JavaScript</td>
</tr>
<tr>
<td>Frameworks</td>
<td>.NET Framework 3.5/4.0</td>
</tr>
<tr>
<td>Scanning Toolkit</td>
<td>LeadTools</td>
</tr>
<tr>
<td>PDF Toolkit</td>
<td></td>
</tr>
<tr>
<td>Scanning DLL Utility</td>
<td>HuppScan.DLL</td>
</tr>
</tbody>
</table>
D.8.18 - Performance

For each new system, ISBE anticipates peak periods of data loading and data access during compressed timeframes. The environments must perform in a manner that provides sufficient system response time and minimal system down time. The design and construction of components must incorporate industry best practices, and sufficient testing must be performed to ensure that performance is optimal and reliable and will meet user needs.

Performance requirements must be validated during testing and implementation. The contractor must commit to establishing mutually agreeable system response times for the performance of typical functions.

Meet Requirement: YES

The HIT/IBM implementation teams will be using the ISBE virtualized environment with ESX 4.1. The team will provide ISBE staff with specific capacity requirement for development, test, and production environments to ensure that performance is optimal and reliable, and will meet user needs.

The team agrees to work with ISBE staff to set mutually agreeable system response time for the performance of typical functions in all three proposed systems.
# D.8.19 - Problem Resolution Regs

To ensure adequate availability and reliability of the new systems, the contractor must provide the support and services necessary to meet the SLOs outlined in the following table.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Service Level Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repository</td>
<td>The iWISE Web portal and ELIS and ESR processes must perform reliably, with</td>
<td>Repository Availability: 99%</td>
</tr>
<tr>
<td>Availability</td>
<td>minimal interruption in service to users during normal business hours.</td>
<td>Normal Business Hours: 8:00 AM to 9:00 PM Central Time, during weekdays</td>
</tr>
<tr>
<td>Problem Resolution</td>
<td>System problems will be categorized by their severity and the type of fix as</td>
<td>Work Stoppage</td>
</tr>
<tr>
<td></td>
<td>defined below.</td>
<td>• Call Response Time: Contractor must respond to problem calls within 2 hours during</td>
</tr>
<tr>
<td></td>
<td>• Work Stoppage</td>
<td>regular business hours.</td>
</tr>
<tr>
<td></td>
<td>• Work Slowdown</td>
<td>• Functional Restoration: Must be completed within 4 hours.</td>
</tr>
<tr>
<td></td>
<td>• Non-critical – little to no impact</td>
<td>• Problem Resolution: Must be completed within 24 hours.</td>
</tr>
<tr>
<td></td>
<td>Type of fix:</td>
<td>Work Slowdown</td>
</tr>
<tr>
<td></td>
<td>• Functional Restoration: functional loss/failure is restored via a temporary</td>
<td>• Call Response Time: Contractor must respond to problem calls within 4 hours.</td>
</tr>
<tr>
<td></td>
<td>fix or workaround.</td>
<td>• Functional Restoration: Must be completed within 8 hours.</td>
</tr>
<tr>
<td></td>
<td>• Problem Resolution: Problem causing the functional loss/failure is</td>
<td>• Problem Resolution: Must be completed within 48 hours.</td>
</tr>
<tr>
<td></td>
<td>permanently corrected.</td>
<td></td>
</tr>
<tr>
<td>Help Desk Support</td>
<td>The contractor must provide second-level support at ISBE office in Springfield</td>
<td>Post-Implementation Support Period</td>
</tr>
<tr>
<td></td>
<td>during the post-implementation support period.</td>
<td>• Response time: Contractor will be on-site and provide help desk support to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISBE help desk staff as appropriate.</td>
</tr>
<tr>
<td></td>
<td>The contractor must provide on- or off-site second-level help desk support</td>
<td>Warranty Period</td>
</tr>
<tr>
<td></td>
<td>during the warranty period.</td>
<td>• Call Response Time: Contractor must respond to ISBE help desk calls within 4 hours.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Problem Resolution: Contractor must adhere to Problem Resolution SLO described above.</td>
</tr>
<tr>
<td>System Downtime</td>
<td>Notification of scheduled downtime must be provided to ISBE and other users.</td>
<td>Scheduled downtime notification must be provided by the contractor</td>
</tr>
<tr>
<td>Notification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Meet Requirement: YES**

The HIT/IBM implementation team agrees that all SLO requirements listed above will be provided.
D.8.20 - Security

The contractor must implement security methods and procedures to prevent unauthorized access to ELIS and ESR and ensure the confidentiality of educator data. Access to the ELIS and ESR environments must be restricted to authorized users based on their user-profile configurations which control specific application features and functions. The contractor will work with ISBE to define the role-based security model, standard user account structures, security access profiles, and user account maintenance policies and procedures to be implemented.

The contractor is required to provide an overall Security Strategy as part of the System Design deliverable, identified in the Contract Deliverables section of this RFSP. The Security Strategy must define the security architecture and the security and access structure, including user account structure, user account and profile maintenance, user group profile and maintenance, user and group access security matrix (defining access to application menus, features and functions), and audit reporting of system and application access. Additionally, the Security Strategy must clearly define the process to authenticate users. The Security Strategy must also define the Internet access security approach and architecture.

Meet Requirement: YES

The security module and associated systems are described in detail in section D.8.21 - Security Architecture and section D.8.22 - Managing Security.
D.8.21 - Security Architecture

Bidders must describe their proposed security components and functions at each architecture level (e.g., application, database, network, server), including software products that may be used.

Meet Requirement: YES

The HIT/IBM team is proposing the following security configuration.

IWISE

The HIT/IBM team is proposing that IWISE will be implemented by customizing the SSO (Single Sign On) product used by Hupp Information Technologies to meet the requirements of IWISE. The HIT-LS solution is already integrated with SSO and requires no customization to authenticate users through it. The SSO solution is very similar to IWAS in its function. Its intended purpose is to provide a single entry point to all systems of an agency. It can handle Educators, Institutions, District Staff, School Staff, and DOE Staff. The current IWAS solution already handles District and School Staff so the IWISE implementation will not be configured to allow school and district staff to authenticate or create accounts. To prevent confusion at the district and school levels, a customization will be performed that allows district and school users to click a link and jump over to IWAS. We envision a message similar to ‘If you are trying to log in as a representative of an Illinois district or school click here.’ The link will then jump over to IWAS.

The HIT/IBM team will implement the following user types in the customized IWISE implementation.

Educators: Educators wishing to be certified in Illinois
Illinois Institutions: Staff at Illinois institutions offering approved education programs
Regional Offices of Education: Regional Office of Education staff that assist the educators of Illinois in their certification tasks
LPDC: Local Professional Development Committee members who approve Statements of Eligibility
ISBE Staff: Staff members of the Illinois State Board of Education
Public: Public user access to see minimal teacher certification information
ELIS

The Educator Licensure Information System will be customized to allow user entry from the new IWISE solution and from the existing IWAS system. Staff mentioned above in the IWISE overview will access the ELIS solution through IWISE. District and school staff will access the ELIS implementation through the existing IWAS system.

ESR

The Educator Service Record solution will be configured to allow entry to district and school users who were authenticated through the IWAS portal. All other users will see the ESR data through the ELIS solution when viewing an educator.
D.8.22 - Managing Security

Bidders must describe their proposed approach for defining and managing security levels for IWISE and the ELIS and ESR data repositories, including the capabilities associated with each security level.

Meet Requirement: YES

The HIT-LS solution encompasses all aspects of security. The listed requirement is really referring to two separate types of security requirements. The first type of security is the requirement to authenticate users into the system with their appropriate role. The second type of security relates to what screens and functions you can access within ELIS and ESR with a valid user id and password.

Authenticating Users in the Single Sign On (SSO) System (IWISE)

The HIT-LS solution is integrated into the included Single Sign On System. The Single Sign On System (SSO) is a state wide user authentication system that allows multiple applications to be accessed with a single user id and password. This ensures that the users of the HIT-LS solution only have to remember one user id and password to access any state system incorporated into the SSO authentication technology. Any existing system can be incorporated into SSO with roughly twenty lines of computer code. SSO is also technology independent as long as the calling system can access a web service. Worded differently, it does not matter what language Illinois’ existing systems are written in. As long as they can call a web service, they can easily be integrated with SSO. Below is the login screen of the Single Sign On System.

In the screen shot above you can see that the SSO system handles logging in, creating new accounts, and resetting your account if you have forgotten your password. The section on the lower right is for special messages and announcements.

Once a user has logged into the SSO system they are shown a list of the systems they have access to. The screen shot below demonstrates this functionality. The user System Administrator has logged into SSO and has two systems that can be accessed. One of the really neat features of the SSO system is the ability to choose between several roles when entering a system. For instance, a Superintendent at a district serves as the District Superintendent Role but also holds a certificate and has the Teacher role. When logging into the HIT-LS solution the district superintendent chooses to enter the system as a Superintendent or as an Educator. The screen shots below (following page) demonstrate this functionality.

The first screen shot shows the Oklahoma Educator Credentialing System (OECS) which is our HIT-LS implementation for Oklahoma. You can see the text reads that multiple roles are associated with the OECS system. When the user clicks on this menu item the system then shows the roles that have been assigned to the current user for the selected system. The second screen shot below (following page) shows the various user roles that are assigned the
System Administrator. As you can see the System Administrator can enter the system as many different user types (this user account is set up specifically like this for testing purposes).

The above screen shot shows how a system will allow a user access to multiple roles within the system.

The above screen shot shows how the user can select one of multiple roles in which to enter the HIT-LS system. Most users will be Educators and only have one role, that of Educator. The most common scenario where a user will have more than one role is where the user is an educator (and thus has the educator role) and also serves another role such as Superintendent, DOE Evaluator, or Institution Certification Officer.

The SSO system also has all the necessary tools for a System Administrator to manage all the users of the various systems. They can create new systems, new roles, and assign those roles to various users. The screen below shows the various menu options for maintaining the security of the SSO system.

The screen shot above shows the options for maintaining the security of the SSO system. Users can be managed, new systems created, new roles created, and security levels maintained. The SSO system allows as many security levels as desired. Each system role is assigned one of the security levels. The security levels determine log in parameters like how complicated the password needs to be, how often is must be reset, and if it can be reused.

The Levels menu above shows the screen displayed below.

The most important thing to note on this screen is that all the required ISBE Network Password Policies can be set dynamically for each user security level created. This is extremely useful when setting up roles in the SSO system. For instance, you would not want to reset an Educator’s password after 90 days because your help desk would get bombarded with support calls. In this case you would assign a different number of days before reset. In the case above, the arrow shows that the Basic security level only disables an account after it has not been used for four years. The basic security level is assigned to the Teacher role so as long as a teacher logs in once every four years the password will never be disabled. The Strong security level is a very different story. As you can see in the table, it expires after 90 days of not being used.

The Password Maximum Age column is set to -1 meaning that it does not expire from age. If you wanted the password to expire every 90 days then this field can be set to 90 for the desired security level. The list of customizable parameters controlling passwords are listed below.
- Weight: Numeric field used to determine the highest security level
- Description: English description of the security level
- User Minimum Characters: Minimum number of characters in the user id
- User Maximum Characters: Maximum number of characters in the user id
- Password Minimum Characters: Minimum number of characters in the password
- Password Maximum Characters: Maximum number of characters in the password
- Password Maximum Age: Maximum age of the password before it must be reset
- Number of Character Types: Number of character types that are required to be present in the password (examples are small letters, capital letters, numbers, and special characters)
- Password History: Number of times the password must be changed before it can repeat a previous value
- Lockout Tries: Number of times an invalid User ID and Password combination is allowed before the account locks
- Reset After Minutes: Number of minutes that must pass before an account is allowed subsequent log in attempts if it is locked out from invalid User ID and Password combinations
- Disable Days: Number of days that can pass without a successful login before account is automatically locked

The most important thing to realize is that with the SSO system you can customize the password edits based on the importance of the user role. Treating Educators and System Administrators identically will lead to numerous unnecessary support calls from teachers. ISBE staff will of course have strict password settings because they have access to much more data than one individual teacher. In the end, ISBE staff can determine how many security levels they want to have and assign them as appropriate to the various security roles in the system. Every detail listed in this requirement is customizable by the ISBE staff with no programming required.

The HIT/IBM implementation team is proposing the customization of the SSO system for the IWISE implementation. The team understands that districts and schools currently log into IWAS and they will continue to do so after the new systems are implemented. As an additional customization to the ELiS solutions, an IWAS authentication page will be added so that district and school personnel use IWAS instead of the customized IWISE implementation.

**Screen and Menu Security In HIT-LS**

Once the SSO system (or IWAS) has authenticated a user and determined the user's role the information is passed to the HIT-LS solution. The HIT-LS solution then uses this information to determine which menus and screens are appropriate for the current role. The menus and screens that are assigned to roles can be customized in the HIT-LS security module. This module allows security to be created for each role. The security can be at the menu, screen, or control level. It can enable/disable or show/hide controls depending on the current security role. All these user interface elements can be controlled automatically without any customized programming. The screen below shows the security menu and its capabilities.
The above menu shows the menu options that allow the security within HIT-LS to be completely customized. Groups can be added. Roles can be added. Screens and menus can be assigned to roles. Roles can be assigned to groups. Groups and individual roles can be assigned to users.

The general process for HIT-LS security is to create groups that match the SSO roles. These should be a one to one match. Roles in HIT-LS are then created. The roles are things like Batch Print, Test Import, and Educator Summary. A role is generally a combination of one or more screens. The screens and menus that let you access those screens are then added to the role. A role can also have individual controls on a screen disabled or hidden. Once the role is configured to allow appropriate security access to that functionality it is added to the appropriate groups. All groups that hold the role will be able to see all the screens and menus under the role. All groups that do not hold it will not be able to see or access the screens and menus under the role.
The screen to the left shows how security roles can be customized for the educator group.

As you can see the educators can only access a few different screens in the system. In this example, Educators have access to their credentials, renewals, duplicate certificates, and the educator summary screen.

It is worth noting that the security system is designed so that if a screen is visible to all user roles then no security needs to be placed on it. When security is placed on a screen, that screen will immediately become inaccessible to all users except those belonging to a group that holds the role that has access to the screen. So in summary, if no security is assigned to a screen everyone can see it. The screen below shows the role settings that allow menus, screens, and controls to be assigned to a role. The ability to set controls disabled or invisible is highlighted with arrows.

**Security Summary**

The HIT-LS solution meets all these listed requirements without any customization. The security described in this requirement has been implemented in three states without any customization required, but we realize the new IWISE implementation will require SSO customization. ELIS will be customized to use IWAS for district and school personnel. All roles can be customized as needed without any programming changes and the exact requirements of ISBE will be determined and documented as part of the requirements and design process.
D.8.23 - Project Management Plan Reqs

Within the proposal, the bidder must provide a document outline for each of the following project management plan components identified in the Project Management Plan deliverable:

- Project Work Plan;
- Issue and Risk Management Plans;
- Quality Management Plan; and
- Change Management Plan.

Meet Requirement: YES

The Project Work Plan is detailed below in section 4.8.24 Project Work Plan.

The Issue Management Plan is detailed below in section 4.8.29 Issues Management Approach.

The Risk Management Plan is detailed below in section 4.8.30 Risk Management Approach.

The Quality Management Plan is detailed below in section 4.8.31 Quality Management Approach.

The Change Management Plan is detailed below in section 4.8.33 Change Management Approach.
D.8.24 - Project Work Plan

Bidders must provide their proposed project work plan, developed in Microsoft® Project 2003 (or later version, if adopted by the ISBE). The work plan must identify all proposed tasks associated with the construction of the contract deliverables described in the Scope of Work section of the RFSP. The contractor will be responsible for developing and maintaining a detailed work plan that includes, but is not limited to, the information listed below.

- All project phases or stages and tasks (identified and defined);
- Respective proposed start dates;
- Proposed duration of tasks;
- Task dependencies;
- Project milestones and all deliverables to be produced (identified and defined);
- Deliverable draft and final due dates;
- Software procurement, receipt, and installation dates, if applicable; and
- Task owners (responsible party) by organization, e.g., contractor, ISBE.

Throughout the project, the work plan must be continually updated by identifying new tasks, reflecting the progress of each task, and indicating tasks completed. The updated work plan must be provided to ISBE project managers with the first weekly status report each month.

The work plan should demonstrate the bidder’s ability to meet the overall project schedule and align with the resources that are identified for the project. The ability to meet project timelines, as presented in a realistic work plan, is a critical evaluation factor for the proposal.

The bidder’s project work plan should also include the anticipated use of ISBE resources and demonstrate opportunities for ISBE staff to work collaboratively with the proposed members of the contractor’s work team during the project.

**Meet Requirement: YES**

The initial work plan is displayed below. This plan includes a path for each system in the enclosed RFSP to be completed and implemented by 07/01/2012. Delays to the start date may affect the ability to deliver the project by this date. The plan will be modified after the requirements and design phases to reflect the total work that needs performed. That master project plan will then become the baseline for the entire project.
D.8.25 - Contract Deliverables

The contractor will be required to formally submit deliverables throughout the project. The contractor is required to use the standard Microsoft® Office 2007 (or later version, if adopted by ISBE) product suite in the preparation of project correspondence, reports, plans, and deliverables unless ISBE gives written permission to use something different. Contract deliverables must be prepared and submitted to ISBE by their scheduled final completion dates. The deliverables must comply with contractual requirements. The contractor and ISBE project managers are responsible for coordinating the review of deliverables within the specified review period from their receipt. ISBE is expecting that formal walkthrough sessions will be conducted for major deliverables. The walkthrough sessions will be organized and scheduled by the contractor, with assistance from ISBE. A final version of each deliverable must be provided to ISBE project managers by the due date specified on the approved project work plan. Final deliverables that meet contractual requirements will be approved by ISBE project managers. Deliverables that do not meet contractual requirements will be returned to the contractor as incomplete. Deliverables submitted after their scheduled draft and/or final version completion dates will be reviewed in a timely manner, but are not subject to the predefined ISBE business-day turnaround requirement.

The contractor must store project work papers at the ISBE office in Springfield, Illinois. All work papers are considered the property of the State. All work in progress is considered the property of the State.

Meet Requirement: YES

The HIT/IBM Team constructs and maps specific EUS-IWISE-ESR deliverables and tasks from the project work plan and deliverables, and presents a draft Work Breakdown Structure in the Project Management Plan during the startup phase. This Work Breakdown Structure is built based on our experiences gained through the numerous implementations and the PPM methodology, reflecting the detailed requirements for a successful ELIS-IWISE-ESR implementation. The Project Work Plan will be built using Microsoft Project, and activities will be tracked in the plan recording a variance between actual and planned.

Project deliverables will be jointly confirmed by ISBE and HIT/IBM during the start up stage of the project. Together, we will identify the specific components that should be addressed by key deliverables in order to meet stakeholder expectations and support the ELIS-IWISE-ESR. Our proposed process for deliverable development, management and submission is as follows:

Section 3.0 identifies the purpose and content of each deliverable.

1. **Initiate Deliverable.** An initial meeting will be held with the deliverable author(s) and members of ISBE management to discuss the work product development procedure, to review guidelines governing the deliverable, and to establish dates for interim reviews during the deliverable development cycle.
2. **Produce Outline.** The deliverable author(s) will draft a proposed outline for the deliverable. Members of the ISBE management team will meet with the author to discuss the outline and confirm that there is a shared understanding of (a) the deliverable's purpose and (b) the level of detail planned for the deliverable (i.e., scope, depth, content).

3. **Conduct Interim Reviews.** Interim reviews may be structured around specific sections of the deliverable as they are completed or around drafts of an entire deliverable as it is developed to increasing levels of completeness. Interim reviews will be performed by the HIT/IBM team members and by ISBE managers and staff.

4. **Perform Peer Reviews.** Prior to the deliverable due date, a peer review will be conducted on a complete version of each deliverable. Peer reviewers will be selected based on their expertise in a specific subject or their overall management responsibility within the project. To expedite this process, the author(s) will convene a peer review meeting so that reviewers can discuss their comments jointly and agree upon recommended changes to the deliverable.

5. **Incorporate Changes.** Following each review, including the peer review, the deliverable author(s) will revise the work product to reflect reviewers' comments. A formal draft version of the deliverable will be completed subsequent to peer review. The HIT/IBM Project Manager will review the draft deliverable before it is delivered to ISBE.

6. **Deliver Deliverable.** Once a draft deliverable is complete, it will be delivered to ISBE for review. ISBE staff will review the deliverable and provide written comments to the HIT/IBM project manager, and other staff as appropriate. The review period for each deliverable will be verified by the ISBE and HIT/IBM Project Managers prior to the development of each deliverable. The author will incorporate ISBE comments into the deliverable and return the final version to the HIT/IBM Project Manager for review. Once the HIT/IBM Project Manager has completed the review, the final deliverable will be delivered to the ISBE Project Manager.
D.8.26 - Deliverables Overview

Within the proposal, bidders must identify each deliverable by name and provide a description of how the deliverable will be provided. At a minimum, the bidder's response must include the deliverables identified in the ELIS-IWISE-ESR Project Deliverables table starting on page 7 of this RFSP. Bidders may propose additional deliverables that might improve the values of the bidder's offering. Proposed deliverables must be accompanied by a complete description of how the deliverable will be provided that allows ISBE to evaluate its relationships to, and value for, the project. Proposed additional deliverables must also be incorporated into the cost proposal if they are expected to incur expenditures with payment expectations.

Meet Requirement: YES

The HIT/IBM implementation team is proposing that the deliverables listed in the RFSP and described in section 3.0 of this RFSP response are the set of deliverables. The final work plan will include the appropriate phases of implementation, with any modifications or additions that were discovered during the requirements and design processes. These deliverables, and what they include, has been described in detail in section 3.0.
D.8.27 - Project Management Approach

The contractor is responsible for effectively managing the activities and deliverables associated with the design, development, and implementation of the three new systems for this project. The contractor's project manager must attend weekly status meetings with ISBE project managers and may be requested to attend monthly executive status meetings. The contractor must also provide a weekly status report. The updated project work plan must be attached to the first status report of each month. The weekly status report must include, but is not limited to, the following:

- Weekly accomplishments and completed tasks;
- Activities and tasks in progress;
- Upcoming activities and tasks;
- Planned activities and tasks not accomplished, the reason for not accomplishing them, and the plan for bringing them back on schedule, including associated risks and costs;
- Issues and anticipated problems and recommendations for their resolution, and
- Deliverable status and anticipated due dates.

The required project management plan includes, but is not limited to, the project work plan, project issues and risks, deliverable quality, and knowledge transfer, and project changes. Within the proposal, the bidder must provide information that can be used by ISBE to evaluate the bidder's knowledge of—and intended approach to—project management.

Meet Requirement: YES

HIT/IBM bases its approach to project management (PM) on a set of guiding principles used on multiple large scale, complex, multi-site, system design, development, and implementation projects. These principles were created by HIT/IBM as a standard methodology to give its project teams a uniform, repeatable means of delivering solutions that result in successful projects and satisfied customers. The methodology we use is the World Wide Project Management Method (WWPMM). WWPMM is derived from HIT/IBM project management leading practices and other recognized industry standards such as the Project Management Institute’s (PMI) PM Body of Knowledge (PMBOK), Software Engineering Institute (SEI), and the International Standards Organization (ISO).

As a basis of effective project coordination and communication, HIT/IBM recommends that project management services be delivered throughout the contract period of performance. The objectives of the project management (PM) services are intended to promote the following ideals:

- A common understanding exists between ISBE and HIT/IBM regarding project scope, roles and responsibilities, and risk factors to achieve the business objectives of the project.

- Workable project plans have been developed that address both the PM processes as well as the solution design and delivery processes.

- Proven PM processes are in place to effectively coordinate people and other resources to carry out the project plans, effectively monitor and measure project progress, take
corrective action when necessary, formalize acceptance of each project phase, and validate that agreed-to completion criteria have been met.

HIT/IBM's structured approach to managing projects includes understanding and adapting to meet the needs of ISBE ELIS-IWISE-ESR implementation. The Project Management System is the core of this structured approach and includes:

- The plans describing the work to be performed and how the project will operate.
- The procedures enabling key tasks to be performed in a systematic and visible manner.
- The records which the project manager uses to control status and events.
- The PM activities used to plan, control, and react to day-to-day situations.

As the figure below illustrates, the Project Management System for a project is the integration of methods, business processes, and policies for that specific project. Underlying this integration framework is a common tool platform.

*Figure 11: Seven Keys Report Example*

Four fundamental tenets underlie HIT/IBM's approach to managing projects:

- **Project Management Process** – The project team focuses on project definition and planning so that the customer understands and accepts the scope of the project and its accompanying risk factors in order to achieve their required business objectives.

- **Project Organization and Responsibilities** – Members of the project team define and agree upon the key project team members and their roles and responsibilities (including appropriate sponsorship) so that project results are met.

- **Project Phases** – Work is phased to provide the opportunity to reassess risks at key points throughout the project.

- **Project Management System** – A management system is established that will define and apply the appropriate governing processes for project activities.

These tenets will require coordination between the HIT/IBM team and ISBE in order to develop the basic structure of the project and establish the roadmap for successful project completion. As discussed, in order to provide project teams with consistent methods worldwide, Hit/IBM has developed the following methods:
Worldwide Project Management Method (WWPMM) which defines how projects are managed throughout IBM.

IBM Global Services Method (GSM) which provides guidance on the technical aspects of the project.

The goal of HIT/IBM's methods is to provide proven, repeatable means of delivering solutions that result in successful projects and satisfied customers. Benefits realized by the effective use of WWPMM integrated with the HIT/IBM Global Services Method include the following:

- Risk is managed more effectively because the project is properly defined, within the customer's business environment, with risks clearly identified and managed.

- Productivity is increased by a clear definition of roles, responsibilities and deliverables resulting in faster start-up through the use of knowledge management, less rework and more productive time in the project.

- Communication is easier and clearer because customer and HIT/IBM project teams form more quickly and use common terminology.

- Customer visibility to the project plans, schedule and actual performance against the project objectives is enhanced, helping to increase customer satisfaction.

For the ISBE ELIS-IWISE-ESR implementation project, HIT/IBM has organized the project management activities within: (1) project planning, and (2) project tracking and reporting.

**Project Planning**

The purpose of the project planning phase is to prepare the project management framework needed to establish project governance. It will result in the establishment of the project structure that will be spelled out in key documents that are necessary for the engagement to run successfully. Such documents include the project charter, project deliverable definition, project schedule, staffing plan, risk management plan, event management plan, issues management plan, quality assurance plan, change management plan, and configuration management plan. The project planning phase will conclude with a formal project kickoff that will serve to:

- introduce the project team,
- define roles and responsibilities,
- specify deliverables by phase,
- set the tone for the project,
- define level of commitment,
- demonstrate executive sponsorship,
- review the project requirements traceability matrix, and
- review timelines.
Project Tracking and Reporting

The purpose of this is to perform project tracking and reporting, quality assurance, event management, risk management, and change control management. The baseline for monitoring and measuring project progress will be the project schedule, project financial reports and event management reports. Project progress will be reported using project status reports and monthly stakeholder reports.

- **Quality assurance** will be performed using the quality assurance plan that provides for both an internal project team review process as well as an independent Project Management Review (PMR) process performed by IBM’s Project Management Center of Excellence.

- **Event management** will be performed using the event management report. The report will be maintained and reported on a bi-weekly basis. The event management report will describe in detail each event or issue and its analysis, resolution, status, and escalation.

- **Risk management** will be performed using the risk management plan. The plan will be maintained and reported on a monthly basis. The risk management plan describes known project risks and an appropriate plan to react to the risk should it occur.

- **Issues management** will be performed using the issues management plan. The plan will be maintained and reported on at least a bi-monthly basis (more frequently if necessary). The issues management plan describes project issues as they are identified and steps required to resolve the issues.

- **Change control management** will be performed using the change control management plan. The plan will monitor and manage changes to the project requirements baseline. The change control process will include responding to formal requests to alter the project requirements baseline. As part of this process, a cost and schedule impact analysis is performed, formally documented, and delivered in a project change request document.

- At the end of the project, additional activities will be performed to bring the project to an orderly end. The activities will include completing the formal project evaluation report, updating the project staffing report, completing the final project status reports, and closing the project financials.

IBM’s Seven Keys to Success™

Delivery excellence is the responsibility of each project team as well as the stakeholders within our governing industry and practice areas. IBM’s approach to delivery excellence is bound by our acknowledgement of the importance of seven key elements to project success:

- stakeholders are committed,
- business benefits are being realized,
- work and schedule are predictable,
- team is high performing,
- scope is realistic and managed,
- risks are being mitigated, and
- delivery organization benefits are being realized.

IBM has successfully executed thousands of projects of varying degrees of complexity and we are confident that focused management of these seven elements will help customer expectations to be met. The Seven Keys to Success™ are integrated into the project plan, which is the basis for monitoring the project, communicating status, and taking corrective action. Project status is determined by comparing actual work product attributes, effort, cost, and schedule to the plan at defined intervals or milestones in the project schedule. Corrective action is taken when actual performance deviates from established thresholds.

IBM’s Seven Keys to Success™ Status Reporting mechanism is an integral element of the project status review process. The Seven Keys to Success™ management dashboard is a tool used across HIT/IBM projects to reinforce the probability of project success.

Figure 12: Seven Keys Report Example

Essential activities that support the Seven Keys to Success reporting areas are composed of the following tasks:

- Review the contractual responsibilities of HIT/IBM and ISBE
- Maintain project communications through the ISBE PM
- Coordinate the establishment of the project environment
- Establish documentation and procedural standards for Deliverable Materials
- Prepare and maintain the HIT/IBM Project Plan which lists the activities, tasks, assignments, milestones, and estimates for performance of the ELIS-IVISE-ESR Project
- Review project tasks, schedules, and resources and make changes or additions, as appropriate. Measure and evaluate progress against the Project Plan with the ISBE PM
- Review the HIT/IBM standard invoice format and billing procedure to be used on the project with the ISBE Project Manager
- Work with the ISBE PM to address and resolve deviations from the HIT/IBM Project Plan
- Conduct regularly scheduled project status meetings
- Prepare and submit weekly Status Reports to the ISBE Project Manager
- Administer the Project Change Control Procedure with the ISBE PM
- Coordinate and manage the technical activities of HIT/IBM project personnel

This task spans the phases of the engagement with the ISBE and is an essential part of our Enterprise System Implementation methodology. At a high level, project management activities address key management concerns and potential impacts to scope, schedule, cost, and vendor coordination. More detailed, daily activities consist of the preparation of work plans and schedules, management of the vendor relationship and deliverables, training schedule, scope control, reporting to ISBE leadership.
Our approach and engagements are driven by an integrated methodology offering well-established project management and technical delivery methods. These methods provide the framework for managing the HIT/IBM project team and helping to keep the project on track. HIT/IBM's project management methods address key management concerns and potential impacts to scope, schedule, and cost, and are designed to provide high quality deliverables for our clients. The key processes in HIT/IBM's project management methods are as follows:

- Project planning and tracking
- Risk management
- Deliverable Materials management
- Configuration management
- Issues and actions management

*Figure 13: HIT/IBM Project Management Methods*
D.8.28 - Work Plan Approach

The bidder must describe the proposed approach for effectively managing the project work plan. At a minimum, the bidder must describe the method for ensuring timely updates to the work plan, the approach for managing and communicating changes to ISBE, and the approach for tracking baseline versus actual.

Meet Requirement: YES

The HIT/IBM project team will review the project status prior to every status meeting and bring issues that may impact project schedule to the attention of the ISBE stakeholders. An updated project plan will be produced for the first status meeting of each month. Any changes affecting project schedules (good or bad) will be reviewed with all stakeholders.

A master project plan will be produced prior to the start of the customization/development phases for the ELIS, ESR, and IWISE solutions.

This master project plan will also be the established baseline plan (and saved as such), with all changes after that point being applied to the actual project plan fields. The result is that the actual schedule can, at any time, be compared to the original baseline plan that was established prior to the start of development.

Communicating true project status at the first status meeting of the month helps involved stakeholders to manage the product and adjust decisions, feature sets, and phase deliverables in a manner that ensures the project is completed on time and on budget.
ISSUES MANAGEMENT APPROACH

Within the proposal, the bidder must describe the proposed approach to issues management. At a minimum, the bidder must describe the issue management control system to be used and approaches for issue identification, impact evaluation, issue assignment, and issue resolution.

Meet Requirement: YES

Issue Management is a key element of HIT/IBM’s Worldwide Project Management Method (WWPMM) methodology and is described in the Transition and Conversion Plan as the process to plan and contain new and/or emerging issues regarding project risk. The figure below illustrates HIT/IBM’s integrated risk and issue management process that it plans to employ for this project.

Figure 14: Integrated Risk and Issue Management process

The HIT/IBM team will establish an issue process and tools and encourage the project team to record issues, conduct impact assessments, identify team members responsible for resolving issues, and document current status. The joint HIT/IBM-ISBE management team will use the issue tracking tool to monitor issue resolution and identify problem areas within the project. The HIT/IBM team will review open issues as part of its internal project status meetings as well as in the monthly performance review meetings.

The following is a summary of the process the HIT/IBM team will use to address issues as they arise on the project:

- Project issues will be documented in detail in the issue tracking tool
- The author will propose alternatives for a possible resolution, and assign the issue to an individual whom he/she believes could resolve the issue
- As part of their routine project management tasks, the management team will review the open issues list to manage the issues against plan
- Issues are grouped for status reporting and are prioritized and escalated as required
- A resolution date is assigned in conjunction with the timelines associated with the project plan
- The HIT/IBM PM will escalate issues that cannot be resolved by the project team
- The issue should be resolved by the due date
- Once resolved, project management must review and approve the issue for closure and forward the resolution notes to the change management or communications manager when appropriate

- Our issue management approach serves to identify potential project risks and plan for their occurrence, thus helping to improve the effectiveness of project
management. Risk management looks at those factors that threaten to delay or stop project activities from being carried out and prevent milestones from being achieved. The HIT/IBM approach seeks to anticipate problems and pre-plan, wherever possible, ways of reducing the probability of occurrence and/or of mitigating their impact should they occur.
D.8.30 - Risk Management Approach

The bidder must describe the proposed approach to risk management. At a minimum, the bidder must describe approaches for risk identification, risk analysis, risk response development, risk monitoring, and control.

Meet Requirement: YES

HIT/IBM’s Worldwide Project Management Method (WWPMM) defines risk as a “potential event or future situation that may adversely affect the project.” Adverse effects include diminished quality, increased costs, delayed completion, a dissatisfied client, and project failure. By using WWPMM, the HIT/IBM embraces the concept of ongoing risk management. This is consistent with software development and integration risk management as defined by the Software Engineering Institute (SEI). By employing risk management, the HIT/IBM team will provide a disciplined environment for responding to risks and enable proactive decision making.

The PM will develop the risk management plan that highlights the specific risk management processes, methods, and tools to be used on the project. This plan will include roles and responsibilities and risk management activities necessary for managing risk. The plan will determine risk management metrics to be collected and analyzed. Working from the risk management plan, the PM will interact with each team lead to identify and classify potential risks.

HIT/IBM’s standard approach to risk management includes the following five essential steps as illustrated in Figure 11:

- **Identify Risks:** At project inception and throughout the project lifecycle, risks will be identified. This will be done through facilitated risk identification workshops, meetings with project stakeholders, review of project artifacts, and lessons learned from similar implementations.

- **Analyze Risks:** New risks issues will be analyzed to assess their impact, probability, and severity. Existing risks will be validated to determine if their severity has changed. The criteria for assessing impact, probability, and severity will be defined in collaboration with ISBE project team. Based on the assessment, risks will be prioritized.

- **Plan Response:** Based on the risk assessment and severity, the project management team and risk owners will develop risk response strategies to minimize and prevent risks and to respond to risks if they materialize. Particular focus will be made on working and managing risk efforts to close risks. Documented risk responses will include a plan of specific activities including timelines and resources requirements, roles and responsibilities for implementing the plan, and triggering events that will prompt the implementation of the response plan.

- **Track Risks:** HIT/IBM will continually track and report risk at appropriate management levels. In addition, HIT/IBM will provide a regular risk report that includes open risks that may...
adversely affect the project, quantifies the probability and severity of risks, describes risk response strategies, and provides a current status of risk.

- Control Risks: HIT/IBM will continually monitor the status or risks and progress on implementing mitigation and contingency plans.

**Figure 15: Five Steps of Risk Management**

- Risk management requires that risk identification is an ongoing process, not a one-time only activity. In accordance with WWPMM, risks will be analyzed on an ongoing basis to adjust to changing conditions and priorities in the project. The goal of risk management is to identify risks to the project and develop and implement appropriate mitigation actions in advance. The HIT/IBM team will proactively identify and mitigate risks before they affect the project schedule, lead to cost overruns, or result in unsatisfied requirements.
**D.8.31 - Quality Management Approach**

The bidder must describe the proposed approach to quality management. At a minimum, the bidder must describe approaches for quality planning, quality assurance, and quality control.

**Meet Requirement: YES**

As technology advances and businesses get more complex, the cost of software errors goes up. As can be expected, the cost of finding and fixing errors goes up exponentially as we progress through the development lifecycle. The later the errors are found, the higher the cost. It is also not difficult to establish that exhaustive testing is not feasible. Even if it were, it is not cost effective. Therefore, an effective quality management plan is based on effective risk management methods and includes using techniques to perform necessary and sufficient quality reviews and testing.

Quality assurance focuses on the processes that are used to develop the product and the management of the development process itself. Quality control is made up of Static and Dynamic testing which is focused on the quality of the product and how well the product meets the quality objectives of the different stakeholders. With a risk-based approach to quality assurance and testing, the focus areas are identified using risk as the main driver. In other words, the goals are to reduce project risks and manage testing risks. The key is risk assessment and acceptance versus avoidance. Quality strategy is based on an understanding of risks and associated costs.

The quality assurance plan will involve activities throughout the project lifecycle. Quality assurance will enable defects to be detected and corrected early enough, which will help minimize the impact to the project. The quality assurance process will involve both HIT/IBM and ISBE on activities to verify the following:

- Business Rules
- Data Quality
- Dashboard, Scorecards and Report Accuracy

The review of the business rules will involve documentation and ISBE signoff for rules incorporated into the Extract, Transfer, and Load (ETL) process. The rules will be reviewed with the ISBE data stewards for accuracy. The review of data quality will consist of multiple steps.

1. Review of the source data. This review will consist of a reasonableness check to verify completeness of the source data.
2. Review of the ETL results will verify the accuracy of the ETL process to verify that source data has been either loaded to the ELIS-ESR databases or appropriately rejected. Subsequently, the effects of the business rules on the data loaded will be reviewed to verify the appropriateness of the business rule.
3. Test Dashboards and Reports to verify both the reasonableness of the data presented and the accuracy of the report.

To verify reasonableness, the dashboards and reports will be compared to existing source system reports. To verify accuracy, the dashboards and reports will be tested to verify that the results are consistent with the data loaded to the EDW.

**Quality Process Responsibility**

The following table outlines the quality process responsibility for each project team role:

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Project Manager</td>
<td>Responsible for clarifying project objectives and standards. Will provide formal sign-off on all deliverables. Manages the HIT/IBM Team members so that they follow the agreed to processes. Responsible for resolving issues and for the quality and timeliness of project deliverables.</td>
</tr>
<tr>
<td>ISBE</td>
<td>Responsible for providing input in overall project direction. Will resolve project issues and problems that have a material impact on project schedules, quality or budget.</td>
</tr>
<tr>
<td>Project Personnel</td>
<td>Includes IBM, subcontractor and ISBE personnel working on the project. Responsible for understanding objectives, responsibilities, standards and processes for quality. The project personnel will be expected to follow the identified quality processes or seek guidance from mentors or senior staff. Project personnel are responsible for completing tasks within the agreed to quality targets and in a timely manner.</td>
</tr>
</tbody>
</table>
O D.8.32 - Knowledge Transfer Approach

The bidder must describe the proposed approach to performing knowledge transfer to the ISBE staff who will support the three new systems.

Meet Requirement: YES

IBM proposes that we implement our Knowledge Transfer Approach to enable a successful transition of skills to ISBE personnel, empowering ISBE to maintain and expand the ELIS-IWISE-ESR solutions after HIT/IBM is gone. This transition is as much of a business transition as it is a technical transition. The objective of the knowledge transfer plan is to allow for the transfer of necessary knowledge from the experienced HIT/IBM team members directly involved in the creation of the solution to potentially inexperienced ISBE team members to sustain and expand the solution after “Go Live” and thus reduce consulting dependency and on-going costs.

Furthermore, HIT/IBM consultants mentor, teach and train during the phases and aspects of the project. This project approach includes integrating knowledge transfer by placing HIT/IBM implementation tools into the hands of the ISBE ELIS-IWISE-ESR project team and enabling the appropriate ISBE technical staff to be involved throughout the project. HIT/IBM is committed to this collaborative knowledge transfer plan.

In addition, the HIT/IBM team will utilize a structured Skills Development and Transfer Process for planning and monitoring skills development and knowledge transfer from the HIT/IBM team to the ISBE team throughout the life of the project. The process is an iterative approach to skills development and knowledge transfer. The figure below depicts the HIT/IBM Skills Development and Transfer Process.

Figure 16: HIT/IBM Knowledge Transfer Approach

The process starts with a role-based skills assessment of the ISBE team. Jointly with the ISBE Project Manager, the HIT/IBM team will conduct a skills assessment. HIT/IBM has created detailed skill specifications for each technical role. We will use these specification metrics to map current ISBE skills to the required role-based skills.

Our joint team will determine the skill gaps and develop a role-based development plan for the ISBE staff assigned to the project. This role-based development plan will drive the type of knowledge transfer activities that will be needed by the ISBE staff. Knowledge transfer activities consist of formal and informal training, coaching, and reference materials for self-study.

The HIT/IBM team will supplement the formal training program that is recommended for ISBE technical staff. The following are examples of the multiple vehicles for transferring knowledge during the project:

- Integrated Technical Teams will enable knowledge sharing to occur during the normal project activities performed by the joint HIT/IBM ISBE technical team. In most technical
areas, HIT/IBM consultants will provide leadership with ISBE technical staff assisting. This relationship will foster and atmosphere of joint ownership where HIT/IBM staff will need to mentor ISBE staff and ISBE staff will need to accept knowledge transfer in order for the joint team to be successful.

- **Train-the-Trainer** is a technique by which ISBE technical staff can be coached to be trainers. There are two major benefits of the Train-the-Trainer approach for ISBE. First, ISBE staff will be able to answer questions from training session students about ISBE IT policies or other details that an outside instructor may not know. The other significant benefit is that after the conclusion of the project, ISBE will have a pool of trainers for re-training, new employee training, or other future needs.

- **A Repository for Leading Practices and Frequently Asked Questions** will provide ISBE technical staff with an internet accessible resource for additional application support. ISBE staff will be able to contribute to this repository during the project and afterwards.

- **Post Implementation Support** establishes the process for resolving user issues. Support will be required immediately following the move to live production, as well as in the long term. This period is an opportunity for HIT/IBM to advise ISBE on how to quickly and effectively manage and communicate issues as well as identifying the requirements for ongoing support.
D8.33 - Change Management Approach

The bidder must describe the proposed approach to change management. At a minimum, the bidder must describe the change control system to be used and approaches for change identification, impact evaluation, change authorization, and change implementation.

Meet Requirement: YES

In such a complex project, project changes are likely to occur. The prime purpose of change management is so that proposed changes that are of benefit to the project are implemented in a controlled manner and that proposed changes that are of little or no value are not. The first step is generally to create a change request, which supports the above objective by providing:

- A record of the proposed change and the rationale behind it.
- A record of the results of an analysis of the potential impact of the proposed change.
- The information required by the change control board to decide how to proceed with the proposed change and a record of those decisions.
- The information required to monitor the implementation of the change through to completion.

Change requests are then entered into a change log, to provide summary information about all the unforeseen changes that the project is managing. This log is often used as an agenda for a change control board meeting or to provide input for a status report. If approved, the change request then generates a change order. This form contains the information required to manage the implementation of all or part of one or more approved change requests. It includes a specification of what must be changed and a high-level implementation schedule, enabling implementation of the change to be tracked and controlled.

As with all of our templates, we can adjust them to meet ISBE'S needs and preferences. We propose that requests initiated by ISBE be submitted to the ISBE Project Manager for review, and similarly HIT/IBM change requests will go to the HIT/IBM Project Manager. Each will review the proposed change and determine whether to submit the request to the other party. Together the ISBE Project Manager and HIT/IBM Project Manager will review the proposed change and recommend it for further investigation or will reject it, and update the change log.

For change requests that would result in additional charges or changes to the Statement of Work, HIT/IBM will specify this as part of the investigation. PCRs resulting in contract changes such as cost or timeline must be signed by authorized representatives of both parties to authorize investigation of the recommended changes. The investigation will determine the effect that the implementation of the PCR will have on price, schedule and other terms and conditions of the Agreement. HIT/IBM will invoice ISBE for resulting charges.
E.1 - Hupp Information Technologies
E.1 - Hupp Information Technologies

HuppInformationTechnologies
E1.1 - HIT Organization

Hupp Information Technologies is a national software company with extensive experience in helping federal agencies, state agencies, and private companies with their software solutions. We specialize in governmental education. All of our employees are currently serving this market either directly, or indirectly. We currently have 13 full time employees and several subcontractors on staff.

Hupp information Technologies has served the needs of state agencies, federal agencies, and private companies. We have helped with project management, strategic planning, application analysis and design, application development, application support, web development, and web e-Commerce. We have been in business for ten years and our customers have come to depend on our unique focus on the education market. Our customers have also learned to appreciate our unique approach to partnering on software solutions. We have established a reputation as a company that is more focused on customer satisfaction than any other issue. We endeavor to make the customer truly feel that they are part of the development process, a true partner in our collective effort.

Our headquarters is in Springfield, Illinois. We prefer for our consultants to spend significant time at the customer site where they can fully learn the customer’s business processes. We believe that systems developed in partnership, side by side with the client, are superior to those developed off site in isolation. This becomes more essential the larger and more complex the software solution.

Our organization is built upon highly qualified and highly skilled consultants that combine true excellence with impeccable communication skills. Our consultants must be well rounded individuals in addition to outstanding programmers, analysts, and managers. Every customer we have comments on the consistent high quality of our staff. We do not employ technology professionals that do not offer a complete package of communication, technical, personal, and ethical skills.

Our work ethic is beyond reproach, and we constantly strive to ensure our skills are current and appropriate for our customers’ needs. We have proven skills implementing complex enterprise wide software solutions that include both client server and internet web interfaces. We have very stringent standards for designing, development, and implementing new systems. We modify these standards as required to adhere to customer's internal coding standards. Our employees have extensive experience in all areas that will be required for the Illinois Educator Licensure Information System.

As a result of our commitment to excellence, our partnership with customers, and our outstanding technical capabilities, our company has grown every year of its existence. Our customers have recognized our spirit of partnership and have found our can-do attitude to be refreshing. We always error on the side of the customer, and believe that our attitude and approach to customer relations helps to foster a long term partnership that benefits all parties involved.

We look forward to unleashing our creative abilities to assist you in achieving your goals for the Illinois Educator Licensure Information System. Once our partnership has been established, you will find that your goals will become our goals, and together we will function as one entity as we move toward the completion and realization of a leading position in the tracking and certification of Illinois’ educators.
E.1.2.1 - Staffing Overview

Overview

There are many key areas of knowledge and expertise that will be required to successfully design, develop, and implement the Educator Licensure Information System.

- Knowledge and experience with web based applications
- Knowledge and experience with object oriented software design
- Knowledge and experience with dynamic report, query, and document creation
- Knowledge and experience creating interfaces serving the needs of new and advanced users
- Knowledge and experience with large scale data conversion and cleansing
- Knowledge and experience with Microsoft .Net tools
- Knowledge and experience managing and implementing complex enterprise wide projects
- Knowledge and experience managing risk that is inherent in complex projects
- Knowledge and experience managing and disseminating large scale data reports
- Knowledge and experience with educator credentialing

Project Team Experience

Hupp Information Technologies has assembled a team of developers who have repeatedly demonstrated the knowledge and experience outlined above. All members of the team are very familiar with issues facing governmental education entities. Every single member of our project team has extensive past and present experience with large scale complex system development for education entities. Furthermore, all of the team members have worked on modules that have a direct correlation to requirements for the new Educator Licensure Management System.

We fully understand the issues and risks that face governmental education organizations. It is because of our understanding of the issues that ISBE faces that we have assembled such an experienced team. Our project manager, Dean Huop, has been developing systems for ISBE for over twelve years. The systems they have worked on include MIDAS, FRIS, CRS, ROEAS, TCIS, SEOS, and OTIS. He has overseen the implementation of the HiT-LS product in New Hampshire, Mississippi, and Oklahoma. Brian Decker, our Object Specialist, worked extensively on the Child Nutrition System at ISBE. Brian also worked on several IBSE systems including WATS, TCIS, and TSR; and continues to work with the education community in his latest assignment at ISBE on the Special Education Database System. Brian was the key designer of the class structure of the HiT-LS product. Mike Penny, Nicole Johnson, and Bob Archer have all worked on the Oklahoma, New Hampshire, and Mississippi implementation.

Collectively, we have assembled a team of professionals that have a wealth of experience in areas directly relating to the new ELIS system. The team members are collectively familiar and experienced with technologies such as Microsoft .Net tools, VB .Net, ASP .Net, ADO .Net, SQL Server 2000/2005, and implementing real solutions using the .Net framework.

All technical members of this team could serve as team leaders or even project managers. Each one has experienced the challenge and rewards of designing and implementing business process change. Our
automation in Oklahoma lowered the outstanding queue from 7000 applications to 800 applications from June of 2009 to June of 2010. That is real improvement. Again, every member of the team directly provides the skills and experience needed for this project to be successful.

Team Organization

Our basic project structure is outlined above. This structure may be refined during the requirements study as we learn more about how ISBE operates. Note that the entire Hupp Information Technologies project team "reports" to the ISBE project management team. We are at your service. Our goal is to partner with ISBE to ensure that ISBE's goal of creating the nation's leading educator credentialing solution is fully realized.

All team members will be full time staff members except for Dean Hupp and Brain Decker. Dean's involvement will be 100% during the design phase, and drop to 25-30% during the customization phase. Brian's involvement will be 50-75% during the customization phase. This is his specialty and the only phase that he is involved in. All other team members will be full time.
E.1.2.2 - Dean Hupp

Project Manager

Our project manager, Dean Hupp, has 20 years of experience in the IT industry. He has worked on numerous client server and web enabled systems during his long career. His excellent leadership, personal motivation, communication, and interpersonal skills make him a great asset on projects requiring frequent communication and iterative development timelines.

He prefers to lead from the front and will ensure that all facets of the project are addressed with meticulous detail. His background has allowed him to develop a unique ability to communicate with users of all levels. This skill will be extremely useful as the ELIS project starts, and users from all spectrums will try and communicate their vision for the project. Dean will take all their input and develop a cohesive vision that accomplishes ISBE's goals for this project.

The project manager is the liaison between the Hupp Information Technologies development staff and ISBE staff. He communicates requirements between the parties, documents vision, ensures compliance, and ultimately is responsible for the entire project. The ELIS system will benefit greatly from having a project manager that thrives on the challenges that large enterprise system development inevitably brings.

Dean has a long history with the Illinois State Board of Education. He has been involved in numerous ISBE systems that include Report Card, MIDAS, FRIIS, CRS, ROEAS, TCIS, SEDS, and OTIS. He designed and authored the Educator Certification System (ECS), which is the first e-Commerce credit card web enabled portal at ISBE. His extensive experience with ISBE systems has allowed him to acquire an in depth knowledge of educator systems and their inner workings.

Dean has also served as the project manager on the Oklahoma Educator Credentialing System (OECIS), New Hampshire Educator Information System (EIS), and Mississippi Educator Licensure Management System (ELMS). These projects were all HiT-LS implementations just like the ELIS project for Illinois.

Dean's extremely high standards will benefit the ELIS project. If the programmers do not meet his high standard then they will be recoding. His goal is to ensure the ELIS system is the absolute best system that has ever been built to track educator credentialing. He personally has a background in imaging, dynamic query modules, dynamic reporting modules, dynamic mailings, step by step online wizards, online credentialing of educators, and web portals. Looking at the list of requirements, and looking at his resume, it is hard to imagine that anyone else could be better positioned to lead this project to success.

Dean has an appreciation for the frustration that users experience at the hands of unskilled, or poorly managed, programmers. Everyone has heard the term "dumb user". This phrase was invented by "dumb programmers" who forgot that that their job was to create interfaces that users can use and understand. If an interface is difficult to use properly, by definition it will generate support calls; and increase user frustration. Dean will personally monitor support calls and ensure that any support spikes are dealt with immediately. Screens generating support calls will be corrected immediately.
Dean has established himself as an extremely competent and highly motivated project manager, analyst, and programmer. His past and current work at ISBE and other states speaks for itself. Dean will take his approach to project design, development, and implementation, and ensure that every member of the team shares that vision so that ISBE can achieve its vision of a leadership position in the tracking of educator credentialing.
DEAN HUPP

Title: Project Manager

Education: Computer Sciences School
United State Marine Corps

WORK HISTORY — SUMMARY

Experience: 20 Years
Project Management
Object Oriented Analysis
Object Oriented Design
Object Oriented Development
Database Modeling
GUI Design
Application Maintenance
Technical Training
Structured Development
Desktop Development
Structured Analysis
Software Installation
General Design
Hardware Installation
Video Capture
Video Playback

Client/Server Design
Client/Server Development
Web Design
Web Development
User Documentation
Database Design
GUI Development
User Training
Technical Documentation
Technical Support
System Tracking
Software Configuration Management
Conceptual Design
SQL Administration
Web Portals Server Configuration
Video Encoding and Compression
Accounting

Applications: Cash Receipts System
ROE Accounting System
FRIS Reimbursement System
Online Teacher Information System
LRS Sport Digital Video Editing
OSDE Report Card

NRC Tracking System
MIDAS Accounting System
Teacher Certification System
Recruiting Tracking System
Diabetes Tracking System
Special Education Database System

Languages: Visual Basic .Net
ASP
HTML
XML
JavaScript
Visual Basic
Transact-SQL
FoxPro

C# .Net
ASP .Net
CSS
VBScript
DBase
C/C++
ANSI-SQL
              FoxPro
              Microsoft SQL Server 2000
              Microsoft Project
              Automating Outlook
              Visio
              Crystal Reports

Hardware: IBM PC or Compatible
          Network Servers

Systems: Windows 95/98/NT/2000/XP

WORK HISTORY — DETAIL

07/01 – Present
Hupp Information Technologies - Springfield, IL

Mississippi Department of Education – Jackson, MS

Served as the project manager for the Educator Licensure Management System. Responsibilities included the creation of design documents, conducting JAD meetings, and designing the entire ELMS system. Also, oversaw project work and implementation.

New Hampshire Department of Education – Concord, NH

Served as the project manager for the Educator Information System. Responsibilities included the creation of design documents, conducting JAD meetings, and designing the entire EiS system. Also, oversaw project work and implementation.

Oklahoma State Department of Education – Oklahoma City, OK

Served as the project manager for the Oklahoma Educator Credentialing System. Responsibilities included the creation of design documents, conducting JAD meetings, and designing the entire OECS system. Also, oversaw the support and maintenance phases of the OECS system in production.

Illinois State Board of Education – Springfield, IL

Designed, developed, and implemented the Online Teacher Information System which is an e-Commerce enabled web application. OTIS allows teachers to submit their teaching applications over the Internet, paying with a credit card. They can also register, renew, request duplicates, and request endorsement evaluations of the web. The system was written with ASP pages that use the step by step wizard metaphor.
Designed, developed, and implemented dynamic search screen for TCIS that allows users to query the database on their own.

Maintained and enhanced the TCIS application as required by users.

Oversaw the conversion of the TCIS system from 16 bit Visual Basic 4 to 32 bit Visual Basic 6. This conversion required a code review of every screen in the TCIS system. Following the conversion, maintained, enhanced, and supported the application.

Served as the project manager for the entire development cycle of the Special Education Database System. It is an online system that tracks all Due Process, Mediation, Complaints, and Focused Monitoring activity related to Special Education for the State of Illinois.

United States Military Academy – West Point, NY

Designed, developed, and implemented the Seeker Recruiting System. The software was built using Microsoft Visual Studio .Net 2003. The tools were Visual Basic .Net, ADO .Net, and ASP .Net. The software performs hundreds of mail merges every year to track the recruiting process for applicants to West Point.

05/96 - 06/01

Levi, Ray & Shoup, Inc. – Springfield, IL

LRS Product Development

Supervisor – Development, LRS Sports

Supervised the development of the LRS Sports Digital Video Editing line of products. Responsibilities included all aspects of application development from design and feature selection to implementation and support. We currently support over 200 customers across the United States 24 hours a day. During this period I created several custom OCX controls, integrated our system with the Matrox Digisuite Lx SDK (based on Microsoft DirectShow), provided technical sales assistance to the marketing staff, managed the support staff, and managed the programming staff.

06/96 - 06/00

Senior Applications Specialist / Team Leader, LRS Sports

Analyzed, designed, and developed the LRS Sports System. This application provides non-linear access to digitized video clips that have been categorized into a database. The code that communicates with the video capture boards is written in C/C++ while the interface is written in Visual Basic. Our back end database is MS Access for single station environments, and SQL Server for network installations. I also was responsible for the 24-hour support of these customers.
08/01 - 05/96  Levi, Ray & Shoup, Inc. - Springfield, IL  
Springfield Consulting Practice  
Senior Consultant  
Performed a variety of application design and development activities as an information technology consultant for various company clients.

04/95 - 05/96  Illinois State Board of Education - Springfield, IL  
Analyzed, designed, and developed the Regional Office Of Education Accounting System. This system provides basic accounting functionality to Regional Offices of Education.

11/94 - 05/95  Illinois State Board of Education - Springfield, IL  
Analyzed, designed, and developed the Cash Receipts System. This system credits the MIDAS and FRIS systems when OSDE receives refunds.

09/92 - 12/95  Southern Illinois University, School of Medicine  
Analyzed, designed, and developed systems in Foxpro and Visual Basic to assist in Diabetic Research. The systems encompass clinical workflow tracking and the manipulation of data for complex statistical analysis.

02/94 - 11/94  Illinois State Board of Education - Springfield, IL  
Participated on the project team producing the Financial Reimbursement System for the State Board of Education. This system tracks payments to all school districts in the State of Illinois.

07/93 - 12/93  Illinois State Board of Education - Springfield, IL  
Participated on the project team producing the State Board of Education MIDAS Accounting System. This system handles Requests, Obligations, and Vouchering.

07/92 - 01/93  Illinois Power Company - Clinton, IL  
Designed, developed, tested, and implemented Foxpro applications to track payments made to the Nuclear Regulatory Commission, to track the micro-computer inventory at the Clinton power station, and to support miscellaneous accounting functions.

Developed and presented a Windows training class to a group of user department liaisons. Installed and configured micro-computer hardware and software and provided user training. Provided "help desk" support for the micro-computer users. Had a high degree of user contact ranging from clerical level staff to technical engineering staff.
09/92 - 10/92  Illinois State Board of Education - Springfield, IL

Participated on the project team producing Report Cards for all Illinois school districts. Responsibilities included importing SQL/Server data files into Excel worksheets and reformatting the data for presentation in charts, graphs, and tables.

06/92 - 09/94  Illinois Dept of Commerce and Community Affairs - Springfield, IL

Modified, tested, and implemented the Foxpro application that tracks Federal Bid Leads for Illinois businesses. Trained end-user staff and information systems development support staff on the use of the system.

06/92 - 07/93  Teacher's Retirement System - Springfield, IL

Modified, tested, and implemented the addition of new accounting codes to the TRS Accounting system using Clipper.

08/91 - 04/92  Illinois Power Company - Clinton, IL

Designed, developed, tested, and implemented Clipper applications in support of the Maintenance Department and the Security Department. Prepared technical documentation as well as user documentation for the applications and conducted user training.

Installed and configured micro-computer hardware and software and provided user training. Provided "help desk" support for the micro-computer users. Had a high degree of user contact ranging from clerical level staff to technical engineering staff. Evaluated and recommended micro-computer hardware and software based on various needs of the departmental users. Contacted vendors as part of the procurement process.

10/87 – 09/91  United States Marine Corps

Developed and implemented dBase and Clipper applications for the Officer Assignments Department as well as the Reserve Assignments Department. Prepared user documentation and conducted user training for these applications.

Supported micro-computer software users.

Developed and maintained on-line Worldwide Locator System using Software AG's Natural 4GL on the mainframe.
Brian Decker

Object Specialist

Brian Decker has over 16 years of experience in the IT industry. He has also worked on numerous projects for the Illinois State Board of Education. His list of application includes the Cash Receipts System, Regional Accounting System, Workshop In-Service Training System, and currently, the Special Education Database System. Prior to the SEDS system he was working on the Teacher’s Retirement System (TRS) where he had taken a leadership position on the TRS Star development team. Brian is our Object Specialist that designed the object model for the HIT-LS product. He is heavily involved in the customization phase to ensure team members are implementing the customizations correctly.

Brian specializes in object design and creation. He is currently assisting the SEDS team with their object design and implementation. This initiative is using Visual Studio .Net 2005 with Visual Basic .Net as the language, ASP .Net 2.0 at the web technology, and ADO .Net 2.0 as the database access methodology. Brian is assisting them with the object design for the system to ensure that it is easily maintainable over time.

Object design and implementation is a delicate balance, too many objects with too many interfaces and the maintenance of the system actually becomes more complex, too few objects with too few interfaces and the project ends up with redundant code sprinkled throughout. The ELIS project will benefit greatly from his analysis and design skills relating to objects. Brian will be responsible for the overall component design of the system, ensuring that is achieves that delicate balance. When he starts designing the ELIS objects he will draw on his extensive background on the subject. Brian will also ensure team members are customizing the existing objects properly.

While working for PensionGold, he was the solely responsible for the object design of the PensionGold project. That project had over one million lines of code and was billed as a completely user customizable tool set. A governmental defined benefit plan would purchase the software and then programmers could change the functioning of the entire system by overriding and changing the classes that created system objects. Brian learned a great deal about what works well, and what does not work well. This knowledge will benefit the new ELIS system by making it more straightforward to maintain after all the development work has been completed. The well crafted object structure will also lend itself to new modules. The project will achieve greater code reuse over more traditional development models, and less experienced object model designers.

Brian has worked closely with the other team members on several projects. They have an exceptional working relationship, which will strengthen the teams’ commitment to implement Brian’s vision. Brian will be assisting in JAD session when necessary and will responsible for producing the systems’ Object Design Document.

Brian’s professionalism and expertise will greatly enhance the projects deliverables. The ELIS project team is significantly strengthened by his unique skills and background.
BRIAN DECKER

Title: Object Specialist

Education: M.S., Computer Science
University of Illinois at Springfield
B.S., Electronics Management
Southern Illinois University at Carbondale

WORK HISTORY — SUMMARY

Experience:
- 12 Years
- Project Management
- Client/Server Design
- Client/Server Development
- Object Oriented Analysis
- Web Design
- Object Oriented Design
- Web Development
- Object Oriented Development
- User Documentation
- Database Modeling
- Database Design
- GUI Design
- GUI Development
- Application Maintenance
- User Training
- Technical Training
- Technical Documentation
- Structured Development
- Technical Support
- System Tracking
- Desktop Development
- Software Configuration Management
- Structured Analysis
- Conceptual Design
- Software Installation
- SQL Administration
- General Design
- Integration Architecture
- Hardware Installation
- Server Configuration
- Web Portals
- Web Administration Systems
- Integration Messaging Protocols
- Workshop In-Service Training

Applications:
- Cash Receipts System
- PensionGold
- ROE Accounting System
- PensionGold Web Member Services
- PensionGold Client/Server
- PensionGold Forum
- Distributed Parallel Architecture
- TRS Star
- TRS Web Reciprocal System

Languages:
- Visual Basic .Net
- C# .Net
- ASP
- ASP .Net
- HTML
- CSS
- XML
- XSL/XSLT
- VBScript
- JavaScript
- Visual Basic
- C/C++
- Object Pascal
- DBase
Software: Visual Studio .Net  
Visual Studio
Delphi  
FoxPro
C++ Builder  
Access
Microsoft SQL Server  
Oracle
Rational Rose  
Erwin
Visual SourceSafe  
StarTeam
XML Spy  
Allaire HomeSite
FrontPage  
Microsoft Project

Hardware: IBM PC or Compatible  
Network Servers

Systems: Windows 95/98/NT/2000/XP  
Linux

Work History — Detail

09/01 – Present  
Hupp Information Technology – Springfield, IL

Consulting Manager
Perform a variety of duties including; project management, client account management, proposal preparation and application design and development.

eGrants System - Springfield, IL
Participated as the primary project manager and object designer of the eGrants system. He also assisted team members in resolving difficult technical issues. His knowledge and broad background in technology was a huge benefit to the eGrants system.

HIT-LS - Springfield, IL
Designed the object structure of the HiT-LS credentialing system. He works with development teams during the customization phase to ensure they are customizing the base code properly. He is very involved in the customization process and is in frequent contact with implementation teams.

Special Education Database System - Springfield, IL
Participated as the primary object designer of the Special Education Database System. He also assisted team members in resolving difficult technical issues. His knowledge and broad background in technology was a huge benefit to the SEDS system.

Teachers Retirement System - Springfield, IL
Participated as a software developer for TRS Star. TRS Star is a Client/Server application written with Microsoft Visual Basic, Microsoft SQL Server and Crystal Reports. My duties include the development of various accounting, payroll, claim benefit and benefit estimate related interfaces and batch processes.
Teachers Retirement System - Springfield, IL
Participated as the project manager and system architect for TRS Web Reciprocal eServices. TRS Web Reciprocal eServices is an Internet application written utilizing HTML, ASP, Microsoft Visual Basic and Microsoft SQL Server. My duties included project tracking and management, and system analysis and design.

08/96 – 09/01
PensionGold Div. - Levi, Ray & Shoup, Inc. – Springfield, IL
Sr. Application Specialist
Participated as a lead technical member of the PensionGold Product Development Team. Performed a variety of duties including: research and design of architectural and business enhancements to the base product, research and design of Intranet and Internet applications, acting as technical consultant to custom PensionGold projects, acting as technical consultant to custom PensionGold projects implemented by a third party, implementing and maintaining product version control, implementing base changes and enhancements, Intranet and Internet application development, maintaining the methodology and guidelines for development and performing internal software package selections.

PensionGold Forum – Springfield, IL
Participated in the research, design and development of the PensionGold Forum. The PensionGold Forum is an Internet newsgroup application that retrieves and stores threaded topics in a common repository (Starteam Virtual Team Server by Starbase Corporation). The PensionGold Forum was written utilizing HTML, ASP, VBScript, JavaScript, XML and XSLT.

PensionGold Employee Portal – Springfield, IL
Participated in the research, design and development of the PensionGold Employee Portal. The PensionGold Employee Portal is an Intranet application used to gather information from disparate sources and publish it on the intranet for our employees as an information resource. The PensionGold Employee Portal was written utilizing HTML, ASP, VBScript and JavaScript. This application was written to store and retrieve its data from SQL Server using ADO.

PensionGold Web Member Services – Springfield, IL
Participated in the design and development of PensionGold Web Member Services. PensionGold Web Member Services is an Internet application that provides members and benefit recipients up to date information on account status and balances. PensionGold Web Member Services was written utilizing HTML, JavaScript and CGI executables created in Delphi. This application was written to be able to store and retrieve data from SQL Server or Oracle using ODBC.

Connecticut Teachers Retirement Board – Hartford, CT
Participated as the lead technical consultant to KPMG during the customization and implementation of PensionGold for the Connecticut Teachers Retirement Board. KPMG was hired by the Connecticut Teachers Retirement Board to implement the PensionGold product. Performed development team training and
mentoring, validated requirements and design, answered questions about the design of PensionGold and responded to questions regarding development issues throughout the customization process.

City of San Jose Retirement System - San Jose, CA
Participated in the customization of base PensionGold Client/Server system to fit the needs of the City of San Jose Federated City Employees Retirement System and the Police and Fire Department Retirement Plan. Main area of focus is the design and implementation of the benefit payroll subsystem.

PensionGold Base Product - Springfield, IL
Participated in the object-oriented analysis, design and development of the PensionGold Client/Server base product using Delphi, Rational Rose and Erwin/ERX. Designed Delphi components and COM business objects to create a logical multi-tier product environment.

Kansas City Missouri Employees' Retirement System - Kansas City, MO
Participated in customization of the base PensionGold system to fit the needs of the Kansas City Missouri Employees' Retirement System. Main area of focus was the disbursement module design.

San Mateo County Employees' Retirement Association - San Mateo, CA
Participated in customization of the base PensionGold system to fit the needs of the San Mateo County Employees' Retirement Association. Main areas of focus included the disbursement and security modules design.

08/98 - 05/00
Masters Project
Distributed Parallel Transaction Architecture
Designed and developed the Distributed Parallel Transaction Architecture (DPTA). DPTA was designed and developed to create a cluster by taking advantage of idle CPU cycles on low cost Windows NT machines. DPTA performs work in parallel by breaking up the data and distributing it along with work objects across the cluster. The DPTA was developed using Delphi for the development of the cluster server, cluster nodes and work objects.

03/95 - 08/96
IT Solutions Div. – Levi, Ray & Shoup, Inc. – Springfield, IL
Consultant
Performed a variety of application design and development activities as an information technology consultant for various company clients.

Regional Office of Education - Springfield, IL
Participated in implementing the reporting, budgeting, expenditure and security modules for the Regional Offices of Education (ROE) Accounting System. The ROE Accounting System is a Client/Server application written with Microsoft Visual Basic, Microsoft SQL Server and Crystal Reports. My duties include the analysis, design and construction of the user interfaces for the reporting, budgeting, expenditure and security modules.
Regional Office of Education - Springfield, IL

Participated as Lead Programmer on a team responsible for the analysis, design and implementation of the Workshop In-Service Training System (WITS). WITS is a Client/Server application written with Microsoft Visual Basic, Microsoft SQL Server, Crystal Reports, and Microsoft Word. WITS is designed to track teacher training in the Illinois Administrators Academy Program. WITS is designed to connect 45 Regional Office sites throughout Illinois together via a Frame Relay Network. My duties include analysis and design as well as user training and pilot site implementation.

Illinois State Board of Education - Springfield, IL

Participated as a Programmer on the Illinois State Board of Education’s Cash Receipt System. My duties included the design, construction and implementation of the Receipt Deposit Transmittal Module of the System. The system was created using Microsoft Visual Basic, Microsoft SQL Server, and Crystal Reports.

01/96 - 12/96
University of Illinois at Springfield - Springfield, IL

Instructor

Duties included the development, preparation and teaching of a Visual Basic Client/Server class. This class is designed to prepare students for real-world application development by teaching them the programming fundamentals behind Client/Server development. Development tools used are Microsoft Visual Basic and Microsoft SQL Server.

08/92 - 02/95
Optical Image Network Group - Springfield, IL

Senior Technician

Duties included hardware and software consultation, network design and implementation, document imaging consultation, network cabling and software installation, personal computer maintenance and construction, purchasing hardware and software, and customer support.

07/89 - 07/92
Beta Raven Inc. – St. Louis, MO

Field Service Engineer

Duties included overseeing the installation of personal computer based industrial control equipment and networks, instructing personnel on the proper use of this equipment, designing equipment to fit the customers needs, maintaining in-house sales and customer support.
E.1.2.4 - Mike Penny

Team Leader

As an I.T. professional for over the last decade Mike Penny has shown the technical aptitude, motivation and expertise to get projects done. From small projects to enterprise solutions Mike Penny demonstrates an ability to succeed at every level of the development life cycle from planning, design, implementation, training, maintenance and support. He has an excellent sense of design and takes a lot of pride in creating easy to understand well laid out presentations, making confusing processes easy and intuitive for the end user. It is this end user focus that makes Mike the perfect person to lead other developers to create well organized and intuitive systems.

One of the biggest challenges in large organizations is sharing and incorporating information across systems. With the Oklahoma Highly Qualified Teachers system, Mike accomplished just this; by setting up data replication across servers and systems effectively joining teacher certification, school personnel records and accreditation data to instantly calculate Highly Qualified Statistics to meet federal No Child Left Behind standards. By utilizing up to date web technologies, and implementing user interface standards into each one of these systems, Mike has systematically redefined the way the State Department of Education does business on a daily basis for administrators and educators alike.
MICHAEL PENNY

Title:  Team Leader - Senior Developer

Education:  THE UNIVERSITY OF OKLAHOMA – Norman, OK
Bachelor of Business Administration, College of Business
Management Information Systems = May 2000
Course work included: Database Design, Management, System Design and Analysis,
Infrastructure, Telecommunications, Market Analysis, Economics, Accounting,
Information Systems Theory and Practicum.

WORK HISTORY — SUMMARY

Experience:  12 Years
Project Management
Object Oriented Analysis
Object Oriented Design
Object Oriented Development
Database Modeling
GUI Design
Application Maintenance
Technical Training
Structured Development
Desktop Development
Structured Analysis
Software Installation
SQL Administration
Hardware Installation
Client/Server Design
Client/Server Development
Web Design
Web Development
Web Services
Database Design
GUI Development
User Training
Technical Documentation
Technical Support
System Tracking
Software Configuration Management
Conceptual Design
Accounting
Web Portals Server Configuration

Applications:  OCAS – Oklahoma Cost Accounting System
OECS – Oklahoma Educator Credentialing System
HQT – Oklahoma Highly Qualified Teacher Application
Oklahoma Accreditation Application
DANTES high stakes aviation testing application
Oklahoma Transport Authority Online Bid System
ABLE Commission
Choice Docs – Online Medical Billing System
Superfrac – Oilfield Data Acquisition System

Languages:  Visual Basic .Net
Classic ASP
HTML
XML
JavaScript
C# .Net
ASP .Net
CSS
VBScript
AJAX
Visual Basic 6.0
Java

Software:
MS Reporting Services (2005-2008)
Access
Adobe Creative Suite 4
Dreamweaver MX
Photoshop
MS Office
Google Apps

Transact-SQL
SQL Server Management Studio (2000-2008)
Microsoft SQL Server 2000-2008
Visual SourceSafe 6.0
Flash MX
Fireworks
Paint .NET
Remote Desktop

Hardware:
IBM PC or Compatible
Peripheral Integration (Scanners)

Network Servers

Platforms:
Windows 2000/XP/Vista/7/Server 2000 - 2008

WORK HISTORY — DETAIL

04/2007 – Present
Hupp Information Technologies – Oklahoma City, OK
Team Leader - Senior Developer

Oklahoma Cost Accounting System

Currently the team leader for the Oklahoma Cost Accounting System rewrite. Responsibilities included the creation of design documents, conducting RAD meetings, and redesigning the entire OCAS system from a mainframe application to a .net web application. OCAS is responsible for collecting all districts year end financial data and is critical to the OSDE. Over saw and participated in all aspects of system development from database and interface design to implementation and maintaining all levels of the system including high level support for end users and administrators.

Oklahoma Educator Credentialing System

Currently as the Senior Developer for the Oklahoma Educator Credentialing System responsibilities stretch through all phases of the project’s lifecycle from planning, analysis, development, implementation, support and maintenance. Authored all scanning and document management modules for the system, as well as other core elements. Works as the primary point of contact for all state department staff for all maintenance issues as they arise. Provide top level support for all users from administrators to educators.

Highly Qualified Teacher System
Served as a senior developer for the Highly Qualified Teacher System. The system represents the first true integration of several divisions at the OSDE. By pulling data from Certification, School Personnel Records and Accreditation we developed a real time system to determine educator Highly Qualified status to meet federal No Child left behind standards. Responsibilities included implementing, developing, and supporting all levels of the application from teacher questions to federal reports.

**Accreditation Application**

Served as the Senior Developer for the Accreditation Application putting all aspects of their office into an online web application. As a yearly data collection

06/05 – 04/07

Federal Aviation Administration – Oklahoma City

Systems Analyst / Programmer III

L-3 Titan

**Designee Oral Test Generator**

Worked as sole developer, designer on Oral and Practical Test Generator web application including database design in SQL 2005, web pages in C# ASP.net 2.0 and all stored procedures. Test were created in pdf format and saved in SQL for later. Also developed a single sign-on authentication application written in C# Asp.net 2.0 that utilized active directory for membership and passwords as well as a SQL database for roles and profile data. Designed authentication and user management web application to be extensible for use with new and existing FAA web applications.

**DANTES high stakes testing application**

Worked as a Systems Analyst Programmer on the DANTES high stakes testing application. Tests are delivered via a Linux based bootable CD (based on Knoppix) that loads a java jar file via tomcat server. Questions are created in a vb6 application and stored in SQL Server 2000. Responsible for adapting system for international changes including debugging, testing, and coding Java and VB6 elements, supporting and maintaining all levels of the system including high level support for end users and administrators. Set up a testing environment with a tomcat server, SQL Server database, and Linux mandrake test station.

**Proctor Administration Website**

Redesigned Proctor Administration classic asp website and created several help content pages, including tracking downloads of required software. Adapted site for international requirements interfacing with stored procedures in SQL Server 2000.

**Overview**
Promoted from a Systems Analyst / Programmer level 1 to level 3 in less then 6 months due to high technical abilities and demonstrated performance.

12/03 – 05/05  Independent Contractor – Norman, OK

**Oklahoma Transport Authority - Online Bid System**

Worked as sole developer on an online bid contract system for public contractors to bid on OTA maintenance, engineering and technical contracts. System is being developed solely in Visual Studio.net from the Sql Server database and C# ASP.net pages as well as Visual Source Safe. System includes user authentication, as well as a management suite for uploading and amending documents.

Regression Testing Project – Responsible for large portions of regression testing of current CSC web application which accounts for all aspects of the OTA business functions. My job is to log reporting errors, perform SQL injections, and run scripts in attempt to discover any possible errors in the application.

**ASP Programmer**

ABLE Commission – As a consultant I analyzed all levels of current infrastructure, made recommendations, and assisted staff implement changes. Recommendations included Network upgrades, financial system, and computer Upgrades. Designed, built and did the requirements gathering for their website.

Remote Projects- Completed contracts converting many classic asp pages to **ASP.net** in C# for [www.exigo.com](http://www.exigo.com). Used custom controls to speed development as well as eliminate stored procedures by implementing parameterized **SQL server** queries inside a one page model for the pages, per Exigo's standards. All work was completed via remote desktop connection.

Stellar Star Programming - Redesigned and implemented website for [www.icm.bz](http://www.icm.bz), including requirement gathering.

Redesign and implementation of [www.deckworks.com](http://www.deckworks.com) website.
E.1.2.5 - Bob Archer

Programmer/Analyst

Bob Archer has over 15 years of paid experience in the IT industry. He has a diverse technical background ranging from client and end user support to developing large web applications from concept to delivery. His attention to detail and strong work ethic have proven he is a valuable asset to any project.

Bob's experience with large applications and systems ensures he is capable of working successfully on all stages of a project life cycle including concept, design, requirement gathering, coding, client feedback and input and delivery of the final product.

Bob's strongest skills are web application development and database design and development. However, he also has experience supporting applications and computer systems. His experience includes help desk support, onsite technical support, and working as a Senior Network Engineer supporting a global Windows NT wide area network and its users.

Bob focuses on producing clean, efficient code using industry standards and best practices. His database design is clean and straightforward resulting in fast, efficient and easy to use applications. He has been tasked in the past to redesign very large databases that had become nearly unusable due to poor naming conventions, poor design and missing or improperly used indexes and constraints. He has rewritten hundreds of store procedures to standardize them and make them easy to read, decipher and maintain.

Bob produces systems with consideration given to future maintenance and growth. Standards and conventions are followed throughout the system. His systems are designed to be easy to work on by other developers and are designed to easily allow future expansion.
BOB ARCHER

Title: Application Developer / Database Administrator

Education: Associate degree / Technology emphasis

WORK HISTORY — SUMMARY

Experience:
- 15+ Years
- Web Application Development
- Web Application Design
- Web Application Rewrites
- End User Support
- Help Desk Support
- Onsite Support / Traveling to client location.
- Operating System installation / upgrades
- Desktop application installation / upgrades
- Hardware installation / upgrades
- User Documentation
- User Training

Applications:
- Learning Management System (LMS) for the Federal Aviation Administration (FAA)
- Learning Management System (LMS) for the Transportation Safety Institute (TSI)
- Web based testing system for FAA applicants and students.
- Trouble Ticket / Feature Request / Issue tracking web application for the FAA.
- Airmen and Aircraft data warehouse applications for the FAA.
- Cost and Accounting web application for the Oklahoma Dept of Education.

Languages:
- Visual Basic .Net
- C# .Net
- ASP .Net WebForms
- ASP.NET MVC
- HTML
- CSS
- PERL
- PHP
- JavaScript
- Transact-SQL
- Java
Software: Microsoft Visual Studio 2010 and earlier  
Microsoft Server 2008 and earlier  
Microsoft Office  
Image editing software, Photoshop, etc.  
JavaScript libraries, jQuery, etc.  
Various email systems  
Microsoft Windows 7 and earlier  
Microsoft SQL Server 2008 and earlier  
Subversion and other source control apps  
Performance monitoring / evaluation tools  
SQL Server Management Studio  
Various FTP applications

Hardware: IBM PC or Compatible  
Network Servers

Systems: Windows desktop OS 7 and earlier  
Windows Server OS 2008 and earlier

Certifications: MS Certified Professional Web Developer, VS2005 (MCPD)  
MS .Net Framework 2.0 Web Applications (MCTS)  
MS .Net 2.0 Web Based Development (MCP)  
MSSQL Server 2005 - Implementation and Maintenance (MCTS)  
Windows 2003 Server (MCP)  
Windows XP Professional (MCP)  
Windows 2000 Professional (MCP)  
CompTia A+

WORK HISTORY — DETAIL

12/10 – Present  
Hupp Information Technologies - Springfield, IL

Oklahoma State Department of Education – Oklahoma City, OK

Built the Oklahoma Cost and Accounting System (OCAS) transparency web site to meet the requirements of recently enacted state legislation. This site provides site, district and state level accounting details.

Part of team developing the replacement OCAS application. This involves moving the application from mainframe based to web based. This application ranges from allowing all districts to upload their accounting data to validating the uploaded data and aggregating the data into reports used by administrators at the Oklahoma State Dept of Education. The new application is written in Microsoft ASP.NET using VB.Net 2008 and Microsoft SQL Server 2008. Bob is also responsible for the database design including tables and stored procedures.

07/07 - 12/10  
.Net Developer, L3 Communications and Lockheed Martin, Oklahoma City, OK

Contract work for the Federal Aviation Administration

Lead developer for the FAA’s Student Registration Website. The purpose of the site is to provide a complete toolset for input and management of FAA-sponsored courses and sections; the site also facilitates enrollment and online payment of the same courses and sections. The website is .NET 3.5, written in Visual Basic with a MSSQL backend. Responsible for managing the database. This included updating and creating new stored procedures, updating tables,
database optimization and improving the database design. Under Bob's direction, the website design improved significantly, making the user and administrator experience exceptionally enhanced. Also updated the code to a layered, object-oriented design in line with modern programming standards.

Completely overhauled the user experience. Implemented a single master page design to provide a consistent interface to the user. Worked towards providing a consistent look and feel across all pages of the site. Reduced the number of colors and styles used. Implemented .Net themes to apply a consistent style to complex controls such as gridviews.

Created web services to work with Ajax enhanced controls. Also used Ajax controls in the Microsoft Ajax Toolkit such as Collapsible Panels, Calendar Extender, Modal Popup and more. Also implemented JavaScript and jQuery tools to enhance the end-user experience.

06/02 - 7/07
Office Automation Specialist
L3 Communications and Lockheed Martin, Oklahoma City, OK
Contract work for the Federal Aviation Administration

Provided the support required to fully implement and maintain the FAA end-user infrastructure. Performed all required systems engineering, analytical and maintenance services to support end-user operating environments and applications software. Daily duties required application of detailed technical knowledge of FAA Flight Standards-specific and off the shelf software/hardware to identify, define and resolve problems in a fast-paced environment.

Responsible for coordinating, analyzing, troubleshooting and resolving all computer hardware/software/network issues for approximately 200 end users. Provided excellent customer service through personal customer attention and taking into account the customer's description of a computer problem when analyzing and resolving the problem. Installed, tested and configured an ever-growing number of diverse applications.

10/00 - 06/02
Senior Network Engineer, Advancia, Oklahoma City, OK
Contract work for the Federal Aviation Administration

Administered a large Windows 2000 Wide Area Network that included 6000+ users, 130+ Domain Controllers and 130+ SQL Servers with sites in every state and several locations around the world. Performed well as part of a 5-member team in situations that were often stressful, fast-paced and under intense pressure. The job required working closely with members of my own team as well as with many individuals and support groups within the FAA. Worked with outside companies such as Microsoft and Dell to resolve technical issues. Configured and supported network services such as DNS, WINS, DHCP, TCP/IP and related network issues. Configured, supported and maintained the Windows 2000 Active Directory structure for the domain including Active Directory user accounts, groups, machine accounts, sites, organizational units.
(OUs), replication and more. Installed, configured and maintained the Operating System and supporting software on equipment that was supported. Responsible for keeping the up time for all services as high as possible. This included replacing or repairing hardware and software as soon as possible, whether working with the vendor or personally visiting the affected office. Also included was monitoring the third-party network connections between sites and contacting the vendor as soon as disruptions were discovered. Automated the deployment of virus software for servers and clients within the domain; as well as managing this system and handling virus outbreaks. Primary role in the migration of the domain from Windows NT 4.0 to Windows 2000. Deployed and updated 130+ logon scripts. In addition, also supported end users who would call or email with domain related issues. This support included user accounts and passwords, logon scripts, viruses, servers, joining machines to the domain, helping the local computer specialist configure a file server, DNS, WINS, DHCP and more.

10/97 - 10/00

Computer Specialist, FG-334, Atlanta, GA

Employed as Computer Specialist supporting 50+ users in the Delta Airlines Certificate Management Office. Assisted users with all automation-related issues. Responsible for all networking, hardware and software within the office. Installed and supported the NetWare 3.12 local area network (LAN). Upgraded the office from a Novell Netware 3.12 LAN to a Windows 2000 LAN. Traveled to other FAA Southern Region Offices to assist the on-site Computer Specialist with server upgrades and replacements, client hardware and software upgrades and more.

Selected as the FAA Southern Region Staff Employee of the Year in 1998.

10/96 - 10/97

Help Desk Support, BTG Inc., Oklahoma City, OK

Contract work for the Federal Aviation Administration

Provided both on-site and telephone support to the FAA’s Computer Specialists. Supported the same hardware and software listed above in the description of my Computer Specialist position with the FAA. Tested applications for functionality and compatibility before they were deployed. Recognized for the ability and tenacity to resolve a variety of issues.
E.1.2.6 - Nicole Johnson

Trainer/Technical Writer

Our Trainer/Technical Writer, Nicole Johnson, has 2 years of experience in the IT industry. She has exceptional communication, incentive and organizational skills that help with the support and training aspect of Hupp Information Technologies.

Her attention to detail in designing documents has helped users from employees at the Oklahoma State Department of Education to Educators maintaining their Oklahoma teaching credentials and interested out of state applicants navigate the Oklahoma State Department of Education website, Oklahoma Educator Credentialing System and the Accreditation Application. As top tier support for the Oklahoma Educator Credentialing System and the Accreditation Application Nicole is the first to respond to support questions regarding users unable to navigate the systems. In cases when she is the last person they have been transferred to her extreme patience and amiable character help to ease frustration in walking each support call through wizard steps until the problem is solved. Taking note of every call and email regarding the system has helped in making screens easier to read and making the system as a whole more manageable.

Nicole's other role in Hupp Information Technologies is testing new programs. Her organizational skills and out of the box thinking are needed to find errors and help debug new systems, check the programs manageability and how to set up each user manual in a way that will best facilitate the system. This also helps with training Oklahoma State Department of Education employees so they know how to system works and are able to quickly gain confidence in using it day to day.
Nicole Johnson

Title: Trainer/Technical Writer
Education: General Studies

Work History – SUMMARY
Experience: 2 Years
User Documentation
Technical Documentation
Technical Support

Applications: Online Teacher Information System
Teacher Certification System

Software: Visual Studio 2005
Excel
Word

Work History – Detail

10/09 – Present Hupp Information Technologies – Oklahoma City, OK
File and maintain records, Answer phone calls to assist computer users
encountering problems, train employees and educators on Oklahoma Educator
Credentialing System and Accreditation Application, help programmers and
systems analysts test and debug new programs, design and update user
manuals for each specific user in the Oklahoma Educator Credentialing System
and the Accreditation Application, Update PDF applications on Oklahoma State
Department of Education website.

08/06 - 09/09 CVS/Pharmacy - Norman, OK
Retrieving prescription orders, translating and entering prescriptions in
pharmacy fill system, counting, pouring, measuring medications, creating
prescription labels, preparing and processing insurance claims, maintaining
patient profiles, answering pharmacy calls, maintaining up to date knowledge of
latest medicines and their availability, training new pharmacy assistants and
technicians.
E.1.2.7 - Project Team Conclusion

As you can see from the prior review of our background, Hupp Information Technologies is uniquely positioned to partner with the Illinois State Board of Education in their pursuit of a leading position in the handling of their teacher tracking and credentialing. No matter where you look you see a background filled with education experience. It is our specialty and our only focus. We know education. We know educator credentialing. We know how to bridge your goals and desires with our knowledge and background.

The team we are proposing has a background so extensive that it is impossible to imagine any could be stronger. We place an emphasis on programmers that can communicate with users, whether in person or on the phone. Our team members will always be understood when in conversation. Furthermore, our team is very strong in its total IT experience. Four of the team members have over ten years of experience each in the IT industry. This is truly a programming "Dream Team".

Our experience in work of a similar nature is not only similar, it is almost identical. Furthermore, our attitudes toward partnership and cooperation are unequaled in the industry. It is our firm belief that the Illinois State Board of Education is our partner in producing the new Educator Licensure Information System. Our project staff will leverage their vast experience to help our partner achieve their goals for certification. We look forward to that partnership, and eagerly await our chance to begin redefining how educator credentialing is handled in the state of Illinois.
E.1.3 - HIT Experience

Hupp Information Technologies has extensive experience in all areas that are being proposed for this RFSP. Throughout this proposal we have outlined our vision for the new ELIS system that is consistent with ISBE’s vision for the new ELIS system. In many areas we have identified additional functionality that will enhance the overall success of the solution. Some of the areas in which we have extensive experience are detailed in the following sections.

Experience with Certification Systems

All of our team members have extensive experience in the education community. The project manager, Dean Hupp, has extensive experience with the credentialing of Illinois, Oklahoma, Mississippi, and New Hampshire educators. This intricate knowledge of issues related to certification allows us to immediately be productive with absolutely no learning curve. Our company and employees have established a long successful history with several Departments of Education and look forward to leveraging this experience to assist the Illinois State Board of Education in creating an industry leading solution for the tracking and credentialing of its educators. All members of the proposed project team have worked on at least one certification project. The table below lists the team members and which states they have implemented HIT-LS.

Dean Hupp – Project Manager: Illinois, Oklahoma, New Hampshire, Mississippi, U.S. Virgin Islands  
Brian Decker – Object Specialist: Illinois, Oklahoma  
Mike Penny – Team Leader: Oklahoma, New Hampshire, Mississippi  
Nicole Johnson – Programmer: Illinois

Experience with Complex Enterprise Development

All members of our team have experience working on large complex enterprise wide systems with hundreds of users. Many of those systems were for the Illinois State Board of Education (ISBE), but we have extensive experience with other customers as well. Brian Decker worked on the TRS Star application with hundreds of users and over one million lines of code. The TRS Star system relies extensively on object oriented component architecture and has a printing component that manages all print jobs for the agency. We have created a recruiting package for the United States Military Academy (West Point) that automates the recruiting of cadets. It has an integrated dynamic query screen, dynamic report screen, and automated mailing.

Experience with .Net Technology

All of our employees have designed, developed, and implemented at least one .Net system. They have all used ADO .Net and Visual Basic .Net against a SQL Server 2000 database running on Windows 2000 Server. We have an object specialist that will ensure we use the highly object oriented environment to its full potential, ensuring easy maintenance for future programmers. All team members that are proposed in this RFSP have been using .Net technologies for many years.
Experience with Imaging

Dean Hupp, Brian Decker, Mike Penny, and Nicole Johnson have all worked with imaging systems. Dean has experience with the TCIS imaging system that the Illinois State Board of Education uses. Brian Decker has experience with the creation of the Special Education Database System scanning module for the Illinois State Board of Education. Mike Penny wrote the core scanning functionality used in New Hampshire, Mississippi, Oklahoma, and Illinois. This extensive background with multiple scanning implementations gives us great insight into the capabilities and requirements of scanning solutions. We are confident our existing scanning module will provide an innovative scanning solution that meets the needs of ISBE while conforming to existing hardware infrastructure. In the event that minor customizations are required to the scanning module, we will leverage our team’s expertise in this area to provide those customizations relatively inexpensively.

Experience with Dynamic Query and Reporting Functionality

Our company has experience building dynamic query screens for multiple customers. Our core HIT-LS functionality includes a dynamic query and reporting engine. It allows users to group and query multiple groups of disconnected data elements in addition to performing complex functions such as sorts or counts. Queries can be saved, loaded, made public, used as source data for reports, and even exported to other applications like Excel. The Dynamic Query technology has been installed in Oklahoma, Mississippi, and New Hampshire.

Experience with Automated Deficiency Statements

We have been automating the deficiency statements of Illinois educators for many years. We will leverage our experience and knowledge from Illinois, New Hampshire, Oklahoma, and Mississippi to ensure that Illinois’ automated deficiency system can track what documents are due for each application, allow evaluators to enter application deficiencies, track received documents against the remaining deficiencies, and ultimately issue the certificate when all deficiencies are removed.

Experience with Automated Test Result Imports

We have been working with the TCIS (Teacher Certification Information System) in Illinois for many years. We have also been working with the OECIS (Oklahoma Educator Credentialing System) in Oklahoma for several years. We will leverage our experience with the loading of test scores to completely automate the Illinois test result import process. We will implement the Test Import module with any required customizations ensuring that the system can automatically load test scores from a batch, allow manual correction to those scores if necessary, and issue certificates that have no remaining deficiencies. The batch importing of test scores has also been implemented in Mississippi and New Hampshire.

Experience with Automating the Entitlement Process (University Certificates)

Hupp Information Technologies’ staff worked with Illinois, Oklahoma, Mississippi, and New Hampshire staff to completely automate their handling of university issued certificates. The entire process was reduced from over eleven steps to three steps. We will work in partnership with Illinois to improve their university certification process so that little human interventions will be required.
Experience with Web Step by Step Wizard Interface Development

All of our team members have designed, developed, and implemented a web application for at least one client. All our team members have implemented multiple web applications. We have e-Commerce enabled several web solutions and have always focused on the usability of the interface as the most critical issue to web development. Putting an application on the web exposes a customer to an influx of support calls if that application is not properly designed. Our HIT-LS solutions have collected tens of thousands of applications for teaching certificates, and over 100,000 renewals.

Experience with web e-Commerce

All of our team members have worked on previous web systems that collect credit cards over the Internet. We are very familiar with how to properly handle declines, disconnections, and time outs. Our programmers know how to ensure transactions are voided if unexpected errors are encountered. The last thing Illinois wants is educators calling in saying they have been charged without their application being accepted. Our team will ensure the inevitable unexpected errors that sometimes occur with the Internet are handled gracefully. We will ensure that these cases do not result in a charge to the educator unless the application has been received.

Experience with Large State Wide Reporting Issues

Our team members have extensive experience in dissemination strategies for large scale data reports. Our project manager, Dean, has automated the reporting of highly qualified teacher information to the federal government. At TRS, Brian has worked on the printing component of TRS Star and the grant management system at the Illinois Department of Commerce and Economic Opportunity. In TRS all reports are queued through the printing component. It schedules the reports and then routes them to printers that are free. Hundreds of report and all the associated traffic are routed and printed every day using the report object. Our team has also completely automated Oklahoma's highly qualified reporting requirements. In addition to all these systems, our team members have implemented large state wide reporting with HIT-LS in New Hampshire, Mississippi, and Oklahoma.
HIT Education Solutions

Hupp Information Technologies is your "Solutions for Education" company. We specialize in the field of education automation. All of our consultants are working directly or indirectly for the education market. It is all we do. We have extensive experience in all the following areas of governmental education.

ELMS (Educator Licensure Management System)

This system handles all aspects of the certification process for Mississippi educators. Educators can apply for new certificates, renew existing certificates, request duplicate certificates, and update their demographic data. All Mississippi Department of Education functions that manage the credentialing process are also provided. HIT personnel wrote this entire system. It is a multirole phase implementation that is in maintenance and support.

EIS (Educator Information System)

This system handles all aspects of the certification process for New Hampshire educators. Educators can apply for new certificates, renew existing certificates, request duplicate certificates, and update their demographic data. All New Hampshire Department of Education functions that manage the credentialing process are also provided. HIT personnel wrote this entire system. It is a multiple phase implementation that is in entering the maintenance and support phase.

OECS (Oklahoma Educator Credentialing System)

This system handles all aspects of the certification process for Oklahoma educators. Educators can apply for new certificates, renew existing certificates, request duplicate certificates, and update their demographic data. All Oklahoma State Department of Education functions that manage the credentialing process are also provided. HIT personnel wrote this entire system. It is a multiple phase implementation that is in the maintenance and support phase.

OHQT (Oklahoma Highly Qualified Teacher System)

This system handles all aspects of the highly qualified process for Oklahoma teachers. It automates the methods of highly qualifying Oklahoma teachers such as HOUSSE applications, out of state testing, in state testing, degrees, and NBPTS credentials. This system also has an entire teacher assignment entry module that maps teacher assignments to highly qualified areas in real time. Highly qualified reports can be produced at any time. District and school users can see their teachers and whether they are highly qualified, not highly qualified, or pending approval.

VIHQT (Virgin Island Highly Qualified Teacher System)

This system handles all aspects of the highly qualified process for U.S. Virgin Island teachers. It automates the methods of highly qualifying U.S. Virgin Island teachers such as HOUSSE applications, out of state testing, in state testing, degrees, and NBPTS credentials. This system also has an entire teacher assignment entry module that maps teacher assignments to highly qualified areas in real time. Highly qualified reports can be produced at any time. District and
school users can see their teachers and whether they are highly qualified, not highly qualified, or pending approval.

**ECS (Educator Certification System)**

This system handles all online applications for Illinois' teachers. Teachers can apply for new certificates, renew existing certificates, request duplicate certificates, and update their demographic data. HIT personnel wrote this entire system.

**OTIS (Online Teacher Information System)**

This system handles all online applications for Illinois' teachers. Teachers can apply for new certificates, renew existing certificates, request duplicate certificates, and update their demographic data. HIT personnel wrote this entire system. It was upgraded with significant new functionality and renamed ECS (Educator Certification System).

**TCIS (Teacher Certification System)**

This system handles all certification needs for the state of Illinois. Its primary users are staff of the Illinois State Board of Education. We have been providing enhancements to this system for over seven years. In that time we have performed significant maintenance on all areas of the system. We have coded the registration and renewal module, the dynamic query module, and the graduate notifications from universities from scratch.

**CeRTS (Certificate Tracking System)**

This system handles professional development for Illinois' educators. We integrated OTIS and TCIS with this system and then replaced OTIS and CeRTS with the new ECS system.

**SEDS (Special Education Database System)**

This system handles due process, mediation, complaints, and focused monitoring activity for the Illinois State Board of Education Division of Special Education. It was written in its entirety by Hupp Information Technologies staff and has been in production for over a year.

**TSR (Teacher's Service Record)**

This system has been used in several other systems for integration purposes. Our staff have had to use data out of this system for almost all work performed at ISBE.

**CNS (Child Nutrition System)**

This system is responsible for reimbursing local school districts and other entities who participate in the various school lunch programs. Members of our staff were involved with the original development project and are now performing maintenance and are currently upgrading it to newer .Net technology.
MIDAS (Money and Disbursement Accounting System)

Several of our staff members were involved in the creation of the MIDAS system which handles all of the accounting tasks for the Illinois State Board of Education. This system integrates with the CMS (Central Management Services) accounting system to handle all money that comes in and out of ISBE.

FRIS (Financial Reimbursement System)

The FRIS system is responsible for disbursing all money to local school districts in Illinois. Several of our staff members were involved with the development of this system. This system integrates with the MIDAS system.

CRS (Cash Receipts System)

This system is responsible for tracking all cash received by the Illinois State Board of Education. It integrates with the MIDAS system to ensure the cash is tracked properly.

TRS Star (Teacher’s Retirement System)

This is a huge system that is used to track all information pertaining to retirement for Illinois’ educators. Several members of our proposed staff have authored and maintained several modules of this system. It is a huge system with over one million lines of code.

WOTS (Work Order Tracking System)

This system was written by our staff to track work orders received by the Illinois State Board of Education.

As you can see, our experience is far reaching in relation to the tasks governmental education organizations must perform. It is our intent to leverage this vast experience to partner with the Illinois State Board of Education in the creation of the nation’s best online teacher credentialing solution.
E.1.4 - HIT References

Reference 1:

Project: OECS – Oklahoma Educator Credentialing System
Supervisor: Jeff Smith
Title: Assistant Director Professional Standards
Phone: (405) 200-9984
Fax: Unknown
Email: jeff_smith@sde.state.ok.us
Project: Oklahoma certification system to track all educator information regarding certification.
Cost: $1.5 Million
Duration: 08/2006 – Present

Reference 2:

Project: ELMS – Educator Licensure Management System
Supervisor: Cindy Coon
Title: Bureau Director Office of Educator Licensure
Phone: (601) 359-3483
Fax: (601) 359-2778
Email: CCoon@mde.k12.ms.us
Project: Mississippi certification system to track all educator information regarding certification.
Cost: $900,000
Duration: 02/2009 – Present

Reference 3:

Project: EIS – Educator Information System
Supervisor: Mike Schwartz
Title: Project Manager
Phone: (603) 548-8898
Fax: Unknown
Email: MSchwartz@ed.state.nh.us
Project: New Hampshire certification system to track all educator information regarding certification.
Cost: $750,000
Duration: 06/2007 – Present
E.1.5 - ISBE Contracts

The following contracts were performed in a subcontracting role for the Board of Education. While we did not directly contract with the Board of Education, we assumed all responsibilities for satisfactorily performing all work required for successful completion of the contracts.

ISBE Contract #98 (PC Programmer/Analyst Position)
ISBE Contract #251 (PC Programmer/Analyst Position)
ISBE Contract #MY03217 (PC Programmer/Analyst Position)
ISBE FY03 Emergency Contract (PC Programmer/Analyst Position)
ISBE CNS Programmer
ISBE TCIS Maintenance Programmer

The following contracts were performed for the Board of Education directly.

ISBE SEDS Contract
ISBE SEDS Maintenance Contract #MY10711 (PC Programmer/Analyst Position)
ISBE Scanning Contract #MY10213 (PC Programmer/Analyst Position)
ISBE EDEN Contract #MY09213 and #MY09442 (PC Programmer/Analyst Position)
ISBE Early Childhood Contract #MY09442
ISBE Certification Support Contract #MY10711 (PC Programmer/Analyst Position)
E.2 - International Business Machines

Huppinformation Technologies
E.2.1 - IBM Organization

IBM, incorporated in the State of New York in 1911, is a widely held, publicly traded company listed on the New York Stock Exchange. Originally called the Computing Tabulating Recording Company, manufacturing products ranging from commercial scale and industrial time recording equipment to tabulators and punched cards, it was renamed International Business Machines (IBM) in 1924. Today, IBM, #20 on the Fortune 500 list reported 2009 revenues of $95.8 billion and employs approximately 400,000 people in 170 countries. For more information, please visit our Website at http://www.ibm.com.

Headed by Chairman and Chief Executive Officer, Sam Palmisano, IBM comprises five major business units: Global Services, Systems and Technology, Software, Research, and Global Financing. IBM is one of the world’s largest information technology services companies, consisting of the world’s largest business and technology services consultancy; hardware company and second largest software company; information technology financing company; and inventor, as measured by patents granted. The following graphic summarizes the strength of the corporation and each business unit.

A view of the depth and breadth of IBM business segments...

IBM Corporation
- World's premier IT company
- 400,000 employees
- Conducts business in 170 countries
- 2009 Revenue reported at $95.8 billion
- 2009 Research and Development investment was $5.5 billion
- 99 year business history

IBM Research, Responsible for invention of much of the technology underlying IBM products and services and the IT industry at large. Eight research labs around the world working in all areas of information technology, from physics and cognitive science to leading edge application research, inventing innovative materials and structures, using them to create exciting machine designs and architectures and tools and technologies that enable the continued evolution of computing and computing services over the network. Collaboration with other IBM divisions and IBM customers to bring about innovations.

IBM Hardware – Systems and Technology Group.
Provides all the physical devices in a computer system – including disk drives, displays, network connections and storage systems – refers to all the products that end-users buy, such as computers and peripherals. Offers servers of all sizes and storage systems to meet the needs of the largest networks. Advanced component technologies are key elements of IBM’s own products, but the company also sells components such as microprocessors, semiconductors, networking devices and hard drives to other technology companies. Impressive record of patents in this area.

IBM Global Services:
- World's leader in global technology and business services
- 2009 Revenue reported at $55.0 billion
- Largest division in IBM
- 2009 estimated backlog of $137 billion
- Clients include over 300 companies on the Fortune 500 list

IBM Global Services:
- Market-facing thinkers and integration experts - world's largest business and IT services provider and the leader in all three major segments of the IT industry. Consulting and systems integration, infrastructure services and strategic outsourcing includes:
  - Global Technology Services: infrastructure services, delivering value through our global scale, standardization, and automation - includes both Strategic Outsourcing and Business Transformation Outsourcing, Integrated Technology Services and Maintenance.
  - Global Business Services: professional services, delivering business value and innovation, to clients through solutions which leverage industry and business process expertise - includes consulting, systems integration, and application management services.

Figure 17: IBM Business Segments

In 1991, foreseeing new marketplace trends and changing client needs, IBM built IBM Global Services, with a mission to be the recognized leader in business and IT services. Today, IBM Global Services is the largest business and information technology services organization in the world, generating $55.0 billion of revenue in 2009. The acquisition of the consulting business of PricewaterhouseCoopers Consulting in
September 2002 further strengthened our capabilities in business consulting services. Global Services is a critical component of the company's strategy of providing IT infrastructure and business insight and solutions to our clients and is the leader in all three major segments of our industry: consulting and systems integration, infrastructure services, and strategic outsourcing.

Clients and industry analysts have acknowledged IBM's strong discipline and focus on sustained excellence in IT outsourcing. Recognition, which includes being noted repeatedly as a leader by key analysts, provides evidence that IBM has significant range of capabilities and executes with quality. Examples of our recognition are:

- IBM is among the first 20 companies worldwide to be assessed at CMM Level 5 and one of a few companies worldwide to be assessed at both PCMM Level 5 and CMMI Level 5.
- In 2009, for the 17th consecutive year, IBM received the most U.S. patents.
- IBM was rated a "Leader" (highest rating) in the Gartner 2009 "Magic Quadrant for Web Hosting and Hosted Cloud System Infrastructure Services (On Demand)"
- IBM was rated a "Strong Positive" (highest rating) in the Gartner "MarketScope for Storage Services, North America, 2009"

Our leadership as a services provider gives the Illinois State Board of Education sustained value and financial stability of a market leader.

Our services professionals work closely with IBM colleagues in multiple industry segments— research and development labs, including our signature Thomas J. Watson Research facility and thousands of quality business partners—to help our customers harness technology for competitive advantage. We leverage our capabilities and worldwide presence to offer customers a full spectrum of business and IT services.

The IBM Corporation employs over 390,000 individuals worldwide with over 200,000 of those working within our IBM Global Services business, the IBM business that is proposing this engagement for ISBE. As a worldwide organization, our “standard hours of operation” are 24 hours a day. We have employees on the job around the clock. For engagements such as this one, we conform our hours of operation to that of our client and would provide the Services outlined in this Proposal during normal business hours, 8:00 AM to 6:00 PM Central Time, Monday through Friday, except national holidays. If necessary, it is assumed that ISBE will provide after-hours access to ISBE facilities to IBM personnel. Likewise, out-of-town personnel may work hours other than those defined as normal business hours to accommodate their travel schedules and or to perform work associated with the deliverables outlined in this Proposal.

IBM Global Services

While the origins of the company are in technology products, IBM has undertaken a major transformation in the last 18 years moving from a hardware provider to a total solutions provider. Core to IBM’s transformation is the establishment of IBM Global Services (IGS), which provides a full suite of
consulting services. The establishment of IGS allows IBM to address a broad spectrum of client needs, providing total system solutions. IBM strengthened its services offerings through the acquisition of PricewaterhouseCoopers Consulting (PwCC). This acquisition has allowed IBM to expand its services and solutions offerings making them unparalleled in the marketplace, particularly in Public Sector consulting and more specifically in Education. Specifically, IBM has a dedicated national practice that focuses solely on developing and delivering comprehensive education solutions to K-12 school districts, state departments of education, and colleges and universities throughout the country. It is this National Education Practice which has been in place virtually from the start of the formation of IGS; supported by the larger IGS Global Services organization and all its capabilities and resources, which will be an integral component of the IBM team for ISBE.

IBM National Education Practice

IBM's National Education Practice is staffed by over 300 practitioners whose focus is developing and delivering comprehensive education and academic solutions. This practice is built around core competency areas, which provide the necessary capabilities and characteristics that are instrumental to a successful education solution project, such as the ELIS-ESR Web-based application solution outlined in this RFSP. Our key competency areas are listed below:

- Complex project management and deployment
- Student information systems
- Special education systems
- Financial/human resources systems
- Business intelligence and business analytics and optimization services (full lifecycle)
- Application Development (AD) development
- Content and Knowledge Management
- Communication systems
- Portal development
- Strategic technology master planning
- Information technology architecture / Organizational Analysis
- Network planning and design
- Curriculum and instructional services
- Professional development
- Transformation management
- Infrastructure services (design and installation)

IBM Application Innovation Services (AIS) Practice

In addition to the IBM National Practice, IBM is a global leader in Application Development and maintains a core competency in all aspects of enterprise architecture. This Application Innovation Services Practice operates on worldwide with over 4,500 skilled developer resources in over 25 countries. In the United States, we have over 1600 Enterprise Architect Consultants to draw upon for this engagement.
IBM has enjoyed significant success across many industries in all aspects of Application Development solution strategy, development and deployment.

IBM has worked with clients of diverse size across all industries in building enterprise application developments.

Independent analysts and market research findings confirm our leadership in this area. IBM is a recognized leader in the delivery of all aspects of successful Application development (AD) engagements – from the strategy/roadmap development through deployment. Gartner reaffirmed this very recently in their 2009 Magic Quadrant for Application Development Implementation Services (below left) as did a recent METAspectum report on market leaders in Enterprise Analytic Consulting Services (below right).
Gartner "Leaders" provide offerings that meet demand, as well as demonstrate the vision necessary to sustain their position as requirements evolve in the AD market. The hallmark of leaders is that they focus on and invest in their offerings to the point that they lead the market and can affect its overall direction. As a result, leaders can become the vendors to watch as you try to understand how new offerings might evolve. Leaders typically possess a satisfied customer base and enjoy high visibility within the market. Their size and financial strength enable them to remain viable in a challenging economy. Leaders typically respond to a wide market audience by supporting broad market requirements, including delivering across all levels of the AD framework. As a recognized industry leader, IBM is assured a firm who has done this work before and not one that is undertaking application modernization project for the first time.
E.2.2 - IBM Resumes

Hupp Information Technologies
E.2.2.1 - Howard Hammel

Howard Hammel

Professional experience

Profile

Mr. Hammel is a Certified Consulting I/T Specialist with IBM Global Services' eBusiness Information Solutions Application Development Practice. He has 30 years experience in the computer industry as a design engineer, project manager, and systems engineer and analyst. Mr. Hammel has worked with Fortune 500 manufacturers and distributors, the insurance industry, and with local, state, and federal government agencies.

He has extensive project management skills and technical knowledge in most facets of the computer industry, including application development, systems software, mainframes, workstations, and networks. The candidate's specific expertise is in project management and system testing.

Career History

IBM Springfield, Illinois, USA

Global Business Services Certified IT Consultant Application Testing and QA Business Analyst

Mr. Hammel translates client requirements into technical requirements and recommends a total IT solution. This role documents and analyzes requirements from a business perspective, defines current and future operational scenarios (processes, models, use cases, plans, and solutions), and works with the client and the IT Architect to ensure proper translation of business requirements to IT solution requirements.

Assignment History

State Board of Education Student Information System Project

Project Manager

Mr. Hammel was responsible for the development and deployment of an integrated student information system throughout the state. The system assigned a unique student identifier to all students, collected demographic, performance, and program participation data for each student, tracked students from school to school and district to district within the state, and provided timely and accurate reporting of information and data through standardized reporting capabilities. This was a seven-year project involving over two million students, 880 school districts, 45 regional offices of education, and over 4,000 schools. One thousand and six hundred school district representatives were trained on the use of the system in sessions held throughout the state. The Student Information System was developed to meet the "No Child Left Behind" federal mandate.

State Board of Education Agency

Project Executive

Mr. Hammel established a project office environment that included State Board of Education project managers and third-party vendor project managers. The environment provided the overall coordination and support structure to prioritize, plan, and manage two projects, an E-Report Card and an e-Grants Management System. He has implemented project management practices and procedures based on IBM's World Wide Project Management Methodology (WWPMM), which establishes uniform and consistent project management procedures. In addition, Mr. Hammel also developed a reporting and communications system so that all
appropriate stakeholder communications took place in an organized and consistent manner.

Large Insurance Company, North America

Test Coordinator – Mutual Funds Project

The project’s objective was to develop a system to transfer information from a third-party mutual funds processing company and update the insurance company’s master file with this data. The project was completed on time and was considered a success by all parties involved. Based on the success of the project, additional phases were added which enabled the mutual fund customers to view their information on-line.

Large Insurance Company, North America

Project Planner and Test Coordinator – Security Project

The project’s objective was to develop security requirements and build a security framework and common security components that could be used in insurance applications throughout the company. The project included security requirements for all platforms such as: workstation, mid-tier, and mainframe. Mr. Hammel developed the project plans and cost estimates for seven statements of work, costing from $500,000 to $4,000,000, using IBM Method and MS Project. The common security components that were tested included security framework, common authorization adapter, and common audit logging. As Test Coordinator, he led a team of 10 subcontractors and client employees through the testing process.

Large International Paper Company

Mr. Hammel coordinated user acceptance testing and deployment of the final projects for a large international paper company’s sales order management system. This included mill scheduling, order forecasting, inventory replenishment, and centralized invoicing.

Large State Government Conversion Project

Application Conversion and Test Coordinator

Mr. Hammel managed all application conversion tasks. State government agency personnel created application test cases for unit and system testing, comprised of approximately 2,500 total test cases and covering 44 total applications. He has reviewed test cases and instructed the subcontractor to convert applications and run unit and system test cases. Results were returned to the State for review. Mr. Hammel also coordinated the activities of the State application programmers and end users to complete User Acceptance Testing, and put code in production.

Multi-billion-Dollar Computer Development Project

Mr. Hammel supervised a team of eight engineers in developing overall power, thermal, and environmental testing plan as part of a multi-billion dollar computer development project. These plans were developed to ensure functional requirements were met, product could be manufactured worldwide in large quantities, and that a quality product would be produced. The final computer was successfully tested and manufactured in the United States, France, and Japan.

Fifth Largest Child Financial Support System

Project Leader

Serving as Project Leader, Mr. Hammel directed system test, configuration management, and quality assurance in the transfer of a child enforcement support application for the fifth largest child financial support system in the
country. This multi-year project resulted in enhanced child support collections in the state as well as compliance with federal requirements.

Manufacturing Company

Project Manager

Mr. Hammel managed a project at a manufacturing company that implemented system-managed storage across the entire company's host databases (MVS/ESA, IMS, CICS, and VSAM). Over 100 database files were converted during the project. The project team included IBM consultants and client personnel and was successfully completed in eight months.

International Business Forms Company

Project Manager

Mr. Hammel managed a project at an international business forms company to determine functional requirements to increase sales representative's productivity. He developed an 800 telephone service and streamlined order processing for four divisions and 30 plants. He has also coordinated efforts between multiple parties including two third-party consulting firms, IBM, and client personnel. In addition, annual sales were projected to increase by $76 million as a direct result of increased productivity.

Lighting Manufacturer

Mr. Hammel performed a detailed plant shop floor requirements study for a lighting manufacturer. The client had a centralized manufacturing reporting system that supported 10 plant locations. This study determined the requirements needed to operate multiple manufacturing sites and resulted in implementation of local shop floor data collection systems in United States and Mexico. The benefits were reduction in labor cost and improvement in product quality.

County, State, and Federal Government Agencies

Mr. Hammel conducted a feasibility study on closed loop traffic signals for county, state, and federal government agencies. Working with a subcontractor, he determined the feasibility of integrating existing traffic signal equipment with signal optimization programs. The benefits of implementation were reduced traffic congestion, reduced gasoline consumption, and a decrease in air pollution.

Large Container Manufacturer

Mr. Hammel led a technical team at a large container manufacturer that merged two data centers into one. He worked with the client to define computer needs when the company merged. Two large host processors and peripherals were installed at a new data center. Mr. Hammel organized the move of all processors and peripheral equipment to the new building complex with no down time to the users.

IBM, USA

Mr. Hammel has developed multiple tools to support his project management work. These PC tools were developed using Microsoft Access, Excel, Lotus 123, and many other PC application products. Tools that he has developed were used throughout IBM USA, by clients, and used for tracking requirements for federal certification of a new family support information system application.

Major Outdoor Sporting Goods Distributor
Mr. Hammel has also developed test case scenarios for radio frequency terminals used in a warehouse for a major outdoor sporting goods distributor. Mail orders were phoned in and then directly linked to the warehouse radio frequency terminals for merchandise pickup.

**Various Companies**

**Application Conversion & Test Coordinator**

Mr. Hammel directed a system review and coordinated customer and IBM teams in the installation of six complex computer systems at four different companies. Three of the projects included major redesign of the facilities. The average project cost was $4 million.

**Key Courses and Training**

- The IBM President's Class, September 1989

**Qualifications**

**Master of Science – Computer Science**

Union College, Schenectady, New York, June 1983

**Bachelor of Science – Thermal and Environmental Engineering**

Southern Illinois University, Carbondale, Illinois, May 1979
E.2.2.2 - Steven Pummill

Steven Pummill, Associate Partner, IBM. Project Executive

Education

BA Mathematics from College of Racine

Experience

Steve has served as Project Executive, Project Manager, and Team Lead on numerous information technology engagements, and has received Project Management Certification in IBM's Global Business Services (GBS) organization. He currently serves on the IBM Education Team serving the K-12/State DoE business area.

He has extensive experience in K-12/DoE application systems. Over the last 25 years, he has cultivated project and business management skills, specializing in state reporting of K-12 data, education data warehousing and student information systems. He has served as a management consultant with large national K-12 systems integrators. Areas of expertise include organizational and management analysis, business process redesign, strategic information technology planning, training, systems analysis and design, and project management for custom and commercial off-the-shelf software installations.

Mr. Pummill is working with CPSI on the Statewide SIF project with the Massachusetts Department of Elementary and Secondary Education (ESE). The ESE is implementing a Schools Interoperability Framework (SIF) solution for the Statewide Longitudinal Data System (SLDS) project. The overarching, long-term goal of this initiative is to reduce time spent on and increase accuracy of data collection for Local Education Agencies (LEAs) and the State Educational Agency (SEA), and to provide near real time efficiency within and across these data systems.

One of Mr. Pummill's recent projects was with the Texas Education Agency (TEA). Mr. Pummill served as IBM's project manager for the TEA Data Collection, Analysis and Reporting Investigation (TDCARSI) project. He and his team conducted an in-depth analysis of the TEA's current data collection process and provided a strategic roadmap for addressing the educational, administrative and research needs of key stakeholders. The results included a comprehensive report that summarizes the results gleaned from the project's investigative activities, and presents recommendations, impact analysis and a proposed solution environment for the TEA's consideration.

His responsibilities included providing ongoing project management and reporting; monitoring compliance with the TEA's requirements and approved project plan and schedules; managing issues and change requests; maintaining regular communications with project sponsors and key stakeholders and fostering a productive relationship with TEA staff.
Steven Pummill, Associate Partner, IBM. Project Executive

Professional Experience

Career History

Steve has served as Project Executive, Project Manager, and Team Lead on numerous information technology engagements, and has received Project Management Certification in IBM’s Global Business Services (GBS) organization. He currently serves on the IBM Education Team serving the K-12/State DoE business area.

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Education

Qualifications

BA Mathematics from College of Racine
O E.2.2.3 - Quang Tran

Quang M Tran

Education

Qualifications

Master of Arts in Mathematics
Wesleyan University, Middletown, CT, United States of America, 1977
Thesis Title: Cancellation properties of Abelian Modules, 1977

Bachelor of Science in Computer Science
University of South Dakota, United States of America, 1975

Language skills

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</table>

Professional experience

Profile

Quang is a Data Architect in the Application Innovation Services (05), Enterprise Architecture and Technology. Quang has over twenty years experience in the data architecture, master data management, operational data store, and data warehouse design and implementation (logical and physical modeling, staging, ODS, MDM, star schema, dimensional modeling). Quang is a certified DBA in MS SQL Server 2005 and 2008, DB2 (v8, 9) and Oracle (v7, 8i, 9i, 10g, 11g) and has built, maintained and supported many large MS SQL Server, Oracle, and DB2 databases for PeopleSoft, Siebel, Retek, SAP applications. Quang has extensive experience in performance tuning for MS SQL Server, Oracle, and DB2 databases and Tomcat, Weblogic and Wsphere app servers on AIX, Linux, HP UX, Solaris, and Windows Server (2003, 2008) platforms.

Key skills

Database Administrator for DB2 7, 8, 9 and Oracle DBA 7, 8, 9, 10g, 11g.
Technical infrastructure Architecture for PeopleSoft, Siebel, Oracle Retails, Curam on SUN, HP, and IBM platforms.
Application architect for J2EE applications on Websphere and Weblogic platforms.
Data Modelling using ERwin 4, DataStage 7 and 8, Rational Rose 6, 7. IBM
Infosphere Data Architect, Optim Data Studio Administration, Optim DataGrowth, IBM DB2 Performance Expert 3.2. Quest tools for DBA, Oracle Application Express (APEX), Oracle Data Integrator (ODI), Oracle DW builder (OWB), Oracle SQL Developer, Oracle Developer Data Modeler.

Key courses and Training

IBM Architectural Thinking, IBM SOA bootcamp, IBM Methods and Tools, TIBCO ESB, BEA Tuxedo 5, 6, PeopleSoft HRMS 6, 7, 8, Siebel CRM 6, 7, SUN Enterprise Architecture, Oracle 9i/1x DBA, Ascendant, PRM-IT v1.0, AIX System Administration,

Career history

10/2002 - to date
IBM Corporation, United States of America
IT Architect
Technical Solution Architect, Enterprise Integration

07/1998 - 10/2002
PricewaterhouseCoopers LLC, United States of America
Principal Consultant
Consultant in Systems Integration

Price Waterhouse LLP, United States of America
Consultant
Package Solution Consultant

06/1996 - 12/1998
Lockheed Martin Corporation, United States of America
Senior technical staff
Software Engineer, Systems Architect

04/1994 - 06/1996
Loral Corporation, United States of America
Advisory software engineer
Applications architect

01/1978 - 04/1994
IBM Corporation, United States of America
Advisory Programmer
Applications architect
ISBE (Illinois State Board of Education)
Student Information System

Project Description: Enterprise Application Architect, Database Administrator and SQL developer for the ISBE Student Information System (SIS).

01/2010 - 12/2010
12 month(s)

Data Architect

Project Description: Installed Oracle 11g Server on two IBM P-series servers for the new data warehouse database. Conducted interviews with business stakeholders and collaborative sessions with the applications team in order to build the staging database to be used for loading transactional data from serveral data sources. Design the data model with data dictionary for the staging database using IBM Infosphere Data Architect 7.5.2. Developed the data extraction and ETL strategy to convert large amount of legacy data from 23 legacy systems into the staging database. Designed the transformation process from the staging database into the new data warehouse database. Designed the star schema for the new datawarehouse. Designed the physical models in Oracle 11g for the staging database and the new data warehouse databases. Designed and coded SQL scripts to extract/transform/load 200 tables with 4200 data elements (transactional data) into 50 SQL database DW tables with 500 millions rows. Designed and coded the pages and forms with complex roll up and drill down. Designed and coded the backend using SQL, stored procedures, and JavaScripts. Provided operational supports for 24x7 production environments such as debugging problems with nightly batch jobs and ensured that the batch jobs will complete by 7AM. Partitioned large database tables and added indexes in order to improve query performance and Oracle applications. Built views and simplified complex queries for the Oracle applications. Developed Oracle stored procedures in order to improve SQL performance. Modified the data model in IBM Infosphere data architecture for the application customization. Developed and coded several programs to verify and validate the daily data load into the Oracle databases. Provided production support: debugged problems with reports, modified reports/pages and built new
reports/pages/forms. Conducted trade of study of Informix versus Oracle 11g for time-series processing.

01/2007 - 12/2009
36 month(s)

(State of Indiana FSSA)
Data Architect

Project Description: Installed AIX and DB2 on IBM P-series servers. Built different environments for development, data conversion, test, training and production. Supported multiple development teams doing parallel developments. Applied patches to AIX servers, and DB2. Used virtualization to accommodate many environments with limited resources. Designed the data migration strategy in order to migrate data from the legacy systems into the new databases for cases management and call center databases. Developed the data model for the data warehouse database. Assisted developers in data conversion SQL coding. Assisted developers and users in debugging applications problems. Reorganized and extended filesystems and tablespaces. Scheduled backups, performed recovery and data fixes. Performed monitoring and tuning on Oracle databases. Diagnosed and fixed problems with inbound and outbound interfaces. Fixed and developed new queries and reports programs according to user’s specifications. Controlled, tested and verified migration to production databases. Designed and implemented user security according to user’s roles. Designed and implemented the data migration strategy and procedure in order to convert legacy data from multiple sources into the new data warehouse database. Designed logical and physical models for the staging database and for the data warehouse database. Conducted performance tuning of the database and the app server. Built development and test databases from extraction of production databases. Assisted in generation reports for users.

08/2006 - 12/2006
5 month(s)

(Department of Veteran Affairs)
VA IT Realignment

Project Description: Created the strategy for data centers (160) consolidation, migration, relocation and its implementation plan. Assisted PMO on implementation roadmap (prioritization, sequencing, business benefits, timeframe and approximate cost). Trained and certified in ITIL.
Merchandise System Transformation (Circuit City Stores)

Oracle Retek DBA

Project Description: Designed the infrastructure architecture blue-print for the Merchandise System Transformation project. Performed servers' consolidation. Created LPARs on several IBM P5-570s, built the logical servers, built the SAN storage on IBM Shark DS8300, configured HACMP, installed and configured: AIX 5L v5.2, middlewares (WebSphere, TIBCO), Oracle 9i (RDBMS, Forms server), DB2, and applications software (RETEK, WebSphere Product Center). Worked with IBM On Demand Computing Services (ODCS) in Boulder to configure production servers. Built, configured, and maintained multiple development, and multiple test environments with Oracle databases and Retek apps. Applied SOA framework to integrate TIBCO ESB with Oracle Retails, WebSphere Product Center and with legacy applications.

Other relevant information

Publications


Quang M Tran: Ada Reusability Guidelines

, IBM, in: IBM technical Report, 1993

Quang M Tran: A Distance Learning Network Control System, IBM, in: IBM Technical Report, 1993

Quang M Tran: Methods to Implement Courseware Portability on Existing Authoring Environments, IBM, in: IBM Technical Report, 1992

E.2.3 - IBM Experience

IBM's Understanding of Your Goals

IBM is proud to have worked with the Illinois State Board of Education for the last five years on the ISBE Student Information System (SIS) project. With the ISBE SIS project, Illinois continues to evolve its data systems to support the Federal No Child Left Behind (NCLB) and the associated state level reporting requirements, as well as overcome the challenges of moving from point in time to near real time data collection and reporting about their students. ISBE seeks to redesign its TCIS and TSR systems to create two new Web-based systems that have the following features.

- Compatible with current technologies used within and external to ISBE and
- Support timely and accurate data collection and management process necessary to ensure that local educational agencies in Illinois employ appropriately credentialed educators.
- The redesign must incorporate data interoperability with other entities and systems as a major consideration and facilitate data linkage essential to improving educator effectiveness and student outcomes.

IBM understands that through this RFSP, ISBE is seeking a vendor who has the approach, experience, and methodology to support the development of two education Web-based applications to manage, link, and analyze educator data with student data. With the State’s stakeholders and their analytical needs in mind, ISBE is poised to deliver a high value educational Web-based applications and reporting system in the new ELIS-IWISE-ESR systems. The new application suite needs to be based on a detailed set of requirements from these stakeholders. The HIT/IBM team must then take those detailed requirements and translate them into a robust and extensible design and build two Web-based applications that can scale to the volume of data and the types of analyses required by the state stakeholders. Using the resulting ELIS-IWISE-ESR systems, ISBE and its stakeholders can then begin to shape programs that improve educator effectiveness and student outcomes.

What is Our Approach to Delivering the Scope of Work

In reviewing the RFSP, IBM evaluated various approaches to support the development and implementation of the ESR application. We noted that ISBE is seeking the following:

- Design, build, test, implement, and document all specifications for ESR, for the purpose of collecting educator data in a manner similar to the real-time and batch submission of student data through the ISBE Student Information System (SIS) [SIS Web page: http://www.isbe.net/sis/default.htm], including teacher course assignment data to be linked with student course assignment data captured in SIS and teacher and administrator performance evaluation data;
- Develop the business rules for student-educator linkages;
- Co-manage the ELIS and ESR projects with ISBE project managers;
- Develop and conduct training programs for internal and external users of the new systems, including how to use the software, protect the confidentiality of data resources, and ensure the validity, accuracy, and timeliness of data;
- Host a help desk during implementation to assist internal and external users of the new systems in solving issues of a programmatic or technical nature; and
- Provide post-implementation performance tuning and warranty support.

IBM examined each of the above factors and we have developed an approach that strikes the right balance between delivering the correct level of expertise with our Web-based application development, and implementation techniques with the appropriate methods and assets for ISBE to be successful in implementing the ESR application. Specifically, our approach is based on IBM’s Application Development (AD) Engagement Model detailed further in the Business and Technical Requirements Response Section. Our model provides the “roadmap” of activities, tasks, work products, and major deliverables designed to minimize the project risk for ISBE. It covers the full set of lifecycle phases of implementing solutions such as the ESR from validating requirements through build and deployment. IBM has detailed each phase later in this document.

Our industry recognized methodology and approach to delivering the ESR will result in providing ISBE with the deliverables specified in the RFSP. Our approach provides the appropriate level of ISBE interaction and feedback in the development of each deliverable to make sure the deliverables are relevant and meaningful to ISBE, as well as a key role in the review and final approval of each deliverable. Moreover, our approach also embeds knowledge transfer planning and specific tasks so that the ISBE will become comfortable in maintaining the system at the end of the contract.

- For this bid, the IBM Team will use ISBE Systems Environment and tools that currently exist at ISBE.
- Supporting these assets and methods, the IBM Team is proposing project management and implementation methodology that is ranked number one by Gartner.

**Who Will Deliver this Scope of Work**

As described above, core to our delivery is the use of our Application Development (AD) Engagement Model to develop the work plan and the associated deliverables for this project. However, a robust method must be supported by a team of seasoned professionals who can execute the proposed approach. In our review of the RFSP and our knowledge of ISBE, we felt it was important to staff this project with a team of individuals who collectively and routinely have the capability to deliver:

- Knowledge of ISBE programs and source data systems,
Expert Web-based application development experience for other large state and local enterprises, and

Business analyst experience with other large state and local enterprises projects.

A critical factor in the success of this project will be the experience and dedication of the team. Our staff has worked on similar projects for some of the largest school districts and states in the United States. We have supported them in their design, development and deployment.

Even though HIT/IBM is able to deliver using just HIT/IBM resources, we recognize the importance of and the requirement to utilize certified minority vendors when possible. Through our integrated HIT/IBM team, we bring the following to this engagement:

- HIT Licensure System used in five states.
- Ability to leverage where appropriate, ISM’s Education Industry assets and methods which support the application development efforts for the ELIS-IWISE-ESR.
- Knowledge from our software development group, such as VB.NET, Crystal, and the experience of those teams, which brings additional Windows Web-based application development from other state departments of education where that part of our IBM business has been engaged.
- Hands on experience and significant familiarity with the Illinois State Board of Education systems, data, environment, tools, techniques, people, and management. Additionally, we bring hands on experience with the Illinois TCIS system.
- Project management and development experience within the cultural environment of education institutions which include knowledge and experience in requirement validation with educational stakeholders, design and development of Web-based application within education I/T organization, and implementation experience with ISBE and all LEA across the state of Illinois.

The IBM Team is proposing a unique blend of staff that has the collective experience in delivering this type of integrated solution. We are proposing senior level staff experienced in delivering this type of Web-based Windows application solution and understands the complexities of the stakeholders who will be the end users of the ELIS-IWISE-ESR solution. Specifically, we are proposing Howard Hammel who is an experienced project manager with more than 30 years experience in the Education I/T industry as a design engineer, project manager, and systems engineer and analyst. Mr. Hammel has worked with Fortune 500 manufacturers and distributors, the insurance industry, and with local, state, and federal government agencies. Additionally, Mr. Hammel is the current Project Manager for the development and successful deployment of ISBE Student information System (SIS) throughout the state and will transition into the management of this critical initiative.

Supporting Mr. Hammel will be technical and functional team. Our proposed staff for these teams has extensive experience in the development of both school district level and state department of education
level reporting and data management solutions.

In summary, the HIT/IBM Team is proposing a team of well qualified staff members who will deliver the new ELIS, ESR, and IWISE solutions by providing development and implementation services, coupled with the education expertise and the in-house knowledge of ISBE source systems and skill sets that are needed to make this project a success.

Why HIT/IBM?

HIT/IBM appreciates ISBE taking the time to review and consider the HIT/IBM response. In selecting HIT/IBM, ISBE can be reassured by the quality reputation, financial stability and breadth of resources available at HIT/IBM and by our commitment to customer service. IBM has worked with clients of diverse size across all industries in building Web-based applications. Independent analysts and market research findings confirm our leadership in this area. We feel that our experience in education and systems integration, coupled with our leadership within the IT industry uniquely positions us to help ISBE achieve your vision and goals.

In preparing this proposal response, HIT/IBM has strived to reach the correct balance between delivering the education application development expertise with a premiere set of assets, methods and tools to make ISBE successful with this important initiative. In addition, we have taken into consideration other factors that will make this engagement successful, such as knowledge of ISBE stakeholders and understanding of source data. From a technical perspective, the solution to your vision requires an open model approach where data can be obtained and shared with stakeholders of differing technology by adopting IT industry standards. The IBM solution honors this requirement. Through our approach, ISBE will find that our team delivers:

- An experienced base that has been developed over multiple successful builds of large Web-based application, and analytical solutions across education, health care, and state and local governments
- Delivery of State enterprise reporting and teacher solutions for large states, such as Ohio, Illinois, Massachusetts, Texas, and California
- Design, development, and delivery of Web-based solutions for K-12 school districts and state departments of education which include; Ohio, New York City Department of Education, Chicago Public Schools, School District of Philadelphia, Broward County Public Schools, Gwinnett County Public Schools, a consortium of school districts in the DC metro area, and the Supreme Education Council in the country of Qatar.
- Deep working knowledge of one of the key source systems; i.e. ISBE SIS since IBM implemented the solution.
- A blended team that balances the application development experience, education, and knowledge of ISBE data and stakeholders
- A project method that supports the on time delivery of quality deliverables to ISBE

- An approach and method to support an open platform that utilizes the tools and platform that exist at ISBE. In other words, ISBE will not have to pay license and maintenance fees to leverage our assets nor do we require any additional development tools for this project.

IBM will bring the ISBE vision to fruition by leveraging our proven expertise, tools and methodologies in application development to deliver the ELIS-IWISE-ESR solution outlined in this RFSP. Our IBM team of application development experts has shaped policy in state’s education facilities and at local school districts across the country, and in many cases worked directly in classrooms and served as district education leaders in different capacities. We not only understand how state and district operations function, but we fully understand the amount of positive challenges and change a solution such as this will bring to ISBE. We trust in reading the details that follow that ISBE will understand why independent organizations such as Gartner continually rank IBM as leaders in delivering these types of solutions and why this proposal represents a solution with the greatest likelihood of ultimate success for the education system in Illinois.
### E.2.4 - IBM References

**Reference 1:**

<table>
<thead>
<tr>
<th><strong>Client Name</strong></th>
<th>Ohio Department of Education</th>
</tr>
</thead>
</table>
| **Client Address**    | Ohio Department of Education  
|                       | Columbus, OH                |
| **Contact Name and Contact**  
| **Title**             | Gregory Davidson, ITO Director |
| **Contact Role on Project** | Project Manager             |
| **Contact Telephone Number** | (614) 387-0339              |
| **Contact E-Mail Address** | gregory.davidson@ode.state.oh.us |
| **Begin and End Dates** | 10/2001 – 09/2002           |
| **Brief Description of Project:** | Computer software and software implementation services pertaining to the creation, assignment, and storage of student identifier codes using a web-based solution. IBM designed and developed the Statewide Student Identifier (SSID) application as well as the hosting of the application in an Application Service Provider (ASP) context |
| **Services Provided**  | Project Management, design, development and implementation |
| **Approximate Cost**   | $4.2 million (includes cost for hosting services) |
| **Current Status/Activity** | IBM continues to host the SSID initiative. |
### Reference 2:

<table>
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<tr>
<th><strong>Client Name</strong></th>
<th>Charles County Public Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client Address</strong></td>
<td>5980 Radio Station Road</td>
</tr>
<tr>
<td></td>
<td>La Plata, MD 20646</td>
</tr>
<tr>
<td><strong>Contact Name and Title</strong></td>
<td>Mr. Cliff Eichel, Director of Assessment</td>
</tr>
<tr>
<td><strong>Contact Role on Project</strong></td>
<td>Project Manager</td>
</tr>
<tr>
<td><strong>Contact Telephone Number</strong></td>
<td>(301) 934-7259</td>
</tr>
<tr>
<td><strong>Contact E-Mail Address</strong></td>
<td><a href="mailto:CEICHEL@ccboe.com">CEICHEL@ccboe.com</a></td>
</tr>
<tr>
<td><strong>Begin and End Dates</strong></td>
<td>September 2003 - Present</td>
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<tr>
<td><strong>Brief Description of Project</strong></td>
<td>Design, development and implementation of an Education Enterprise application development for analytical reporting, addressing the detail data component areas of student, attendance, enrollment, assessments, and teacher.</td>
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<td><strong>Services Provided</strong></td>
<td>Project Management, requirements, design, development, maintenance, support, training</td>
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<td><strong>Approximate Cost</strong></td>
<td>$750,000</td>
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<td><strong>Current Status/Activity</strong></td>
<td>Date placed into production: Summer, 2003. Currently providing T&amp;M support to CCPS technical staff.</td>
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### Reference 3:

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<th><strong>Client Name</strong></th>
<th>MD State Department of Education - Teacher Credentialing System</th>
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<tbody>
<tr>
<td><strong>Client Address</strong></td>
<td>Maryland State Department of Education</td>
</tr>
<tr>
<td></td>
<td>400 West Baltimore St, Baltimore, MD 21201</td>
</tr>
<tr>
<td><strong>Contact Name and Title</strong></td>
<td>Dr. Joann Ericson, Director</td>
</tr>
<tr>
<td><strong>Contact Role on Project</strong></td>
<td>Client Manager</td>
</tr>
<tr>
<td><strong>Contact Telephone Number</strong></td>
<td>(410) 767-0406</td>
</tr>
<tr>
<td><strong>Contact Email address</strong></td>
<td><a href="mailto:jericson@msde.state.md.us">jericson@msde.state.md.us</a></td>
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<td>2004 - 2007</td>
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<td>IBM Credentialing Solution using MS CRM</td>
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<tr>
<td><strong>Services Provided</strong></td>
<td>IBM provided Project Manager/Subject Matter Expertise on the MSDE project. IBM was a subcontractor to Invoke Systems.</td>
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<tr>
<td><strong>Approximate Cost</strong></td>
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<tr>
<td><strong>Current Status/Activity</strong></td>
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</table>
OF - Exceptions to the RFP

Hupp Information Technologies
O F.1 - Exceptions

Hupp Information Technologies has no exceptions to the contractual terms and provisions as set forth in Appendix A.
F.2 - Assumptions

1. The presented pricing is good for 90 days from the date the proposal was due, May 25th, 2011.
2. The assumed start date the work will begin is July 1st, 2011.
3. ISBE will provide all necessary hardware and software for development purposes.
4. ISBE will provide work areas for onsite team members.
5. ISBE will provide appropriate access to technology assets.
6. ISBE will provide appropriate access to subject matter experts as needed.
7. ISBE will not unreasonably withhold approvals for milestones.
8. ISBE will not unreasonably withhold the payment of invoices for modules that are substantially complete while small issues are resolved.