SOCIAL SECURITY

The Social Security Administration's (SSA) Office of the Inspector General (OIG) has completed its fourth assessment in our ongoing evaluation of the Accelerated eDib (AeDib) system (formally the Electronic Disability or eDib system). We conducted this fourth assessment from January 2003 through June 2003 at SSA Headquarters in Baltimore, Maryland. While we did not conduct an audit of the AeDib process, our assessment addressed those issues that arose at the AeDib Steering Committee. We were unable to determine the full scope of some of the AeDib problems addressed in this memorandum due to access limitations to Office of Systems (OS) staff and documentation. Those limitations are described throughout the memorandum.

As part of our fourth assessment, we considered the following issues:

- The Office of Disability and Income Security Programs' (ODISP) participation in the AeDib project.
- The AeDib's 5.0 software validation and release.
- Data security at the disability determination services (DDS).
- Reduction of the number of scanned pages used in each disability case.
- Most AeDib project deadlines met by deferring functionality.

ODISP PARTICIPATION IN THE AeDib PROJECT

SSA developed the Web-based Project Resource Guide (PRIDE) to guide project managers, team leaders and team members when planning and executing system development projects. Based on this guide, ODISP is the Sponsoring Component,[1] and as such, is the principal user and owner of the AeDib system and is primarily

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[1] The Sponsoring Component is the component that owns the business process. The Sponsor finances the project and provides strategic direction.

responsible for the finances and strategic direction. OS is the Developer[2] and should design the system to ODISP specifications.
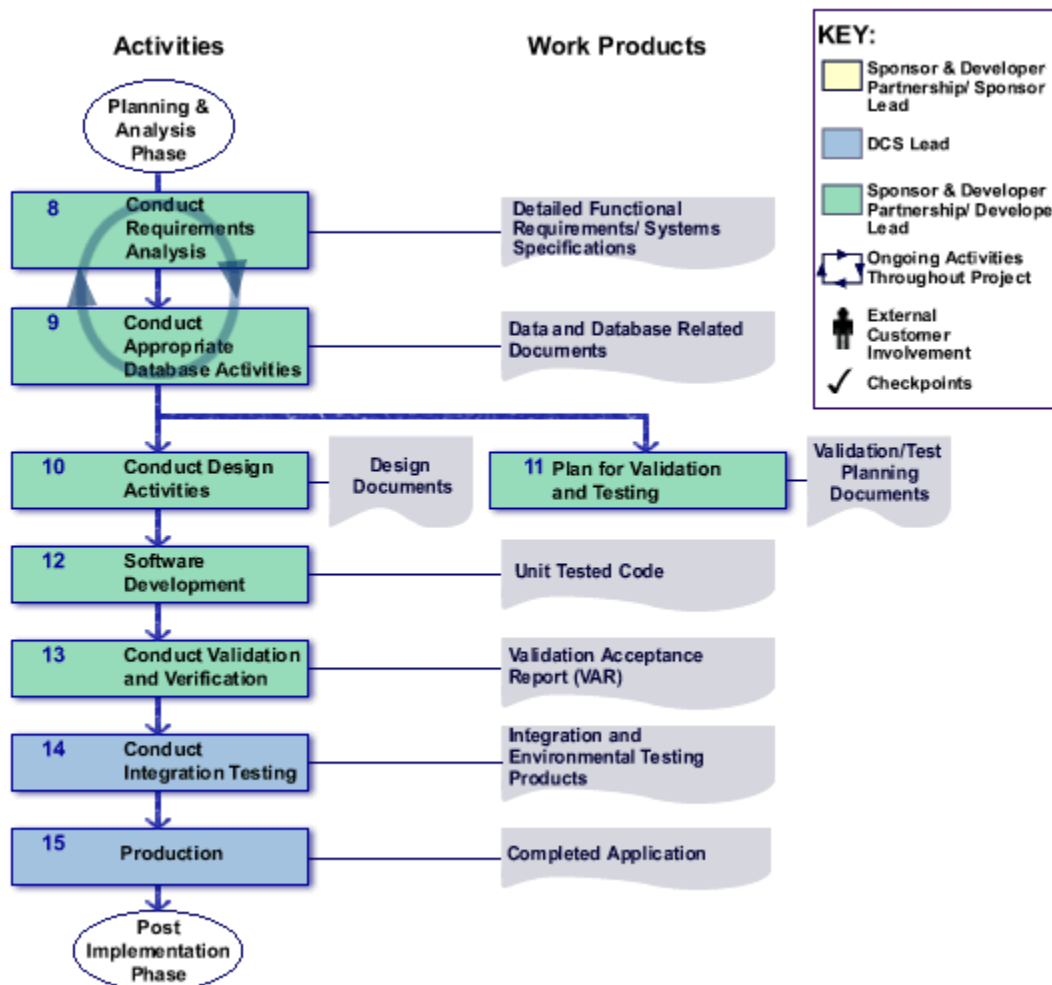
PRIDE calls for the sponsors of projects, such as ODISP, to be extensively involved in the development of a new system, such as AeDib. The ODISP project team needs to aggressively enforce PRIDE requirements in the following phases.

PRIDE REQUIREMENTS	AeDib STATUS
Conduct a Security Risk Assessment Lead - Sponsor & Developer The Systems and Business Project Managers must ensure all appropriate security parties are involved in project planning.	The designated Developer and primary sponsor only attended one AeDib Security meeting as of 05/16/03.
Conduct Appropriate Database Activities Lead - Sponsor & Developer Identify resources & requirements early	ODISP and OS have not yet completed assessing the fields the electronic folder needs
Plan for Validation and Testing Lead - Sponsor and Developer Although not required by PRIDE, the Validation Strategy Plan example in PRIDE shows both Sponsor & Developer sign-offs.	No formal ODISP concurrence or sign off of the Validation Plan The OS did not provide any evidence of its validation efforts, except for its Validation Plan.
Conduct Validation and Verification Lead - Sponsor and Developer Validation Analysis Report is completed, and the Systems Release Certification form is completed and signed.	OS did not provide us with the Validation Analysis Report and System Release Certification form. ODISP doesn't verify that system releases meet the needs set forth in its functional requirements.
Release (Move) to Production Lead – Deputy Commissioner for Systems (DCS) Sponsor determines when the software is moved to the Production environment.	OS periodically contacts ODISP via telephone to inform them of the status of the validation. No formal release and certification by ODISP.

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[2] The Developer: 1) reviews the systems requirements, 2) develops prototypes, 3) designs the system and allocates requirement to system components, 4) develops internal software specs and detailed system design, 5) develops and unit tests software, and 6) manages versions.

THE AeDib 5.0 SOFTWARE VALIDATION AND RELEASE

OS issued software release 5.0 for the AeDib Systems on March 3, 2003. Release 5.0 adds the capability for field offices to take Title XVI disabled child claims. The following flow chart documents the Agency's required process for conducting validations during systems development.

Activities

Work Products

KEY:
- Sponsor & Developer Partnership/ Sponsor Lead
- DCS Lead
- Sponsor & Developer Partnership/ Developer Lead
- Ongoing Activities Throughout Project
- External Customer Involvement
- Checkpoints

Planning & Analysis Phase

#	Activity	Work Product
8	Conduct Requirements Analysis	Detailed Functional Requirements/ Systems Specifications
9	Conduct Appropriate Database Activities	Data and Database Related Documents
10	Conduct Design Activities	Design Documents
11	Plan for Validation and Testing	Validation/Test Planning Documents
12	Software Development	Unit Tested Code
13	Conduct Validation and Verification	Validation Acceptance Report (VAR)
14	Conduct Integration Testing	Integration and Environmental Testing Products
15	Production	Completed Application

Post Implementation Phase

The OIG found about 30[3] production problems shortly after the release of AeDib 5.0 software. As a result, the software may need to be fixed in later, more costly, stages of the software development process. We also identified the following AeDib software production problems:

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[3] The DCS did not provide the OIG with requested documentation detailing the exact number of production errors incurred as a result of version 5.0.

- There were 5,000 duplicate cases.

- There were claims taken for Title XVI disabled individuals in the Modernized Supplemental Security Income Claims System that were recorded in the Electronic Disability Collect System (EDCS) as disabled children.

- There were numerous incorrect EDCS edits based on the Internet 3368s that claims representatives needed to resolve. One claims representative reported taking 3 hours to "clean up" an Internet 3368 imported into EDCS.

The OIG attempted to determine the causes of the production errors through examination of the AeDib 5.0 validation documents and interviews with the validation team members. However, we were only provided with one of the validation and testing documents and were not provided the necessary access to individuals involved in the validation process. The only validation document received was the AeDib 5.0 Validation Plan. However, because this Validation Plan was dated 50 days after AeDib 5.0 software was released into production (March 3, 2002), we could not determine the adequacy and usefulness of the Validation Plan at the time of testing.

AeDib release 5.0 was validated in only 22 days with the number of validation runs reduced from 3 to a single run. Normally, the Division of Configuration Management and Validation Technology validates a system in an average of 86[4] days. AeDib release 4.2.3, which was not a major release, was validated over a 60-day period. Due to the limited time spent in validation there were a number of significant problems associated with this release.

The premature release of software is both time consuming for individuals processing claims and expensive to the Agency. The Baziuk Study,[5] detailed on page 5, is just one of many studies that show the substantial cost of repairing software defects found after the software is operational. This study indicated that the cost to repair an error during systems testing is 90 times more expensive than when the error is found during the requirements phase. Furthermore, once the system is operational, the cost increases to between 470 to 880 times than when the error is found in the requirements phase. Therefore, SSA's systems development efforts would benefit, in the long term, by identifying and correcting software errors at the earliest possible stage in its systems development.

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[4] We obtained the average number of days to validate software from the Agency's Validation Testing Project Status tables as of March 4, 2003.
[5] Carroll, Charles T., *The Cost of Poor Testing: A U.S. Government Study, Part 1*, EDPACS: EDP Audit, Control, and Security, 31:1, Auerbach Publications, (July: 2003).

Exhibit 4 *Relative Costs to Repair Defects when Found at Different Life-Cycle Stages*

Life-Cycle Stage	Bazluk Study Costs to Repair when Found	Boehm Study Costs to Repair when Found[a]
Requirements	1X[b]	0.2Y
Design		0.5Y
Coding		1.2Y
Unit testing		
Integration testing		
System testing	90X	5Y
Installation testing	90X–440X	15Y
Acceptance testing	440X	
Operation and maintenance	470X–880X[c]	

[a] Assuming cost of repair during requirements is approximately equivalent to cost of repair during analysis in the Boehm study (Boehm, B.W., Software Engineering, *IEEE Transactions on Computer*, SE-1(4), 1226–1241, 1976).

[b] Assuming cost to repair during requirements is approximately equivalent to cost of an HW line card return in Bazluk (1995) study (Bazluk, W., BNR/NORTEL Path to Improve Product Quality, Reliability, and Customer Satisfaction, presented at the *Sixth International Symposium on Software Reliability Engineering*, Toulouse, France, October 1995).

[c] Possibly as high as 2900X if an engineering change order is required.

SSA plans to begin a nationwide rollout of AeDib beginning in January 2004. However, before the AeDib software is expanded nationwide, it is critical that the thorough validation required by PRIDE is completed and the system is certified as ready for release into production. This certification should be completed by the project's sponsor who is familiar with the systems requirements, yet independent from the AeDib software design and development teams.

DATA SECURITY AT DDSs NEEDS IMPROVEMENT

Recent OIG[6] and PricewaterhouseCoopers[7] (PwC) audits found that data security at State DDSs needs improvement. DDS security will be even more important in 2004, when SSA begins granting the DDSs direct access to the Agency's electronic folder. In 2004, the Agency's electronic folder is expected to house sensitive data from SSA, DDS and the Office of Hearings and Appeals (OHA). Therefore, someone gaining improper access through a DDS could obtain access to the Agency's data. To increase security requirements for the State DDSs, the Agency has already agreed to, and is in the process of implementing, many of the reported OIG and PwC recommendations. Once

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[6] *General Controls of the Alabama Disability Determination Services Claims Processing System Need Improvement*, A-14-02-22089, September 2002; and *General Controls of the Washington Division of Disability Determination Services Claims Processing System Need Improvement*, A-14-02-22093 (not yet issued).

[7] *Social Security Administration Fiscal Year 2001 Management Letter Part I*, November 30, 2001 and *Social Security Administration Fiscal Year 2002 Management Letter Part I*, November 14, 2002.

the DDSs implement these new requirements, the security of SSA's data should be greatly enhanced.

REDUCTION OF THE NUMBER OF SCANNED PAGES USED IN EACH DISABILITY CASE

The Agency will spend $375 million[8] over a 10-year period to scan paper documents into its electronic folder according to Booz Allen Hamilton estimates. These paper documents, which will be part of the AeDib process, are now maintained in the Agency's disability case folders, and average 250 pages per case file when taken through the full disability process to the OHA.[9]

SSA should only scan documents that are essential to support disability determinations. In addition, the Agency should evaluate whether it can further reduce the scanning of the 95 additional paper documents used through the continuing disability review phase. We formally asked for this evaluation at the March 11, 2003, AeDib Steering Committee meeting. Please provide us with an update on any plans the Agency has to reduce the number of pages it plans to receive and scan into the electronic folder.

According to the National Council of Disability Determination Directors' memorandum to the Commissioner,[10] SSA should regard the conversion of paper to digital images as an interim solution. We concur. SSA's long-term objective should be the direct electronic transfer of medical records from providers to DDS systems. President Bush recently stated that the "implementation of E-Government is important in making Government more responsive and cost-effective."[11]

For example, the Internal Revenue Service's (IRS) E-Government Program Office has informed us that the IRS experienced a 50 percent reduction in processing costs by accepting tax returns electronically. IRS costs vary, but generally, it saves about $1.00 for each e-filed return. However, the true savings for the IRS is in its downstream operations. For example, the difference in the error rate between paper and e-filed returns is 22 percent versus 1 percent. Also, because the IRS receives the data electronically, everything (100 percent) is captured, rather than keying just a subset of the data. This additional electronic information has also enabled the IRS to achieve benefits resulting in fewer taxpayer notices, more effective compliance research, fewer taxpayer contacts (phone or in person), fewer processing centers, and higher accuracy.

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[8] Booz Allen Hamilton, *SSA eDib Cost-Benefit Analysis*, version 2.0a, May 28, 2002, p. 172.
[9] Ibid., p. 176.
[10] National Council of Disability Determination Directors, Memo to Commissioner Barnhart regarding the AeDib Project, December 16, 2002, page 3.
[11] President George Bush, Presidential Memo, *The Importance of E-Government*, July 10, 2002.

MOST AeDIB PROJECT DEADLINES ARE MET BY DEFERRING FUNCTIONALITY

As the chart below details, the Agency is on schedule with respect to most of the AeDib's actual release dates; however, much of the functionality is being delayed to future releases. We understand that the AeDib's project delays may be necessary to ensure the release of quality software. OIG informed the AeDib Steering Committee leaders that any slippage of functionality should be fully discussed with the AeDib Steering Committee. The Steering Committee leaders did that and discussed the delay in release 6.0 with the Committee.[12]

Reduction in the Functionality of AeDib

Version	Original Dates	Revised Dates	Original Functionality See Attachment A	Revised Functionality See Attachment B
4.2.3	10/02	10/02	1. Record of Change 2. Subsequent Filings 3. Medical Source File updates 4. Interface to the Internet 3368	1. Record of Change 2. Subsequent Filings 3. Medical Source File updates 4. Interface to the Internet 3368
5.0	02/03	02/03	1. Children at the Initial Adjudicative Level 2. Reconsiderations	1. Children at the Initial Adjudicative Level
5.1	05/03	05/03	1. Continuing Disability Reviews (CDR) 2. CDR Reconsiderations 3. Hearing Cases 4. All Other Related Forms	1. Reconsiderations 2. Initial Appeals 3. Hearing Cases
6.0	07/03	07/03[13]	1. EDCS Interface to Electronic Folder	1. CDRs 2. CDR Reconsiderations 3. All Other Related Forms
6.1	12/03	12/03		1. EDCS Interface to Electronic Folder

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[12] The AeDib Steering Committee was informed on June 17, 2003, that AeDib release 6.0 will be deferred until after January 2004. We were also informed that this particular release is not needed for the January 2004 rollout.

[13] It was announced at the June 17, 2003, AeDib Steering Committee meeting that release 6.0 is now scheduled for August 16, 2003.

Page 8 - Martin H. Gerry

There is no expectation for the Agency to formally respond to this document. If you have any questions or comments, please call me or have your staff contact Kitt Winter, Director, Data Analysis and Technology Audit Division at (410) 965-9702, or Al Darago at (410) 965-9710.

Steven L. Schaeffer

Attachments

cc:
Chief Information Officer
Deputy Commissioner for Systems
Deputy Commissioner for Operations
Inspector General
Assistant Deputy Commissioner for DISP
Associate Commissioners for
    Disability Programs
Chair AeDib Steering Committee
Acting Director, Management
    Analysis and Audit Program Support Staff

Accelerated eDib System Timeline
05/03/02

Internet Disability
The Internet disability applications collect information currently gathered from the Agency's paper disability form. The initial release, Internet 3368, will collect medical and work history from disability claimants. Additional applications will be developed to support the disability process. These applications will collect supplemental disability and more detailed work information, information about childhood disabilities, and information required for subsequent appeal processes. Internet disability applications will improve service to the public, compensate for resource losses and workload increases, improve the disability report collection process, and contribute to meeting the Government Paper Elimination Act requirements.

Date	Milestone
8/02	Production Ready for Initial Functionality of I3368
1/03	Production Ready for Internet I827
4/03	Production Ready for Fully Functional I3368
7/03	Production Ready for Internet I3820
11/03	Production Ready for Internet I3369
12/03	Production Ready for Internet I3441
12/03	Production Ready for Internet I454, I4486, I4631

Electronic Disability Collect System ver 4.2.2	
Electronic Disability Collect System (EDCS) provides the means for our employees to collect information about a claimant's disability. EDCS 4.2.2 is a technical release to convert the EDCS from a client/server application to an intranet application. This release is limited to adult disability cases at the initial adjudicative level.	
Date	**Milestone**
7/02	Production Ready (Delaware, Texas, & California)
Electronic Disability Collect System ver 4.2.3	
Adds the following functionality: 1. Record of Change 2. Subsequent Filings 3. Alternative Methods to Populate the Medical Source Reference File 4. Interface to the Internet 3368	
Date	**Milestone**
10/02	Production Ready for Delaware, Texas, & California
10/02	Production ready for National Rollout

Electronic Disability Collect System ver 5.0	
Adds the following types of disability cases 1. Child cases at the initial adjudicative level 2. Reconsiderations	
Date	**Milestone**
2/03	Production Ready
Electronic Disability Collect System ver 5.1	
Adds the following: 1. Continuing Disability Reviews (CDR) 2. CDR Reconsiderations 3. Hearing Cases 4. All other related forms	
Date	**Milestone**
5/03	Production Ready
Electronic Disability Collect System ver 6.0	
EDCS interface to Electronic Folder using MQSeries as the transport mechanism.	
Date	**Milestone**
7/03	Production Ready
Electronic Disability Collect System ver 6.1	
The Disability Determination Services and the Social Security Administration's Legacy Applications interface to Electronic Folder using MQSeries as the transport mechanism. Includes the storage and retrieval of data to a data repository as well as images and other objects to the Enterprise Document Imaging Architecture (EDIMA).	
Date	**Milestone**
12/03	Production Ready

Enterprise Document Imaging Architecture	
This project will identify and implement the document imaging architecture and infrastructure required to support the Accelerated eDIB System's business process.	
Date	**Milestone**
10/02	Architecture and Infrastructure Recommendations Documented
10/03	Complete Procurements for EDIMA Infrastructure
1/04	Complete EDIMA Infrastructure Installation in Required Sites

AS400/Legacy Software

This project includes the migration of Wang/Levy states to IBM AS/400 platform; migration of Levy code incorporating readiness for EFI; upgrade/replacement of existing AS/400s in order to accommodate EFI; readiness of Versa, Midas, and independent software systems for EFI.

Group 1 States =   VA, WV, MD, WI, IN, GA, AR, OH, OK, IA, NC, FL, NM, RI, SD, Federal Disability Determination Service (FDDS)

Group 2 States =   KS, MA, WA, DC, KY, MT, CT, MI, CO, AZ, LA, VT, PR

Date	Milestone
6/02	Installation of AS/400 Complete for RI, SD, KS, MA, FDDS
9/02	AS/400 Training Completed for RI, SD, KS, MA, FDDS
9/02	Installation of AS/400 for DC, KY, MT, CT, MI, CO, AZ, LA, VT, PR
10/02	VERSA and LEVY Pre-Implementation in support of EDCS 4.2.3
12/02	AS/400 Training Completed for DC, KY, MT, CT, MI, CO, AZ, LA, VT, PR
12/02	Complete Business Process Description for NY, NE, and Midas states.
12/02	Production Ready "ALL" - Group 1 States
10/03	**Production Ready "ALL" - Group 2 States**

The Office of Hearings and Appeals Case Processing and Management System

The Office of Hearings and Appeals (OHA) Case Processing and Management System will provide automation to the Hearing Offices activities.

Date	Milestone
10/02	Determine Systems Design
12/03	Pre-Production Implementation
1/04	Production Ready

Complete Business Process Description

Date	Project
6/02	OHA, Operations, Office of Quality Assurance and Office of Disability

Accelerated eDib System Timeline
03/28/03

Internet Disability

The Internet disability applications collect information currently gathered from the Agency's paper disability form. The initial release, i3368, will collect medical and work history from disability claimants. Additional applications will be developed to support the disability process. These applications will collect supplemental disability and more detailed work information, information about childhood disabilities, and information required for subsequent appeal processes. Internet disability applications will improve service to the public, compensate for resource losses and workload increases, improve the disability report collection process, and contribute to meeting the Government Paper Elimination Act requirements.

Date	Milestone
08/02	Production Ready for Initial Functionality of i3368
04/03	Production Ready for Fully Functional i3368
05/03	Production Ready for Internet i454
07/03	Production Ready for Internet i3820
09/03	Production Ready for Internet i3369
12/03	Production Ready for Internet i3441and i827

Electronic Disability Collect System ver. 4.2.2

Electronic Disability Collect System (EDCS) provides the means for our employees to collect information about a claimant's disability. EDCS 4.2.2 is a technical release to convert the EDCS from a client/server application to an intranet application. This release is limited to adult disability cases at the initial adjudicative level.

Date	Milestone
07/02	Production Ready for Delaware, Texas, & California

Electronic Disability Collect System ver 4.2.3

Adds the following functionality:
5. Record of Change
6. Subsequent Filings
7. Alternative Methods to Populate the Medical Source Reference File
8. Interface to the Internet 3368

Date	Milestone
10/02	Production Ready for Delaware, Texas, & California
10/02	Production ready for National Rollout

Electronic Disability Collect System ver 5.0

Adds Child cases at the Initial adjudicative level

Date	Milestone
03/03	Production Ready

Electronic Disability Collect System ver 5.1	
Adds Initial Appeals	
Date	**Milestone**
05/03	Production Ready
Electronic Disability Collect System ver 6.0	
EDCS interface to Electronic Folder using MQSeries as the transport mechanism and the following 1. Alerts of field office Update -- Post Transfer 2. Viewing of Document Management Architecture (DMA) Contents (for pilot sites) 3. Continuing Disability Reviews (CDR) 4. CDR Reconsiderations 5. All Other Related Forms	
Date	**Milestone**
07/03	Production Ready
Electronic Disability Collect System ver 6.1	
The Disability Determination Services and the Social Security Administration's Legacy Applications interface to Electronic Folder using MQSeries as the transport mechanism. Includes the storage and retrieval of data to a data repository as well as viewing of images and other objects within the DMA. Jurisdictional and workflow controls are also included.	
Date	**Milestone**
12/03	Production Ready

Document Management Architecture	
This project will identify and implement the document imaging architecture and infrastructure required to support the Accelerated eDib System's business process.	
Date	**Milestone**
10/02	Architecture and Infrastructure Recommendations Documented
07/03-12/03	DMA Pilots
10/03	Complete Procurements for DMA Infrastructure
01/04	Complete DMA Infrastructure Installation in Required Sites

The Office of Hearings and Appeals Case Processing and Management System	
The Office of Hearings and Appeals (OHA) Case Processing and Management System will provide automation to the Hearing Offices activities.	
Date	**Milestone**
10/02	Determine Systems Design
12/3/03	Pre-Production Implementation
1/26/04	Production Ready

AS400/Legacy Software
This project includes the migration of Wang/Levy states to IBM AS/400 platform; migration of Levy code incorporating readiness for EFI; upgrade/replacement of existing AS/400s in order to accommodate EFI; readiness of Versa, Midas, and independent software systems for EFI.

Group 1 States = VA, WV, MD, WI, IN, GA, AR, OH, OK, IA, NC, FL, NM, RI, SD, Federal Disability Determination Service (FDDS)
Group 2 States = KS, MA, WA, DC, KY, MT, CT, MI, CO, AZ, LA, VT, PR

Date	Milestone
06/02	Installation of AS/400 Complete for RI, SD, KS, MA, FDDS
09/02	Installation of AS/400 for DC, KY, MT, CT, MI, CO, AZ, LA, VT, PR
10/02	Production Ready Version 4.2.3 in MIDAS pilot state
12/02	Production Ready ALL Group 1 States with Levy AS/400 Application Code in Preparation for EFI
02/03	Production Ready Version 4.2.3 in Versa and Levy pilot states
03/03-04/03	**Production Ready Version 5.0 in Versa (TX, MN, WY) and Levy pilot states (WV, OK, IA) and MIDAS (DE, CA)**
07/03	**Production Ready Version 5.1 rollout to remaining states**
07/03-12/03	**DMA pilot in MIDAS, Versa and Levy pilot states**
08/03	**Production Ready Version 6.0 in MIDAS, Versa and Levy pilot states**
10/03	**Production Ready ALL Group 1 and Group 2 States with Levy AS/400 Application Code with EFI**
12/03	**Production Ready Version 6.1 in MIDAS, Versa and Levy pilot states**

Quality Assurance Systems
This project will integrate the existing disability Quality Assurance systems (DICARS, OHAPER and DHQRS) with AeDib. It will support migration to a paperless business process and provide the Office of Quality Assurance (OQA) with access to the electronic folder.

Date	Milestone
6/03	Determine Systems Design
8/03	Initial Pilot
1/04	Production Ready

Complete Business Process Description	
Date	Project
6/02	OHA, Operations, OQA and Office of Disability