INSPECTOR GENERAL

IG-X-041

UNITED STATES INTERNATIONAL TRADE COMMISSION

WASHINGTON, D.C. 20436

September 29, 2000

TO: Chairman

FROM: Acting Inspector General

SUBJECT: Inspection report OIG-IR-030-00, Independent Evaluation of Electronic Document Imaging System (Review of Business Case and Assessment of Cost-Benefit Analysis)

The Office of Inspector General (OIG) has completed the above referenced Inspection. The final report on this inspection is attached.

We would like to thank all of the Offices and Commissioners who provided comments, including verbal comments, on the draft of this report.

There is a need to clear up some misunderstandings about the OIG positions and advice. Our advice in regards to the Government Paperwork Elimination Act (GPEA) has always been about trying to maximize administrative efficiencies so as to free our human capital resources to concentrate on their mission. Never has our advice been about IT for the sake of IT. Our most important asset will always be the individuals who are ultimately responsible for the Commission's work product. The goal is to remove administrative inefficiencies so these individuals, whether Commissioners, investigators, analysts or attorneys, can concentrate on their work. Document intake, internal and external document distribution, document maintenance, document indexing, and research are ripe areas for improvement considering the middle of the road (not cutting edge) IT that is available today.

In general, several offices commented that they had concerns regarding OIG's emphasis on a paperless ITC and indicated that, for various reasons, paper will be with the Commission for a long time. Additionally, we were reminded that some of the documents filed with the Commission have been previously filed with agencies such as Patent and Trademark Office. OIG recognizes there will always be a need for a residual scanning capability for hardship cases and miscellaneous items.

We agree that the convenience of paper will be with us for a long time, but management and delivery of documents in their paper form will not, because it is not cost effective. It is possible that documents electronically filed with the Commission could be electronically routed to the proper Commission offices and only printed or sent to an offices local printer on command. Current IT initiatives at the IRS, SEC, FCC, Patent and Trademark, CIT, FDA, Postal Service, and State and Federal Courts are an indication that the OIG is not an extreme visionary or a trailblazer in regards to these concepts.

However, the Commission's intent should be clear as to whether it is procuring a system for today or a system for the future. Given that the Patent and Trademark Office and other federal agencies are moving towards mandatory electronic filing, it would not make practical sense for parties to submit their documentation electronically to these agencies and in paper to the Commission for scanning. In that environment, it is conceivable that a good portion of those records would be electronically filed with the Commission, thus diminishing our need for duplicative scanning. A good barometer for the level of scanning ability we will need in the future could be ascertained from other agencies that have offered or mandated electronic filing. In regards to miscellaneous items, we note the need to scan these miscellaneous items will diminish in the near future as well. For example, Postal Service initiatives allow for postal return receipts to be obtained real-time and electronically by the sender.

In general, the Director of Operations commented that we are overselling GPEA. We understand GPEA implementation can be as meaningless or meaningful as the Commission decides. However, that is a business decision that should be based on sound foundations of knowledge of our rapidly changing environment.

How did we incorporate comments in the final Report?

In terms of the general comments offered by the OSE, Operations and Director of Administration, we made no changes to our report. We summarized their general comments and our rationale for not incorporating those comments on pages 2 to 4 in our final inspection report. Where their memoranda offered specific comments we made a number of changes. The General Counsel offered specific language changes that helped clarify the report and we accepted all of those comments.

We note the OIG sits in the luxurious chair of the Monday morning quarterback in regards to this report and the criticisms of the RFP. In regards to the RFP, the Commission has already received the contractor responses. Thus the OIG, in conducting its review, was able to easily ascertain how the IT community interpreted the RFP. For instance, one of

the contractors stated in their response that one objective of the project was to "[p]rovide the technical foundation for the Commission to move from paper-centric document operation to an all-electronic information exchange environment." If the Commission has come to some sort of consensus that it is in the taxpayers' interest to invest in the "foundation," shouldn't we know or try to ascertain what the house is going to look like? In addition, do we need the foundation we requested in terms of size, if some proportion of filings will be received electronically? More importantly is it better to buy the whole house now and how much should that cost?

These questions would seem appropriate to answer, given the considerable efforts other government institutions are making to lessen their dependence on paperwork processing. It may be useful for the Commission to seek a greater understanding of these other efforts in order to gain insight into how paperless the Commission could be in the future. Such understanding may also lead to opportunities for leveraging taxpayer dollars by building upon work already done.

As always, our office is available to assist the Commission upon a request. Thank you for your attention.

Attachment

cc: Commission
Office Directors

OFFICE OF INSPECTOR GENERAL

Independent Evaluation of Electronic Document Imaging System (Review of Business Case and Assessment of Cost-Benefit Analysis)

Inspection Report
OIG-IR-03-00

September 29, 2000

Independent Evaluation of EDIS II

(Review of Business Case and Assessment of Cost-Benefit Analysis)

I. BACKGROUND

The Office of Inspector General initiated this Inspection in August 2000 at the request of the Chairman of the Information Resources Steering Committee (IRMSC). The purpose of this Inspection was to assess the validity of the Cost-Benefit Analysis (CBA) submitted to the IRMSC to support a decision on replacing the current EDIS system. To assist in conducting this Inspection, OIG contracted with Computer Sciences Corporation (CSC) to perform an independent evaluation of the EDIS CBA.

CSC conducted its evaluation in two phases. The first phase was based on a brief review of the documents prepared to justify the acquisition of EDIS II, including the project proposal and Information Technology (IT) Investment Review form. The first CSC report (Attachment I) provided a high-level evaluation of the USITC IT strategy and the methodology and scope of the project proposal as well as a review of the data presented in the project proposal. The first report recommended a second, larger phase that would apply a business-case approach, including an analysis of alternatives and a more complete evaluation of the benefits and costs of the EDIS II project. The OIG subsequently directed CSC to proceed with the second phase limited to evaluating the original EDIS CBA, conducting an independent Benefit-Cost Analysis (BCA) considering additional alternatives, and preparing a report documenting findings.

Very early in the second phase of its effort, CSC concluded that it could not validate the cost and benefit estimates used in the original CBA. Accordingly, OIG agreed that CSC could use these original estimates, but should perform only a sample BCA to illustrate the methodology. The report on the second phase incorporating this sample BCA and CSC's other findings is contained in Attachment II.

II. CONCLUSIONS

Based on the CSC analysis we conclude that the CBA provided to the IRMSC is deficient for the following reasons:

1) The CBA did not provide a credible basis for its estimates of costs and benefits for EDIS. In some cases, CBA estimates were found to be at variance with estimates contained in the RFP.
2) The CBA did not consider the operating costs associated with EDIS.
3) Assumptions and constraints regarding cost savings were not adequately justified or documented.
4) The CBA did not use discounting of future costs and benefits as provided by OMB Circular A-94 and in accordance with standard practice.
5) The CBA did not consider alternatives to the proposed EDIS-II solution, as provided by OMB Circular A-94. In particular, the CBA did not consider an all-electronic filing and distribution alternative that would fully meet the intent of the Government Paperwork Elimination Act (GPEA) of 1998.

III. SUGGESTED ACTIONS

In view of these observed deficiencies of the CBA, it is suggested that the Commission conduct a new BCA that conforms to the methodology provided by OMB Circular A-94 as illustrated in Attachment II. The new BCA should use estimates that can be realistically justified by documented analysis. The new BCA should consider all applicable costs of EDIS, including personnel costs. The new BCA should also include alternatives consistent with the Commission's plan to comply with GPEA (This plan is due to OMB by October 31, 2000).

The Commission should also consider whether to cancel or amend the current EDIS II RFP. The current RFP is heavily weighted toward upgrading the current scanner-centered process. It is possible that the new BCA as well as the Commission's GPEA plan may suggest an EDIS alternative more heavily weighted toward all-electronic filing and distribution of documents. In such case, the Commission may want to issue a new or amended RFP, or perhaps determine whether the proposals received in response to the current RFP are sufficiently flexible to accommodate a changed emphasis.

A final suggestion is that the IRMSC consider issuing guidance on the proper methodology to be used in evaluating the Commission's IT investments. Such guidance can draw upon the guidance provided in OMB Circular A-94 and the lessons learned from the EDIS BCA as documented in the attachments.

IV. COMMENTS FROM OTHER OFFICES

A draft of this report was circulated to members of the IRMSC and Commissioners for comment.

The General Counsel offered several comments that clarified language contained in the draft report. All of the General Counsel's comments were incorporated. The Director of Administration provided comments and generally agreed with the findings of the report. We incorporated his comments as appropriate.

The Director of Information Services commented that several findings of the draft report reflect the immaturity of the Commission's relatively new investment review process, but that in his opinion investment in EDIS II is the correct decision. In general, he did not agree with the findings of the report. Specifically, he did not agree with our analysis of the EDIS II proposal's compliance with GPEA or that the project is too conservative in its goals to implement GPEA. In contrast, he agreed with the need to complete the IRM Plan and a GPEA Plan and the need to resolve issues regarding the CIO position. We agree with the comment that the Commission's relatively new investment process contributed to some of the findings contained in the draft report. However, we made no changes to the draft report based on his comments.

The Office of the Secretary (OSE) provided several general and specific comments. We made no changes based on OSE's general comments. One general comment was that some benefits may be stated as equivalent values in contrast to how we used values based on assigning a relative weight of importance and comparing to measurable benefits. For instance, OSE estimated the benefit of a user-friendly interface was equivalent to a yearly subscription to Lexis-Nexis. We agree with the concept that benefits may be stated in equivalent value where there is a clear relationship, but disagree that a yearly subscription to Lexis-Nexis is a proper equivalent for the benefit of a user-friendly interface. The value of Lexis-Nexis relates to its content, not whether or not it provides a user-friendly interface.

OSE points out that some decisions are not cost/benefit driven and the report is not clear in that regard. We agree with their first point. However, our report clearly emphasizes the need to comply with GPEA and PL 102-569 even though such compliance may or may not be justified on a cost/benefit basis. We have never maintained that the decision on this project should be made solely on the results of the benefit-cost analysis. However, we see an important management need to provide a complete business case that includes a benefit-cost analysis, among other business related elements.

OSE commented that they had concerns regarding OIG's emphasis on a paperless ITC and that for various reasons paper will be with the Commission for a long time. Additionally, they commented that some of the documents filed with the Commission have been previously filed with agencies such as Patent and Trademark Office. We recognize there will always be a need for a residual scanning capability for hardship cases and miscellaneous items. We agree that the convenience of paper will be with us for a long time, but management and delivery of documents in their paper form will not because it is not cost effective. It is quite conceivable that documents electronically filed with the Commission can be electronically routed to the proper Commission offices and only printed or sent to an office's local printer on command. Current IT initiatives at the IRS, SEC, FCC, Patent and Trademark, FDA, Postal Service, and State and Federal Courts' are an indication that the OIG is not an extreme visionary or a trailblazer in regards to these concepts.

However, the Commission's intent should be clear as to whether it is procuring a system for today or a system for the future. Given that the Patent and Trademark Office and other federal agencies are moving towards mandatory electronic filing, it would not make practical sense for parties to submit their documentation electronically to these agencies and in paper to the Commission for duplicative scanning. In that environment, it is conceivable that a good portion of those records would be electronically filed with the Commission, thus diminishing our need for duplicative scanning. A good barometer for the level of scanning ability we will need in the future could be ascertained from other agencies that have offered or mandated electronic filing. In regards to the need to scan miscellaneous items, we note the need to scan these miscellaneous items will diminish in the near future as well. For example, postal return receipts can be obtained real-time and electronically by the sender.

OSE offered additional specific comments, which we incorporated as appropriate. Some of the specific comments related to our analysis of the Business Case contained in Attachment I, Appendix A. We note that the review was from the perspective of what was in the Business Case presented to the IRMSC. Appendix A indicates whether the Business Case addressed the listed question; it does not provide the answer to the question.

The Director of Operations also submitted comments on the draft report. He agreed with the suggested actions in section III above, with some reservations. Many of his other comments related to disagreement with conclusions reached. We did not incorporate any of these comments, since the entire purpose of this exercise was to obtain an independent assessment based on available facts. Two specific comments that were incorporated related to authorship of the RFP and correction of an error in distinguishing between the Strategic Plan and the IRM Strategic Plan.

In his comments, the Director of Operations stated, "you are overreaching in your characterization of the significance of the EDIS project and of GPEA." We disagree with this comment. By automating the current paper-centric filing and investigation process, the Commission will become more efficient and thereby free up its human resources to spend more time on higher-level tasks such as planning, evaluating and innovating.

It is this redirection of human capital and potential that will allow a significant improvement in the Commission's work product.

The Director of Operations also cited several ongoing or completed IT projects as evidence that the Commission is implementing a successful IT strategy. As the report points out, however, there is no overall plan that defines the Commission's strategic objectives for IT and how these objectives are to be achieved. Without such an integrated plan it is hard to determine whether the piecemeal IT projects the Commission has been pursuing are leading in the right direction toward attainment of the Commission's strategic objectives.

The Director of Operations disagreed with the conclusion that the Commission does not have a well-defined, well-documented process to guide the Commission's IT investment decisions. However, the conclusion is well founded given the documented shortcomings of the EDIS II business case and some of the concerns raised by other members of the IRMSC. We also noted that OSE received little guidance on how to prepare the Business Case for EDIS II The absence of an IT Strategic Plan also supports the conclusion.

Attachments: I – Review of Business Case
II - Review and Assessment of the Benefit-Cost Analysis for EDIS II.

Attachment I
Review of Business Case

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I. INTRODUCTION

The United States International Trade Commission (USITC) has decided to replace its Electronic Document Imaging System (EDIS). Accordingly, the USITC has issued a Request for Proposal (RFP) for a replacement system, referred to as EDIS II. To justify the acquisition of EDIS II, a project proposal and Information Technology (IT) Investment Review form (hereafter referred to as *the Business Case)* were prepared and submitted to the IRM Steering Committee (IRMSC) for approval. The IRMSC, although not approving the business case, approved proceeding with a solicitation for an EDIS II replacement procurement. A request for proposal (RFP) was prepared and issued on July 5, 2000, with offers due on July 28, 2000 (subsequently extended to August 4, 2000).

To assess the completeness and validity of the Business Case, the Office of Inspector General engaged Computer Sciences Corporation (CSC) to perform a review and assessment of the Business Case. CSC proposed a two-step process.

Step One (Attachment I) consists of a review of the USITC IT strategy and methodology and scope of the Business Case as well as a high-level review of the data it presents. In Step Two, (Attachment II) CSC evaluated the original EDIS Cost-Benefit Analysis, conducted an independent Benefit-Cost Analysis considering additional alternatives, and prepared a report documenting findings.

This report, Attachment I, documents CSC's observations and findings based on the Step One review of the Business Case. The report is organized into the following sections:

- Objectives
- Scope and Methodology
- Preliminary Observations and Findings
- Recommended Next Steps
- Appendix A-*Attributes of Effective Business Cases.*

II. OBJECTIVES

- Determine if the proposed replacement EDIS meets the intent of the Government Paperwork Elimination Act (GPEA)
- Evaluate the proposed replacement EDIS with respect to degree of automation and the extent to which it is web-based
- Assess the proposed replacement EDIS within the context of the USITC IT strategy
- Assess the completeness of the benefits stated in the Business Case

III. SCOPE

The study encompassed the review of these documents: 1.) Functional Requirements for an Electronic Document Imaging System at the USITC (October 1999); 2.) Functional Requirements Matrix for EDIS Replacement System (undated); 3.) Project Proposal and Evaluation (undated); and 4.) RFP for Electronic Document Imaging System (EDIS-II) for the USITC (July 5, 2000).

IV. METHODOLOGY

To perform the study, CSC reviewed the documents cited in the *SCOPE* section, met with the Acting Inspector General and interviewed the Deputy Secretary. The meeting with the Acting Inspector General was to obtain direction and guidance regarding the objectives and scope of the study and to gain an understanding of the strategic context within which the acquisition is taking place. The Deputy Secretary was interviewed to gain a clearer understanding of the methodology employed and process followed by the authors of the documents reviewed. By virtue of her role as an EDIS user, she provided valuable insights into day-to-day operations as well.

To assess the completeness and validity of the Business Case, CSC developed a chart (Appendix A) displaying key attributes of effective business cases as defined by the memorandum from the OMB Director dated October 25, 1996, "Funding Information Systems Investments" (Raines' Rules) and other applicable rules and legislation such as OMB Memorandum M-97-02, "Principles of Budgeting for Capital Asset Acquisitions", the Clinger-Cohen Act of 1996 and the Government Results and Performance Act.

Key Assumptions

CSC's findings rest on the following assumptions regarding business cases supporting IT investments for agencies and commissions of the Federal Government:

- A *Business Case* is a structured proposal for business improvement based on business and functional requirements that serve as a decision package for key executives. In all instances, a business case establishes a baseline from which to monitor, measure and evaluate the improvement and includes documentation of business process performance and associated needs or problems, proposed alternative solutions, assumptions constraints, and a risk-adjusted return on investment.
- A properly-developed business case should a.) justify the selection of the proposed asset in the context of the mission and vision; b.) verify funding availability and demonstrate compliance with sound principles of financing, and c.) define cost, schedule and performance goals and identify the strategies for achieving them through risk mitigation.
- A good business case answers three questions very clearly: 1.) What is the proposed investment?; 2.) What are we trying to do with it and why?; 3.) How does the proposed investment make good business sense?

CSC then assessed the USITC business case against the attributes contained in the chart (Appendix A) and applied the above assumptions to the data collected through meetings and interviews to arrive at the preliminary observations and findings.

Due to the short timeframe allocated for Step One, the *Findings and Observations* identify shortcomings, gaps and deficiencies ***only***. The reader can assume that CSC found that the business case addressed all unmentioned areas satisfactorily.

V. OBSERVATIONS AND FINDINGS

Based on the review of the Business Case and supporting documentation and the meeting with the Acting Inspector General and interview with the Deputy Secretary, CSC gained an understanding of the strategic context for the proposed IT investment, some of the major issues around the acquisition and insight into the methodology employed to derive the benefits expected to be achieved as a result of implementing EDIS II. We then compared the information we gained to our assumptions regarding the element, components and attributes of effective business cases to develop our observations and findings, organized as follows:

- Overall Observations and Findings
- Specific Observations and Findings
- Implications/Conclusions for Study Objectives

Overall Observations and Findings

Lack of an overall IT vision makes it difficult to assess the appropriateness of the IT investment in a strategic context.

- The IT strategy or vision is an incomplete draft.
- The USITC does not have an office of the CIO to provide IT leadership and serve as the Chief Technologist.
- The IS function is dispersed across several organizational units.
- These factors contribute to the lack of complete agreement regarding the design/functionality of EDIS II.

The USITC did not consider the acquisition of different, emerging technologies to address its requirements.

- The intent of the business case is to justify a replacement for EDIS I by more efficient and effective imaging technology.
- The RFP calls out a requirement for electronic capability (para II-5-7) but clearly states the goal of procuring an upgraded version of the current technology (para II-4.0).
- The requirement for a web interface is stated as a continuation of the current capability (para II-5.6).
- EDIS II would utilize scanners, suggesting a continuation of paper submissions.
- No forecast of increased volumes of electronic submissions and a corresponding decrease in paper submissions was developed.
- Evaluation of alternative solutions, that could potentially bring greater benefits and align more closely with the all-electronic goal of e-government, were not documented.

Key stakeholders are not aligned around the proposed EDIS II acquisition

- Paper versus electronic submission appears to remain an open issue.
- Different points of view around the best technology solution have yet to be reconciled.
- Proceeding with the procurement as is could result in a prolonged, costly implementation of what could be a technologically obsolete solution.

The Business Case omitted potential cost savings in its benefits calculation.

- The impact on printing operations was not considered completely.
- All areas of operations that interface with EDIS I were in all likelihood not reviewed with a view toward elimination or reduction in level of effort.
- Examples include work-arounds put in place to compensate for the shortcomings of EDIS I and other feeder processes to EDIS I

Specific Observations and Findings

- The Business Case does not meet the requirement of delivering a decision package to USITC leadership.
- The Business Case does not contain an adequately-documented baseline of current business process performance.
- Alternative solutions were not addressed in the Business Case.
- Assumptions and constraints were not stated.
- Because acquisition and O&M costs were not factored in to the benefits calculation, no return-on-investment (ROI) is presented.
- The impact of the new system on the USITC operating model was not assessed.
- The USITC does not have a track record of successfully implementing IT investments of similar size and complexity.
- The analytic techniques used to determine benefits were not described.
- The period of performance was left to the bidders to determine.

VI. IMPLICATIONS/CONCLUSIONS FOR STUDY OBJECTIVES

Objective 1: Determine if the proposed replacement EDIS meets the intent of the Government Paperwork Elimination Act (GPEA).

Discussion: GPEA requires Federal agencies to allow individuals or entities that deal with the agencies the option to submit information or transact with that agency electronically and to maintain records electronically by October 21, 2003.

Conclusion: **Because of the wording of GPEA, the replacement EDIS in all likelihood does meet some of the requirements of GPEA. One concern is the capacity of the system to meet potential volumes of electronic submissions, since these were not planned for or forecasted.**

Objective 2: Evaluate the proposed replacement EDIS with respect to degree of automation and the extent to which it is web-based.

Conclusion: **EDIS II will be an updated version of the same imaging and technology employed by EDIS I. The web capability for EDIS II appears to be identical to EDIS I. No alternative technologies were considered based on the data obtained by CSC. EDIS II may or may not be the best technology solution for the USITC requirement.**

Objective 3: Assess the proposed replacement EDIS within the context of the USITC IT strategy.

Conclusion: **The assessment could not be made because there is no USITC IT strategy. There is risk associated with going forward with EDIS II in the absence of an USITC IT strategy. There are at least two potential outcomes: first, EDIS II could be what determines the IT strategy (the tail wagging the dog), resulting in a strategy by default; second, when an IT strategy is developed, EDIS II may not be aligned to it, leading to a premature decommissioning and/or expensive acquisition of a needed state-of-the-art technology such as a Knowledge Management portal organized around key words using an XML vocabulary.**

Objective 4: Assess the completeness of the benefits stated in the Business Case.

Conclusion: **The Cost-Benefit Analysis should be revised. Costs were not factored into the business case; therefore, no ROI calculation was presented. In addition, not all potential cost savings were documented.**

VII. SUGGESTED NEXT STEPS

- Design and facilitate a process to create a consensus-driven IT strategy for the USITC.
- Recommend an IT organizational design that would position the USITC to better leverage emerging technologies
- Revise the Business Case to include:
  - Alternative technologies to electronic imaging and To-Be architecture of preferred solution
  - A complete baseline of current business performance as measured by time, quality and cost
  - A complete Benefit-Cost Analysis

CSC was pleased to have the opportunity to prepare this study for the Office of Inspector General. We recognize that the short timeframe allotted to complete the study required our efforts to focus on identifying gaps and deficiencies in the USITC business case. More time would have enabled us to highlight the many excellent qualities of the business case that would have better recognized the hard work that went into its preparation.

To interpret the chart that appears on this and the following two pages, pose the question "Does the USITC Business Case address, include or otherwise satisfy the stated attribute?" As a means of ensuring fairness given the brief nature of the study, in borderline cases CSC determined that the Business Case satisfied the attribute in question.

Business Case Attribute	Yes/No
1. Business need, functional requirements & possible business solutions identified?	Y
2. Technical options and possible alternative solutions explored?	N
Compliance with "Raines' Rules" determined (3.0-10)? 3. Does the project support a governmental function?	Y
4. Could the function be outsourced?	N
5. Does it support work processes that have been simplified/utilize COT?	N/Y
6. Show adequate ROI?	N
7. Consistent with USITC information architecture?	Y
8. Reduce risk?	Y
9. Implemented in phases?	Y
10. Employ effective acquisition strategy?	Y
11. Compliance with strategic vision determined?	N
12. Impact on other initiatives determined?	N
13. Funding & other resources availability determined?	Y
14. Legislative requirements determined?	Y
15. Buy-in and support of key stakeholders obtained?	N
16. Baseline of current operating performance established?	N
17. Assumptions and constraints stated?	N
18. Risk-adjusted return on investment included?	N
19. Schedule of benefits described?	Y
20. Staff savings presented as FTEs?	N
21. Future workloads identified?	N

22. Benefits claimed by other initiatives excluded?	Y
23. Impact on operating model assessed?	N
24. Non-financial benefits identified?	N
25. Business value assessed?	Y
26. Investment costs defined?	N
27. Operations & maintenance costs (O&M) defined?	N
28. Impact on personnel, organizations and quality of worklife assessed?	Y
29. Implementation schedule developed?	N
30. Was the business case fully coordinated among stakeholder organizations before being presented to the IRM Steering Committee?	N
31. Is there adequate documentation to support all statements?	N
32. Are there unsupported assertions?	Y
33. Does the business case clearly articulate the overall need for the investment?	Y
34. Do functional requirements include:	
35. A definition of the common usages of the function?	Y
36. The ranking of each requirement in order of importance?	Y
37. Is linkage to mission, objectives and strategic goals shown?	Y
38. Does the business case indicate that business processes will be re-engineered before the IT investment is made?	N
39. Are major cost drivers identified?	Y
40. Are analytic techniques used to define costs/benefits described?	N
41. Does the amount of the investment differ from the budget?	N
42. If there is a difference, is the difference explained?	
43. Does the case describe how hardware costs were estimated?	N
44. Does the case describe how software costs were estimated?	N
45. Were costs for adequate software testing included?	N
46. Does the case describe how site preparation costs were estimated?	N

47. Has the USITC successfully managed previous IT investments of similar risk and complexity?	N
48. Does the case clearly articulate any significant schedule and technical risks?	N/Y
49. Has the IS organization assessed conformance with the IT architecture?	Y
50. Does the case describe how performance will be tracked and reported?	N
51. Will the project be executed in well-defined phases?	Y
52. Have the major critical path activities been identified?	N
53. Is the project schedule aggressive?	N/A
54. Is the acquisition strategy clearly defined?	Y
55. Was emphasis placed on generating innovation and competition from industry?	N/Y
56. Were dependencies/linkages to other projects shown?	N

Attachment II
Review and Assessment of the Benefit-Cost Analysis for EDIS II

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I. INTRODUCTION

In May 2000, the IRM Steering Committee (IRMSC) of the United States International Trade Commission (USITC) received a project proposal for an Electronic Document Imaging System (EDIS) replacement project. Documentation was provided to address how the proposed information technology investment would support the agency's strategic goals and whether it represented the most efficient and effective use of available Information Technology (IT) resources. Upon IRMSC approval to proceed with a solicitation for an EDIS II replacement procurement, a request for proposal (RFP) was prepared and issued on July 5, 2000, with offers due on July 28, 2000 (subsequently extended to August 4, 2000).

Computer Sciences Corporation (CSC) conducted its evaluation in two phases. The first phase was based on a review of the documents prepared to justify the acquisition of EDIS II, including the project proposal and IT Investment Review form. The first CSC report (Attachment I) provided a high-level evaluation of the USITC Information Technology strategy and the methodology and scope of the project proposal as well as a review of the data presented in the project proposal. The first report recommended a second step of analysis applying a business-case approach that would include an analysis of alternatives and a Benefit-Cost Analysis of the EDIS II project. The OIG subsequently directed CSC to proceed with the second step limited to evaluating the original EDIS Benefit-Cost Analysis, conducting an independent Benefit-Cost Analysis considering additional alternatives, and preparing a report documenting findings.

The OIG noted there is a potential of dramatically improving business processes for the Office of the Secretary and the USITC as a whole. Additionally, technology investments in this area could be a crucial part of assisting the USITC in implementing and complying with the Government Paperwork Elimination Act (GPEA). Therefore, CSC was also directed to review the EDIS II procurement in light of GPEA, as well as Office of Management and Budget (OMB) guidelines for conducting economic analysis of proposed government investments.

II. OBJECTIVE

The objective of the Inspection was to perform a comprehensive review of the Benefit-Cost Analysis of the EDIS II project proposal and formulate appropriate recommendations. CSC was also asked to provide some general guidance on how to conduct Benefit-Cost Analysis of Information Technology investment projects. The review provides a sample Benefit-Cost Analysis that considers other possible alternatives to EDIS. This sample analysis is provided to illustrate the proper methodology for conducting benefit-cost analyses. The report also assesses how the EDIS II proposes to take into consideration GPEA and other legislation regarding investments in information technology.

III. SCOPE AND METHODOLOGY

The scope of the review of the EDIS II project focused on meeting the objectives defined in the August 2, 2000 OIG memorandum to the IRMSC, USITC Commissioners and senior staff. Based on the preliminary findings developed in the initial phase, this review includes: validation of the data used in the EDIS II project proposal, an effort to establish a baseline of current EDIS performance in terms of time, quality and cost, an assessment of the impact of a replacement system on business operations, and development of a revised sample Benefit-Cost Analysis using OMB guidelines. Time limitations and the limited availability of baseline data allowed only a sample Benefit-Cost Analysis.

During this phase of the study, CSC conducted interviews to gather information with key EDIS stakeholders who could provide additional qualitative and quantitative information about the current EDIS processes and desired EDIS II outcomes. The persons interviewed included the USITC Secretary, USITC Deputy Secretary, and USITC Director of Office of Information Services (OIS).

CSC reviewed a number of EDIS II-procurement-related documents including statutes, OMB guidelines, and USITC strategic planning documents, as follows:

- Public Law (P.L.) 105-277, Government Paperwork Elimination Act (GPEA), signed October 21, 1998
- Information Technology Management Reform Act (ITMRA) of 1996, also known as the Clinger-Cohen Act
- P.L. 103-355, Government Performance and Results Act (GPRA) of 1993
- OMB Circular No. A-94 Revised, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, October 29, 1992.
- *Ibid.*, Appendix C "Revised Rates for Cost-Effectiveness, Lease Purchase, and Related Analyses" page 18. Revised January 2000.
- OMB Memorandum on Funding Information Systems Investments, (Raines' Rules), Establishes ITMRA-related decision criteria and implementation guidelines for evaluating Information Technology investments, October 1996.
- USITC Strategic Plan for Information Resources Management for Fiscal Years 2001-2005, (Draft version dated July 4, 2000)
- USITC Technology Review Committee Memorandum to IRMSC. Subject: Project Proposal for IRMSC Review—EDIS Replacement – Phase II, May 2, 2000.
- Solicitation No. ITC-RFP-00-0002 issued July 5, 2000. Electronic Document Imaging System (EDIS II)
- IRS Investment Decision Management Business Case Procedure, June 30,2000. Appendix A, Economic Analysis Techniques. Prepared by Computer Sciences Corporation, IRS PRIME Alliance Contract.

The methodology used in this Benefit-Cost Analysis is based on standard business analysis techniques and CSC consulting best practice. The basis of the methodology is present value analysis, which is among the most effective ways to compare costs and benefits. After present value benefits and present value costs are calculated, the Net Present Value (NPV) of an alternative is calculated and used as the basis for comparing it to all other alternatives.

This standard approach has been adapted to meet OMB Circular A-94 guidelines for Benefit-Cost Analysis of Federal programs and business case preparation for Information Technology investments. For this study, OMB guidelines were tailored in consideration of the duration and scope of the EDIS II evaluation as well as the type and size of investment.

An analysis of possible EDIS alternatives was performed with the purpose of presenting a sample of the benefit-cost approach that can generally be used in developing a more comprehensive business case for Information Technology investments.

Appendix A provides a description of the methodology used by CSC including formulas for calculations and definition of terms used for this Report. Appendix A also provides a Sample Benefit-Cost Analysis used to illustrate the methodology.

IV. FINDINGS

A. The USITC's Current Document Processing Business Environment

In order to establish a common baseline against which EDIS alternatives could be identified and measured, CSC reviewed the current USITC document processing business environment and gathered information to define its business processes in quantitative as well as qualitative terms.

The Office of the Secretary (OSE) is responsible for supporting the USITC's overall mission by collecting and providing access to information regarding international trade to numerous internal as well as external users. The USITC receives documents from law firms, from entities concerned with trade, and from the public. USITC staff need access to these documents to conduct their functions in research and analysis of trade issues brought forth to the USITC. In addition, parties to cases brought before the USITC must have timely access to case-related documents. The public also has access to certain unrestricted documents and information, including docket information.

The current EDIS was acquired in 1995 for OSE to handle the collection, storage, and dissemination of documents, including the docket files for USITC cases and all official publications. In 1999, the USITC developed EDIS On-Line (EOL) to provide enhanced public access via the Internet to public document images and docket information from EDIS. EOL also provides access to confidential documents to authorized USITC internal users. Currently, only OSE and the Office of Investigations (OINV) scan documents for input to EDIS. The three types of documents scanned to EDIS are: over-the counter documents received by OSE, documents from industry sources collected by OINV, and evidential materials received at the completion of trials conducted under the USITC's jurisdiction.

The EDIS II solicitation states the USITC's requirements to acquire a system that will assist movement from a paper-centric to all-electronic document processing and improve the economy and efficiency of document processing as well as meet recent legislative laws, including those legalizing the use of digital signatures for a variety of documents and transactions. The current EDIS has a total of 2.3 million images contained in 81,000 documents including legal briefs, research studies, and other materials related to the agency's quasi-judicial functions. As per Section II-5.8 of the RFP, an additional 198,000 images in 7,248 documents are expected by the end of the current fiscal year (September 30, 2000). The USITC Sources Sought Synopsis issued May 17, 2000, states that the USITC inputs approximately 50,000 pages per month.

Table 1 on the next page presents a summary of key information gathered about the current EDIS operational environment in terms of processing volumes and related cost data. Data sources included the RFP and EDIS II project proposal estimates provided by the Deputy Secretary. This information was used to better understand the volume and type of image processing required for EDIS replacement. (For more information about the EDIS II procurement, please refer to Solicitation Number ITC-RFP-00-0002.)

Table 1. Current EDIS Processing Volumes by Type and Related Costs

ITEM	RFP Data	Annualized Data Other Costs	Notes
Over-the Counter Documents	1.2 Million pages over past two years –	600,000 pages per year	Source: RFP Sec II 5-1
OINV Investigation Documents	300,000 pages over past two and one-half years	APO releases - 110,000 images or 60,000 pages (double sided)	Source: RFP Sec II 5-Due to a typographical error, this number was shown as 30,000 in the RFP
Evidential Material (Scanning contracted out)	9 sets with average of 21,000 images each over 1 ½ years	126,000 images (Annual cost at $.09 per image = $11.3K per year)	RFP Sec II 5-1
Backfile	2.3 million images (in 81,000 documents)		RFP Sec II-5.8
One-year additional images	198,000 images (in 7,248 documents) over 4 months – RFP Sec II-5.8.	50,000 pages per month or 600,000 per year (Sources Sought Synopsis, Mod. 5/17/00)	Two sources are approximately consistent. RFP data is estimate for last 4 months of FY 2000.
Users	25 concurrent; 500-1000 authorized listing		RFP Sec II 5-1
Docutech II (lease $87,000 plus labor – 2 FTE at $45,000)		Total costs = $177,400 Source: OSE	It is not clear how to obtain the amount of savings used in EDIS proposal ($150K to $450K per year) from these total annual costs.
Labor rate (Administrative)		$19.61 /hour (Average grade GS8, Step 3 plus 20% benefits)	Source: OSE Rough approximation. Not based on historical labor and fringe data from Personnel Office
In-house Processing or Throughput		$.07 per page (23 pages per 5 minutes or 276 pages per hour)	Source: OSE Rough approximation. Not based on historical information. System performance data not available
Imaging Contractor rates (unit cost per image)		$.09 per page	Source: OSE Amount validated by invoices from contractor.
Docutech Printing costs		$.009 per click (image) for 100,000 images per year. Source: OSE	Rough approximation based on anecdotal information from Printing department
APO Release Distribution costs (10 parties per release)		1,000,000 images printed plus $4500 mailing costs. Source: OSE	Rough approximation based on anecdotal information, not on past historical data
Annual Subscription to Lexus/Nexus		$70,000 Source: OSE	Amount used to measure customer satisfaction in EDIS proposal. Could not validate as a measure of actual customer use or level of services provided.

It is important to note that most of the data described above were derived, estimated, and manually calculated with extraordinary effort by the Deputy Secretary. As noted in Table 1, the

amounts derived from the RFP and other sources were rough approximations based on anecdotal rather than historical data. Although the current EDIS system provides abundant data regarding daily transactions and error reports, summary reports containing management information about the system, its performance, and, most important for this analysis, its operational costs, are not readily available.

B. Validation of Initial Proposal with Current Operational Cost Data

After gathering information about current EDIS business processes, CSC conducted a review of the initial proposal for EDIS II and the supporting data used in the original Cost-Benefit Analysis prepared for the IRMSC.

The EDIS II replacement recommendation was based on benefits resulting from projected savings in six specific areas:

- Electronic APO Releases
- Electronic Filings
- Scanning Efficiencies
- Lower Technical Support Costs
- User Friendliness, and
- Public Access.

CSC reviewed EDIS proposal data with OSE and other staff to determine the basis-of-estimate (BOE) for savings and benefits for each of these areas. This task was seriously limited by the lack of complete and reliable data as indicated by the notes column in Table 1. Although additional operational information and basis-of-estimate data were requested and some data were provided, it was not possible to validate the accuracy and reliability of the original Cost-Benefit Analysis prepared for the IRMSC. Specific items are discussed below.

Findings. Generally, the EDIS II replacement recommendation and calculation of proposed benefits were based on estimated savings and cost reductions that were determined without applying a standard process or guideline for evaluating Information Technology investments. Furthermore, current EDIS operational baseline costs and alternative options to EDIS were not included in the original proposal. Complete and accurate data about overall system performance, operations and maintenance, and/or independent sources of data to confirm savings were not available or provided within the time frame of this study. Additionally, the original analysis was found to contain inconsistencies with the RFP and other information sources (See Table 1) as well as benefit-cost methodology deficiencies that would require resolution prior to completion of a valid Benefit-Cost Analysis.

Some of the factors that restricted validation of the data used in the original proposal and its proposed benefits/cost savings are summarized below.

1. **Basis-of-estimate (BOE) data was not available or defined.** Therefore, the numbers used for determining annual savings were not replicable, documented, and consistently applied.

2. **Baseline (Year 0) operational costs were not used or defined.** It is not clear how savings were determined for each area in the EDIS proposal. According to the Director of OIS the approach was based on "anticipated differences." It is not clear what baseline was used to calculate such "differences."

3. **A well-defined Benefit-Cost Analysis that complies with standard and/or OMB guidelines was not followed.** For example, although according to the Director of OIS, NPV was used in the analysis, a discount rate was not applied. Therefore, the total investment and savings amounts are not discounted over the selected life cycle period (4 years) as required by a valid Benefit-Cost Analysis. Furthermore, the process used for return-on-investment (ROI) determination was not documented.

4. **Assumptions and constraints regarding savings were not well defined nor documented.** Examples: (1) The proposal assumes significant savings from reducing/ eliminating current APO release printing and distribution costs; it assumes a facile, immediate, and acceptable solution for all stakeholders without a study or report to substantiate it. (2) Technical support savings are assumed to translate into a specific level of continuing contractor support (one-third of current contract costs) that will be required by the new EDIS II system—again without supporting data. (3) Fixed labor costs (or the lack of consideration of potential savings due to USITC staff reductions) are unexplained yet fundamental constraints. OSE staffing levels were assumed to remain the same throughout the total period of analysis (four years). Therefore, no benefits were derived from staff reductions or increased productivity.

5. **Lack of alternatives.** Alternative scenarios or solutions that apparently were given some consideration by the OSE were not documented or included in the Benefit-Cost Analysis, e.g., electronic distribution of documents.

6. **Lack of consideration of other factors.** Factors that could impact current and future operational costs or produce savings (benefits) were apparently not seriously considered and included in the analysis, such as: business process reengineering for improved productivity, error and rework reduction, staff training, increased volume of direct, internal electronic document submission, processing improvements, system enhancements, lease vs. purchase of systems, and/or partial or complete outsourcing of services.

Addressing the items described above would have ensured a more consistent and comprehensive Benefit-Cost Analysis.

C. Methodology Applied to Benefit-Cost Analysis

In view of the above constraints, CSC conducted a high-level, sample Benefit-Cost Analysis that attempted to determine estimated baselines costs and to identify some possible alternative scenarios to the EDIS II procurement. Using the data gathered and analyzed in the preceding sections, a sample Benefit-Cost Analysis was performed that followed a standard methodology and OMB guidance more closely and included the comparison of EDIS alternatives or operational scenarios.

A brief overview of the CSC approach and a description of the various alternative scenarios considered are presented in this section. Please refer to Appendix A for more information and a step-by-step benefit and cost calculations that were applied to each scenario considered. Appendix A also provides definition of terms and more detailed descriptions of the methodology used to prepare the sample report.

The alternative scenarios identified for this study are illustrative only and are used to demonstrate an applicable Benefit-Cost Analysis methodology. They are not intended to represent all the possible alternatives to an EDIS II replacement nor do they represent "best in class" technology solutions. In particular, it is important to note that the EDIS all-electronic option that would be fully compliant with GPEA was not included in the sample analysis because CSC did not have enough valid information to accurately determine, analyze, and compare the full benefits and costs of this option. Evaluation of state-of-the-art technologies used by existing imaging systems and recommendation of a technological solution to USITC were not within the scope and time limits of this CSC study.

Analysis of EDIS Alternative Scenarios.

To facilitate comparison of benefit-costs, the sample analysis conducted by CSC generally adopted the same basic assumptions and constraints that were applied to the original Cost-Benefit Analysis, whether these were considered well justified, valid or invalid. CSC recognizes that a more comprehensive Benefit-Cost Analysis would have to challenge and/or validate those basic assumptions by conducting agency-wide, cross-functional group interviews, independent alternatives assessments, and by gathering more accurate cost and performance data than were available for this study.

Table 2 on the next page provides a brief description of the four scenarios analyzed. Yearly costs and benefits for each scenario were calculated and compared. For estimation purposes, salary, and other operational costs were assumed to be those provided. Following the descriptions, each scenario's key contributions are briefly summarized.

Table 2. Description of Scenarios

Scenarios	Brief Description	Benefit-Cost Impact
Status Quo (Current EDIS)	-Standstill option; no business change or improvement -EDIS hardware (HW) and software (SW) maintained; -Staffing level stable	-All O&M costs remain stable or may increase due to increased maintenance costs; -Customer Satisfaction may decrease
EDIS Plus	-Enhancement option; minimal business change necessary -Current HW and SW are modified to address processing inefficiencies and error rate -Staffing level and functions remain unchanged	-Cost of SW modification and HW upgrade increase -Additional contractor support required -Some benefits result from improved processing efficiency and reduced error rates
EDIS II	-Replacement option; major business change required - HW/SW as per best offering that meets all #1 requirements in RFP -Staffing level remains stable but reallocation of functions and training necessary	-Cost of investment ($300,000+) plus new O&M costs over lifecycle -Benefits result from improved processing efficiency, reduced error rate, elimination of duplication/ distribution of documents, reduced paper handling via electronic submissions; staff time reallocation
Outsourcing Document Imaging	-Maintain current system and staff to prepare, index and distribute documents -Contract out all imaging (scanning) services -Minimal business change required	-Cost of contracting-out imaging services will increase -Some benefits result from availability of staff time for reallocation of functions; reduced O&M costs of imaging HW/SW.

Scenario 1- Status Quo is to continue operating the current system. This option would avoid any significant investment. However, this option does not address the processing and technical limitations of a system approaching obsolescence. Nor does this option advance the goals of GPEA to move towards acceptance of electronic document submissions and use of electronic signatures. This scenario should only be considered in the event the USITC faces an extreme reduction in funding.

Scenario 2- EDIS Plus would maintain the USITC's current EDIS system but would make sufficient investment in software and hardware improvements to address the limitations of the current system. Some productive increases would be gained but it also would not move USITC towards fully meeting the objectives of GPEA. This option would require some investment of funds for system enhancements and training.

Scenario 3- EDIS II supports the current solicitation for an EDIS II system. In accordance with the analysis of benefits and costs (see details in Appendix A), this scenario provides more benefit to the USITC than the three other scenarios. As such, within the constraints of this evaluation,

this option potentially provides a higher return on investment than the other three. However, this scenario would not move USITC toward fully meeting the objectives of GPEA.

Scenario 4- Outsourcing would contract-out all image-processing functions currently performed in-house. This scenario would reduce the cost of in-house image processing but would significantly increase the cost of contractual services. Impact on overall document processing would also be low because this scenario assumes minimal change in the current operational environment. This scenario would not contribute in any manner towards fully meeting the objectives of GPEA.

Findings. The original Cost-Benefit Analysis provided to the IRMSC should have applied the OMB-recommended approach to support its recommendations. Although the data used could not be verified and validated, CSC was able to identify benefit and cost categories for each EDIS alternative scenario and to translate these into quantifiable measures or reasonable estimated values for each. CSC's sample Benefit-Cost Analysis clearly demonstrates the value of the methodology because the analysis can provide valuable insights and information to decision makers. In support of this approach, a number of tables are presented in Appendix A that provide additional details resulting from application of the Benefit-Cost Analysis methodology to these sample scenarios. These tables include a summary scenarios comparison table and extensive detail on the measurable costs applied to each scenario. A results summary table presents the results of CSC's sample analysis including benefit cost ratios and return-on-investment (ROI) determinations.

D. Compliance of EDIS II with GPEA and Rehabilitation Act, Sec tion 508

The Government Paperwork Elimination Act (GPEA), P.L. 105-277, Title XVII, was signed into law on October 21, 1998. GPEA is intended to improve customer service and governmental efficiency through the use of information technology. This improvement involves transacting business electronically with Federal agencies and widespread use of the Internet and the world wide web (WWW) as commercial enterprises are doing.

By October 21, 2003, GPEA requires Federal agencies to allow individuals or entities that deal with the agencies the option to submit information or transact with the agency electronically, when practicable, and to maintain records electronically, when practicable. The Act specifically states that electronic records and their related electronic signatures are not to be denied legal effect, validity or enforceability merely because they are in electronic form, and encourages Federal government use of a range of electronic signature alternatives.

On April 25, 2000, OMB issued a memorandum for heads of departments and agencies establishing procedures and guidance on implementing the GPEA and outlining several objectives that agencies must meet.

(1) Each agency must build on their existing efforts to implement electronic government by developing a plan and schedule that implement, by the end of FY2003, optional electronic maintenance, submission, or transactions of information, when applicable as a substitute for paper, including the use of electronic signatures when practicable.
(2) Agencies must submit a copy of the plan to OMB by October 2000 and coordinate the plan and schedule with their strategic information technology planning activities that support program responsibilities consistent with the budget process (as required by OMB Circular A-11).

Currently, OIS plays a central role in facilitating the USITC's compliance with GPEA and is preparing the information technology plan that is due to OMB by October 2000. This plan was not available for review. However, CSC did review a draft of the Strategic IRM plan as part of this evaluation. Findings are reported below.

Table 3 on the next page compares each of the scenarios considered with respect to its potential for compliance with GPEA.

Table 3. Assessment of Scenarios for GPEA Compliance

GPEA Provisions	EDIS or Status Quo	EDIS Plus	EDIS II	Outsourcing Document Imaging
Provide Option to Submit Electronically	No-- Option not available to public or internal user; limited to electronic submission (CD) of images from contractor	Would require change in policy & enhancements to current input system	No--Not in RFP Functional Rqmnts . Would require change in policy and new system capability	Yes -- but option limited to imaging contractor only
Provide Option to Transact Electronically	No – EDIS does not provide for electronic transactions, such as purchasing, payments, registration, etc.	No	No Not in RFP	No
Maintain records electronically	Yes	Yes	Yes	Yes
Accept electronic signatures or alternatives	No	Will require change in policy & enhancements to current system	No—Not in RFP Functional Rqmnts. Will require change in policy and new system capability	Not Applicable
Make Wide-spread Use of Internet or WWW	Limited Use-Current EDIS public documents are accessible using the Internet and EDIS-On-Line	Increased access would require change in policy & enhancements to current system	No—Not in RFP Functional Rqmnts. Will require change in policy and new system capability	No
Secure Electronic Business Transactions	No	No	No	No
Provide Option to Maintain Information Electronically	No	No	Yes – Will facilitate electronic maintenance of document records	No
SUMMARY	**Limited Compliance**	**Supports Compliance**	**Limited Compliance**	**Not Compliant**

Findings: The USITC is positioned to take advantage of information technology advances and achieve compliance with GPEA. The EDIS II RFP explicitly calls for a web-based interface and the electronic filing and exchange of documents (Section II-5-6 and II-5.7). However, compliance

should not be incidental to an EDIS II replacement but a fundamental feature in its design and functionality. Full compliance will require USITC to consider significant changes to the way it "does business" including changes in policy to permit and promote acceptance of electronic transactions, submissions, and acceptance of electronic signatures--- all key provisions of GPEA.

In its review, CSC noted that the USITC had not yet prepared a draft or final version of its plan for complying with the GPEA. This plan is due to OMB by October 2000. CSC did, however, review the draft of the USITC's Strategic Plan for Information Resources Management (IRM). This plan identifies as its highest priority the support of agency strategic objectives and five key operations as defined in the USITC's Strategic Plan. These strategic areas include:

- Import Injury Investigations
- Intellectual Property-based Investigations
- Research
- Trade Information Services
- Trade Policy Support

However, the current draft of the IRM Plan is incomplete and does not appear to be in compliance with GPEA. The Plan does not document how current and planned information technology investments will support the agency's strategic areas and their supporting programs. For example, the draft version addresses Title VII Investigations but does not address other strategic areas. There is only a brief reference to EDIS II although this pending procurement clearly calls for a major information technology investment in a new system that can directly support electronic filing and handling of documents critical to the overall mission of USITC. Additionally, there is no mention of planned enhancements to the information technology architecture although a number of these are described as a "*fait accompli*" in the EDIS II RFP document (Section II, page 8).

Significant additional effort will be required to ensure that USITC's IRM Plan meets GPEA and serves as a well-structured blueprint for future information technology investments.

The Rehabilitation Act Amendments of 1992, P.L. 102-569, revises and extends the programs of the 1973 Acts. It establishes in Section 508 a set of guidelines for the electronic and information technology accessibility. The guidelines prescribe that individuals with disabilities can produce information and data and have access to information and data, comparable to the information and data, access, respectively, of individuals who are not individuals with disabilities.

On March 31, the Access Board published a Notice of Proposed Rulemaking on Standards for Electronic and Information Technology implementing Section 508 of the Rehabilitation Act. Although specific compliance criteria were to be published in early August 2000, these have been postponed until such time as the Administrator of General Services and the Access Board complete and promulgate compliance guidelines. Table 4 on the next page presents an assessment of each scenario for compliance with the Rehabilitation Act/ Section 508.

Table 4. Assessment of Scenarios for Rehabilitation Act / Section 508 Compliance

Rehabiliation Act	EDIS or Status Quo	EDIS Plus	EDIS II	Outsourcing Document Imaging
Provide Equal Access to Information and Data to Individuals with Disabilities	Not Compliant- EDIS has no provision currently to accommodate users with disabilities	Possible- Will require enhancements to current system	Yes—RFP supports USITC intent to comply.	Not Applicable

Findings: Based on the current web-site and EOL, there is little evidence that the USITC has actively sought to provide equal access to information and data to individuals with disabilities. Because the EDIS II RFP solicitation called for compliance with the Rehabilitation Act and Section 508, the various contractor service offering are required to address how they would ensure compliance with this requirement in their proposals. Therefore, the USITC has demonstrated its intent to comply with the Act at least as far as this procurement is concerned. However, the USITC can anticipate that new implementation guidelines from GSA and the Access Board will require it to demonstrate greater awareness and consideration of currently unmet needs and to develop action plans to provide greater access to information by individuals with disabilities.

V. CONCLUSIONS

Based on our evaluations, we draw the following conclusions:

1. **The EDIS II proposal and its Benefit-Cost Analysis were not prepared in accordance with the accuracy, rigor and depth of analysis necessary to meet federal guidance.** Specifically, the analysis and justification for an EDIS replacement failed to address USITC mission and business goals, did not conduct an analysis of EDIS scenarios, and did not follow OMB guidelines for assessing Information Technology investments. Thus, the IRMSC initial decision to limit its approval only to the issuance of an RFP (and not a *carte blanche* approval to proceed fully with the EDIS II procurement) is supported by our findings.

2. **The USITC does not have well-defined, well-documented processes to guide the agency's Information Technology investment decisions in accordance with federal guidance.** Although an internal USITC approval structure has been identified, only two recent Information Technology procurements have been prepared and submitted for IRMSC approval using a loosely structured Information Technology evaluation format. Instructions for completing the form and for providing supporting basis-of-estimate information have not been developed and approved. Consequently, OSE staff had little guidance and information on how to prepare a more complete justification for an EDIS replacement. In addition, although there are abundant system-generated data about individual EDIS transactions, system-wide management, operational, and performance metrics and customer feedback are not tracked, reported, and evaluated on a regular basis by IRM and/or OSE management. Furthermore, EDIS operations and maintenance data are not used to monitor and manage costs, system performance and to establish service improvement goals. Due to the lack of long-term, comprehensive business unit and Information Technology architecture planning documents, recent procurements have been directed to address more immediate, isolated needs, e.g., Y2K, EDIS replacement.

3. **Although there is some general awareness of federal guidance, there is little evidence of agency-wide initiatives and on-going effort applied to addressing legislative priorities and meeting these in a timely manner.** In regards to Information Technology, it appears that required agency-wide strategic plans have been or are being prepared to meet the minimum letter of the law, and not the full spirit of federal legislative mandates in regards to IT. Thus, important USITC planning documents, such as the draft IRM Plan and the GPEA-required Plan, were found to be fragmented, and/or incomplete. Alignment of IRM plans with USITC "lines of business" was not evident. Ownership and responsibility for preparation, update, and approval of these important planning documents are also not clearly established.

VI. SUGGESTIONS FOR MANAGEMENT CONSIDERATION

1. **Develop and implement USITC-wide process for preparing, justifying, evaluating, and approving future Information Technology investments using OMB and GAO capital planning guidelines for program effectiveness.** USITC should proceed rapidly to implement plans to establish a CIO position that can address Information Technology planning, implementation, deployment, and operational needs for the agency as a whole and ensure the alignment of Information Technology with the agency's mission and business goals.

2. **Based on the careful evaluation of EDIS II RFP responses, approval of a fully compliant enhancement or replacement of EDIS should be made conditional to USITC undertaking, in parallel, a comprehensive business process re-engineering effort of its document handling processes.** USITC, and OSE in particular, should initiate a major review and redesign of its business processes to better align its information services with USITC strategic direction, business goals, and federal law, especially ITMRA (Clinger-Cohen) and GPEA. If none of the RFP-based offerings provide for complete, long-term solutions that meet federal legislation and guidance, the USITC should choose to modify its current narrowly focused EDIS replacement procurement approach to encompass a more comprehensive, agency-wide business-driven solution.

3. **Complete the GPEA implementation plan for submittal to OMB by October 31, 2000.** The preparation of the GPEA implementation plan should guide the procurement of an EDIS II system. It should be coordinated with the revision and updating of the Strategic IRM plan. Such coordination will facilitate better alignment of Information Technology investments with the USITC's strategic objectives and with the GPEA legislation.

4. **Become a model agency and leader in electronic government initiatives related to legal documentation processing.** Consider the possibility of becoming a federal pilot for innovation. As a small, quasi-judicial agency, USITC could seek to implement innovative electronic information and web-based technologies for improving access and timely processing of all legal documentation, including acceptance of electronic submissions and electronic signatures. As a relatively small government agency with a well-defined scope of work, USITC is well positioned to initiate "a new way of doing business" by breaking down paper-burdened barriers to global information exchange among its customers, users, external organizations and the courts.

Appendix A—Sample Benefit-Cost Analysis Methodology

This Appendix includes a brief general description and a detailed example of the Benefit-Cost Analysis methodology that was applied to the four EDIS II alternative scenarios described in the report.

General Information and Definitions.

Benefit-Cost Analysis is the interdisciplinary and systematic blending of tools and techniques of finance, management decision theory, economics, and related fields to make choices. Modern Benefit-Cost Analysis is based on the concepts of valuation and estimation. Benefit-Cost Analysis can be performed at all stages in a project/decision life cycle. For example, it can be applied to answer any of the following questions.

- Which project should we pursue? (to meet the same goal)
- Which method should we use to meet a requirement or set of requirements?
- Should we make or buy a system?
- Which proposal should we choose?
- Which project was most effective? (after-the-fact analysis/review)

Benefit-Cost Analysis is important to decision-makers in an organization because: 1) resources are limited; 2) most organizational decision making involves resource management (human, capital, personnel); and 3) cost and benefits and their timing vary according to which method is used to pursue an organization goal.

The primary objective of a Benefit-Cost Analysis is to determine which scenario in a decision provides the greatest net benefits. Also, it can be used to obtain the most benefits with the least costs. This is usually indicated by the scenario with the highest benefit-cost ratio or return-on-investment (ROI). The scenario with the highest Net Present Value (NPV) may not be the scenario with the highest benefit cost ratio, although the two methods often yield the same scenario choice.

The methodology used for this Benefit-Cost Analysis is based on present value (PV) analysis, which is among the most effective ways to compare costs and benefits. The present value is the total amount that a series of future benefits or costs is worth now. After present value benefits and present value costs are calculated, the NPV of each of the alternatives is calculated and serves as the basis for comparing alternatives. The methodology can be summarized in four basic steps:

Step 1: Identify scenarios (or options) of different levels of investment
Step 2: List the benefits you want to consider and their importance
Step 3: Determine the dollar value of the benefits (from Step 2) and determine the costs for each period of the decision life for each scenario (given in Step 1)
Step 4: Compare the results of Step 3 together to yield a recommendation

Discount factor - This is a figure representing the level of return that one could have received if capital is used for other projects or investments. This value can be represented as a percent or as a decimal. This value decreases present value costs and present value benefits for multiyear decisions. The discount rate applied to the analysis was 3.85% (OMB Circular A-94, App C).

Decision/Project Life- The project's decision life or period for analysis, four years, was selected to be consistent with the time period selected in the original proposal prepared by USITC.

> *Note: Present Value (PV) and Totals are calculated only for the years that are within the project life. If the project life is 5 years, Year 0 is the first day of the decision life and is not discounted. It ends on the 364th day. Year 1 begins about the 365th day of the project and ends about the 730th day of the project.*

Benefits - Two categories of benefits exists - those that can be measured (quantifiable) and those that cannot be measured easily (non-quantifiable). Examples of measurable benefits are: direct savings, revenue from sales, or staff time reallocation. In the case of EDIS, each benefit may not apply to all alternatives. However, the benefits listed are considered the most important to the EDIS procurement and the agency.

Payback period is the number of years required to recoup the original investment. Thus, the payback period is the first point in time when benefits exceed all expenditures.

Return on Investment is the same as the Benefit to Cost (B/C) Ratio. It is a measure of the amount of benefit relative to the amount of investment for an alternative. It is calculated by dividing the cumulative discounted benefits by the cumulative discounted investment costs. A positive ROI (ROI greater than 1) indicates a desirable economic advantage to the alternative. When ROI is equal to or less than 1, there is no economic advantage to the alternative. (The ROI is typically expressed as a percent. When the ROI is greater than 100% an alternative is considered cost effective. For example, if ROI is 110% this implies that the project is cost effective since for every dollar of costs spent, benefits of $1.10 are realized.)

Calculations Used in this Analysis

PV of a Benefit $= \sum_{p=0}^{N}\left[\frac{B_p}{(1+r)^p}\right]$	r=discount rate p=period N=project life B=benefit value for period
PV of a Cost $= \sum_{p=0}^{N}\left[\frac{C_p}{(1+r)^p}\right]$	r=discount rate p=period N=project life C=cost for period
NPV of an Alternative = Sum of PV of Benefits - Sum of PV of Costs	
Benefit-Cost (B/C) Ratio $= \frac{SumofPVBenefits}{SumofPVCosts}$	To Express ROI as a percent $= \frac{NPV}{SumofPVCosts} \times 100$

SAMPLE CASE: Methodology Applied to EDIS Cost and Benefit Analysis

Title:	EDIS II Evaluation
Discount Factor Used:	3.85%
Project/Decision Lifecycle:	4 years
Summary Objective:	To improve the economy and efficiency of USITC's OSE document imaging processing

Stakeholders: The results of this analysis are expected to be of interest to the following stakeholders (persons and/or groups). Stakeholders are important in a Benefit-Cost Analysis because they will either play a role in deciding which alternative will be implemented or they will be impacted by the decisions during the project's lifetime.

EDIS Stakeholders

- USITC Commissioners
- USITC Secretary
- USITC Deputy Secretary
- OSE Staff
- Office of Information Services
- Office of Publishing
- Office of Investigations
- Office of General Counsel
- All USITC Divisions and Business Units
- Law Firms/Users
- Contractors/Suppliers
- USITC Office of Inspector General

Project Objectives: Based on information gathered from interviews, USITC documents and the RFP, CSC identified the following set of project objectives for the EDIS evaluation. These objectives can be used by USITC to define set of performance metrics to evaluate EDIS II or whatever scenario is selected. (Sample list of EDIS II measures)

- To increase all-electronic document processing
- To improve imaging processing efficiency (throughput per hour)
- To reduce processing costs per image
- To reduce processing backlog (number of days)
- To reduce processing errors (errors/day)
- To reduce retrieval time (time lapse from user request to retrieval)
- To reduce rework (reprocessing low quality images.)

Assumptions: To facilitate comparison of benefit-costs, this sample analysis generally adopted the same assumptions and constraints of the original Benefit-Cost Analysis provided to the IRMSC. CSC made no determination as to whether these assumptions and constraints should be considered well justified, valid or invalid. CSC recognizes that a more comprehensive Benefit-

Cost Analysis would have to challenge and/or validate the basic assumptions by conducting agency-wide, cross-functional group interviews, independent alternatives assessments, and by gathering more accurate cost and performance data than were available for this study.

The following assumptions were made in conducting this analysis:

- OSE staffing levels will remain the same over project life (4 years)
- System operation costs of current system will remain the same
- EDIS performance will remain stable; not serious degradation of current service levels
- In-house duplication can be eliminated without impacting other divisions
- Contracted imaging services will be available at current rate ($.09)
- Processing performance can be improved from 1% up to 10%
- Electronic filing will be acceptable form of input (policy change)
- OSE staff functions can be reallocated positively (benefit).

Alternative Scenarios:

The following four scenarios were selected by CSC because they all met a set of basic requirements (to provide document handling processing support to OSE).

> **However, as noted in the main body of the report, the "GPEA" option, which provides an all-electronic scenario fully compliant with GPEA, was not included in the sample analysis because sufficient reliable data were simply not available.**

Each of the scenarios selected is expected to differ in the amount and/or timing of benefits. The types, amounts and timing of costs associated with each alternative are also expected to differ.

Scenario Short Name	Description
1. Status Quo	Continue to Use EDIS as is
2. EDIS Plus	Enhance current EDIS system to reduce errors and facilitate electronic input ($100k investment)
3. EDIS II	Replace EDIS with EDIS II as per RFP ($300k investment)
4. Outsource	Outsource (contract out) all document imaging

Quantitative Benefits: The following eight categories of benefits were identified by CSC as directly quantitative and applied to compare the various alternatives. Values were assigned to each alternative for each year of the project life. These values were the basis for present value calculations.

Table A-1
Quantitative Benefits

Benefit (Quantitative)	Description	Quantitative Value Used and How Estimated
Image Contract Savings	Reduce cost of contracted services	$38,000* (Amount provided by OSE)
Rework Reduction	Reduce cost of rework (error reduction)	$10,000 (Approx. 1% savings of total OSE annual labor- $915K*)
Processing Performance	Decrease cost of documents processing (efficiency, throughput)	$45,000* (Approx. 5% of OSE labor cost saved due to processing efficiencies)
Staff/Resource Reinvestment	Staff time savings/ reallocation of functions	$45,000* (Approx. 5% of OSE labor cost available for reassignment)
User Cost Reduction	Decrease cost of printing/copying by users	Estimated minimum $5000* savings per year
Data Entry Reduction	Input Time Savings (faster, less errors)	$10,000 (approx. 1% savings of total OSE annual labor- $915K*)
Document Distribution Efficiency	Duplicating Costs Eliminated	$150,000* (Same amount as used by original proposal to represent 1st year savings on Docutech)
Maintenance Savings	Decrease cost of system maintenance contract	$45,000 (Same amount as use by original proposal, = one-third reduction in annual contract costs of $135K*)

***Sufficient substantiation to independently validate or verify data was not provided. Sources of Data- OSE and OIS.**

Indirectly Quantifiable Benefits: The following benefits, which are difficult to measure, were identified as indirectly quantifiable benefits. Values were assigned to these based on "relative weight" of importance in the evaluation and compared to measurable benefits described above.

Table A-2
Qualitative Benefits

Benefit (Qualitative)	Description	Value Not Directly Quantifiable
Improve Customer Satisfaction	Provide faster, more accurate retrieval of documents	Related to 1% improvement in efficiency and/or reduction of errors
Facilitate Electronic Submissions	System will be able to handle electronic filings from internal and external users	Related to 5% improvement in efficiency through reduced processing volumes

***Sufficient substantiation to independently validate or verify data was not provided. Sources of Data- OSE and OIS.**

Costs: Table A-3 summarizes EDIS cost categories and operations and maintenance (O&M) cost drivers as provided to us by OSE and OIS and used in our sample analysis. We note that there are deficiencies in this cost data in that accurate historical data was not used to compute O&M costs and that not all relevant costs were included. For example, labor and operations costs in Office of Investigations were not included.

Table A-3
EDIS O&M Costs

COST CATEGORY	Costs	Adjusted Costs	Notes
IT O&M Costs			
Server System Maintenance			
HP HW/OS Maintenance	$5,000	$5,000*	
EFS SW Maintenance	$21,000	$0	Discontinued 12/99
Scanner Systems Maintenance			
Scan Station HW Maintenance	$10,000	$10,000*	
Supplies and Consumables	$5,000	$5,000*	
SW Maintenance	$0	$0*	
System Enhancements			
Ancillary servers/ SW/ EOLIweb	$7,500	$0*	One-time only cost
		$20,000*	Subtotal
IT Support Staff			
1FT Contractor Programmer	$100,000	**$135,000***	Same as USITC CBA
.25 FTE Sr. Computer Scientists	$25,000	$25,000*	
		$160,000*	Subtotal
TOTAL IT O&M	**$173,500**	**$180,000**	
OSE Costs			
EDIS Processing Staff Costs			
2 FTE Management ($40/hr)		$166,400	
12 FTE Admin/Clerical ($30)		$748,800	
		$915,200*	Subtotal
Contract Out Imaging .09/image		**$38,000***	
TOTAL EDIS Costs		**$1,133,200***	
OTHER NON-EDIS COSTS			
In-House Duplication Cost		**$150,000***	Same as USITC BC

***Sufficient substantiation to independe ntly validate or verify data was not pro vided. Sources of Data- OSE and OIS.**

Benefit-Cost Breakdown for Year One: Results are provided in Table A-4 - Table A-6 for each alternative listed. Values used to quantify costs and benefits are based on data provided by USITC staff or amounts previously used by USITC in the original proposal justification document. Where data were not provided, CSC estimated an amount that was derived from provided information for this sample analysis.

Table A-4
Year One Cost Summary* By Scenario

Year-One Summary MEASURABLE COSTS	OSE Staff Labor*	Imaging Contractor Services	Training	HW System Costs	EDIS Sys Maint Contract	Investment Costs	In-House Duplication Costs	TOTALS
Status Quo	$915,200	$38,000	$0	$20,000	$135,000	$0	$150,000	$1,258,200
EDIS Plus	$915,200	$0	$10,000	$20,000	$135,000	$100,000	$150,000	$1,330,200
EDIS II	$915,200	$0	$5,000	$20,000	$90,000	$300,000	$0	$1,330,200
Outsource	$915,200	$100,000	$0	$20,000	$135,000	$0	$150,000	$1,320,200

Table A-5
Year One Quantifiable Benefit* Summary By Scenario

MEASURABLE BENEFITS	Imaging Contract Savings	Rework Savings	Processing Perform Savings	Staff Resource Reinvest	User Cost Savings	Data Entry Savings	Distribution Efficiency	Maint Savings	TOTALS
Status Quo	$0	$0	$0	$0	$0	$0	$0	$0	$0
EDIS Plus	$38,000	$10,000	$45,000	$10,000	$0	$0	$0	$0	$103,000
EDIS II	$38,000	$5,000	$45,000	$45,000	$5,000	$22,500	$150,000	$45,000	$355,500
Outsource	$38,000	$5,000	$0	$5,000	$0	$0	$0	$0	$48,000

Table A-6
Year One Qualitative Benefit* Summary By Scenario

INTANGIBLE BENEFITS (Weighted estimates)	Increased/ Decrease in Customer Satisfaction	Facilitates Electronic Input	TOTALS
Status Quo	-$10,000 **	$0	-$10,000
EDIS Plus	$13,464	$12,118	$25,582
EDIS II	$46,471	$41,824	$88,294
Outsource	$6,275	$5,647	$11,922

** Approx. 1% Labor costs

***Sufficient substantiation to independently validate or verify data was not provided. Sources of Data- OSE and OIS.**

Alternatives Comparison - Table A-7 present the total costs and benefits by year for each alternative scenario. Net Present Values (NPV) and the Totals for the project life are also included in both tables.

Table A-7
Comparison of Benefits and Costs for Four Alternative Scenarios

Discount Rate: 3.85%			Decision Life: 4 years			
SCENARIOS	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**TOTAL**
BENEFITS						
Status Quo	$0	-$10,000	-$10,000	-$10,000	-$10,000	-$40,000
EDIS Plus	$0	$128,582	$104,863	$104,863	$104,863	$443,170
EDIS II	$0	$443,794	$596,719	$596,719	$596,719	$2,233,951
Outsource	$0	$59,922	$59,922	$59,922	$59,922	$239,686
COSTS						
Status Quo	$1,258,200	$1,258,200	$1,258,200	$1,258,200	$1,258,200	$6,291,000
EDIS Plus	$1,258,200	$1,330,200	$1,270,200	$1,220,200	$1,220,200	$6,299,000
EDIS II	$1,258,200	$1,330,200	$1,005,200	$1,005,200	$1,005,200	$5,604,000
Outsource	$1,258,200	$1,320,200	$1,320,200	$1,320,200	$1,320,200	$6,539,000

Assumptions:

1. A negative benefit of -$10,000 was assigned to the Status Quo Scenario to indicate a decrease in customer satisfaction due to increasing processing errors and delays caused by a degrading EDIS system.. The amount was derived by calculating approximately 1% of the OSE provided total labor costs ($915,200) or the equivalent of a 1% decline in staff productivity.
2. Year 0 assumes equal baseline costs across all scenarios.
3. Breakdown of cost categories used to determine Year 1 Costs and Benefits are presented in Table A-1 - A-3.

Results:

Table A-8 provides the NPV and ratios for each alternative scenario and identifies the alternative with the highest Net Present Value. This Table also contains the Return-On-Investment calculation for each alternative scenario based on the informati on provided.

Table A-8
Sample Results of Benefit- Cost Analysis

Discount Rate: 3.85% Decision Life: 4 years SCENARIOS	PV Benefits	PV Costs	NPV	Benefit/ Cost B/C Ratio	ROI	Payback Period
Status Quo	-$36,427	$5,841,526	-$5,877,953	-0.01	-100.62%	5
EDIS Plus	$404,830	$5,855,384	-$5,450,554	0.07	-93.09%	5
EDIS II	$2,026,451	$5,232,858	-$3,206,407	0.39	-61.27%	5
Outsource	$218,280	$6,067,377	-$5,849,097	0.04	-96.40%	5

In this sample, EDIS II provides the highest benefit-to-cost ratio among the alternatives scenarios and represents the better return-on-investment in a shorter time period. However, this scenario also is the most costly alternative from a current budget outlay standpoint. Note that no scenario provided a positive return on investment. A large contributing factor was the maintenance of current levels of staffing. The major overall EDIS cost driver, labor costs, were not reduced in any of the scenarios studied. Therefore, based on this sample, a significant effort will need to be undertaken to re-engineer business processes to maximize benefits derived from improvements in information processing efficiency and staff productivity.