



Integration Decision Paper for Civilian Personnel

Version 1.5
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Template

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Disclaimer. The cost estimates used in this IDP are for illustration purposes only. Civilian Personnel must verify costs before using this document to assist decision-making. Thus, cost figures listed in the schedules of this IDP are shown in italics.

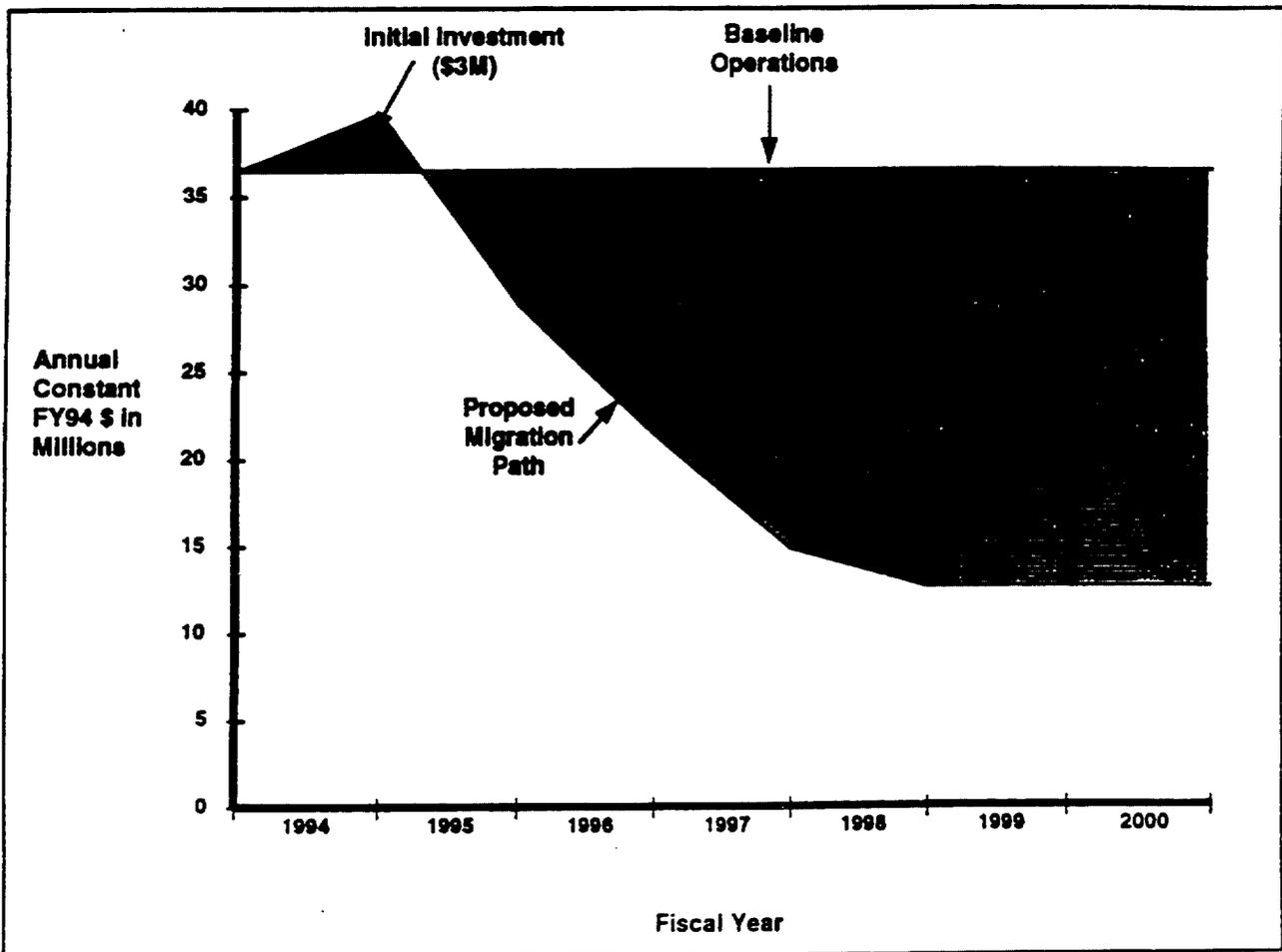
EXECUTIVE SUMMARY

Goals. This Integration Decision Paper (IDP) suggests a migration path the Civilian Personnel functional activity within the Human Resources functional area should use to migrate its baseline functions in accordance with Corporate Information Management (CIM) objectives. Civilian Personnel has identified the following goals to meet the CIM objectives:

- Improved business processes,
- Improved vertical information flow,
- Standardized data, applications, and infrastructure, and
- Improved functional and technical interoperability.

Proposed Solution. Analysis of the information in this IDP indicates that Civilian Personnel should consolidate all its legacy capabilities to DCPDS. As shown in Figure 1, the baseline requires roughly \$36M (constant Fiscal Year 1994 dollars) annually for maintenance and communications charges. The proposed migration would require an investment of about \$6M spent over four years to implement, including about \$3M the first year.

Figure 1 - Life Cycle Cost Comparison of Baseline with Proposed Migration



However, substantial cost reductions would be generated by the proposed migration (about \$116M during FY95 through FY00). Civilian Personnel would use some or all of its operations cost reductions to attempt to "achieve" Defense Management Review Board (DMRD)-mandated budget levels, using FEA Guidebook (January 1993) terminology. The remainder of its cost reduction (if any) would be considered "savings".

SECTION 1: INTRODUCTION

The remainder of this IDP provides information to support the decision to migrate Civilian Personnel functions to DCPDS. It describes the baseline environment, analyzes potential alternatives to meet Civilian Personnel's migration requirements, discusses which of these alternatives Civilian Personnel should select, assesses the risk associated with the proposed migration path, and summarizes the impacts and issues from implementing the proposed alternative. The last section summarizes the financial impact from not implementing the proposed solution.

SECTION 2: BASELINE ENVIRONMENT

This section describes the baseline environment which must be supported by the migration system, including a discussion of baseline workload data, legacy applications, and baseline infrastructure; these are more fully discussed in Appendices A and B. The section also shows the resources needed to keep the legacy applications operational.

2.1 Baseline Environment. Civilian Personnel's legacy applications provide all the capability described in Appendix A, including functions (e.g., mobilization, security), processes (e.g., on-line data entry), data requirements, interfaces with other applications, and other capabilities. In general, the mission of the Civilian Personnel functional activity is to provide full life-cycle management of Civilian Personnel resources.

While each service or agency supports essentially the same personnel management processes, each has developed separate applications to support its particular approach to managing the civilian force. Specifically, for example, the baseline consists of eight base level and five corporate level applications. The base (or local) level includes separate Air Force, Navy, and Army Personnel Data Systems-Civilian (AF PDS-C, NCPDS, and ACPERS, respectively), the Defense Logistics Agency Defense Business Management System (DLA DBMS), and applications for the Defense Intelligence Agency (DIA), Defense Investigative Service (DIS), Defense Nuclear Agency, and On-Site Inspection Agency (OSIA). The corporate level includes legacy applications for Headquarters ACPERS and NCPDS, the Office of the Secretary of Defense Priority Placement Program (OSD PPP), Headquarters Air Force (HAF), and the DLA Automated Civilian Personnel Data Bank (ACPDB).

2.1.1 Baseline Workload Data. Schedule 1 includes workload information for the legacy applications within Civilian Personnel.

Schedule 1 - Baseline Workload Data

Application	Annual Cost (Direct FY94 \$K)	Supported Population	App. Size (% of Processes Supported)	Transaction Information			
				Average/Day	Peak	Total/Year	Average Cost/ Unit
AF PDS-C	7,030	250,000	91%				
Navy NCPDS	5,900	320,000	91%				
Army ACPERS	8,660	430,000	91%				
DIA	80	4,000					
DIS	80	4,000	10%				
DNA	20	800	10%				
OSIA	2	100	10%				
DLA DBMS	5,700	60,000	61%				
Army HQ ACPERS	2,040	430,000	20%				
OSD PPP	2		10%				
AF HAF	2,940	250,000	20%				
Navy HQ NCPDS	2,970	320,000	20%				
DLA ACPDB	1,100	60,000	20%				

2.1.2 Legacy Applications. Schedule 2 summarizes the basic characteristics of each legacy application.

Schedule 2 - Legacy Applications

Application	Size (SLOC)	Program Languages*	Sec. Level (T.S.C)	File Structure	DBMS Vendor	DBMS Interface	Processing Type**
AF PDS-C	2100K	2,7,9	C2	Flat	Unisys	OS1100	ABCD
Navy NCPDS	2100K	2,9	C2	Flat	Unisys	Unique	ABCD
Army ACPERS	2100K	2,7,9	C2	Flat	Unisys	OS1100	ABCD
DIA							
DIS	200K	2,5	C2		ADABAS	ADABAS	ABCD
DNA	200K	2,6	C2		DATA COM	DATA COM/DB	ABCD
OSIA	200K	2,6	C2		DATA COM	DATA COM/DB	ABCD
DLA DBMS	1250K	2,8	C2		CINCOM	SUPER TIS	ABCD
Army HQ ACPERS	100K	2	C2		MVS	CA/IDMS/DB	CD
OSD PPP		3					CD
AF HAF	200K	2,6	C2		Honeywell	IDS-II	CD
Navy HQ NCPDS	100K	6	C2		FOCUS	OS1100	CD
DLA ACPDB	100K	2,8	C2		Model 204		CD

Notes:

- * Programming Languages Include: 1-Ada; 2-COBOL; 3-Enable; 4-DESIRE; 5-NATURAL; 6-Data Query; 7-MASM; 8-MANTIS; 9-Assembly
- ** Processing Types Include: A- On-line Update B - Batch Update C - On-line Query D-Batch Query

2.1.3 Baseline Infrastructure. Schedule 3 characterizes the infrastructure used by each legacy application.

Schedule 3 - Baseline infrastructure

Application	Processor	Operating System	DASD Size	Tape Drives	Number of IPCs	Communications
AF PDS-C	S220	SP1			100	
Navy NCPDS	B38, B39, B4900				1	
Army ACPERS	S1000/92	SP1			1	
DIA						
DIS	Amdahl 5890-300G				1	
DNA					1	
OSIA					1	
DLA DBMS	Amdahl 6390	MVS-ESA			4	
Army HQ ACPERS	3090	MVS			1	
OSD PPP					1	
AF HAF	DPS-800	GCOS-8			1	
Navy HQ NCPDS	B2800	SP-1			1	
DLA ACPDB	Amdahl NAS or compatible	MVS-ESA			1	

2.2 Baseline IT Costs. Schedule 4 shows the direct annual operations expenditures for each legacy application using the Functional Economic Analysis (FEA) Cost Breakdown Structure.

Schedule 4 - Baseline IT Costs (FY94 K\$)

Application	Civilian Labor	Military Labor	Equip	Facilities	Material*	G&A	Other	Total Application Costs
AF PDS-C	1,050	700	3,500	700	700	380	0	7,030
Navy NCPDS	900	600	3,000	600	600	200	0	5,900
Army ACPERS	1,290	860	4,300	860	860	490	0	8,660
DIA	12	8	40	8	8	4	0	80
DIS	12	8	40	8	8	4	0	80
DNA	3	2	10	2	2	1	0	20
OSIA	**	**	1	**	**	**	0	2***
DLA DBMS	860	570	2,860	570	570	270	0	5,700
Army HQ ACPERS	300	200	1,060	200	200	80	0	2,040
OSD PPP	**	**	1	**	**	**	0	2***
AF HAF	450	300	1,500	300	300	90	0	2,940
Navy HQ NCPDS	450	300	1,500	300	300	90	0	2,940
DLA ACPDB	170	110	560	110	110	40	0	1,100
Annual Total	5,498	3,658	18,372	3,658	3,658	1,649	0	36,494***

Notes:

- * Material includes communications charges.
- ** Estimated value is less than \$500.
- *** Includes sum of items which are less than \$500.

SECTION 3. MIGRATION ALTERNATIVES ANALYSIS

This section describes the requirements which Civilian Personnel's migration solution must meet. This section also compares the ability of each legacy application to meet Civilian Personnel's migration requirements if implemented. Further, this section describes the legacy applications which could most-easily meet the migration requirements if implemented.

3.1 Migration Requirements. Civilian Personnel's migration efforts, discussed in more fully in Appendix D, would include the following:

Near Term (1-3 years)-

- Take all steps needed to standardize legacy Civilian Personnel data and applications into a single application, using the Data Administration Strategic Plan (Appendix E) and other standards.
- Take all steps needed to standardize Civilian Personnel human resource management and financial management applications.

Long Term (5-7 years)-

- Migrate Civilian Personnel applications to a single, flexible defense civilian personnel management application that supports a standard Department of Defense (DoD) application; this step would be supported by the DoD Enterprise Model shown in Appendix F.

3.2 Technical Comparison of Legacy Applications. Schedule 5 includes migration assessment scores generated by the Defense Integration Support Tools (DIST) for each legacy application. Generally, these scores represent the relative ability of each legacy application to meet Civilian Personnel migration requirements.

Schedule 5 - Technical Comparison of Legacy Applications

Alternative	Percent Score					Ranking
	Total	Functional	Technical	Data Handling	Programmatic	
AF PDS-C						
Navy NCPDS						
Army ACPERS						
DIA						
DIS						
DNA						
OSIA						
DLA DBMS						
Army HQ ACPERS						
OSD PPP						
AF HAF						
Navy HQ NCPDS						
DLA ACPDB						

3.3 Alternatives Identification. Using the technical comparison scores estimated above, Civilian Personnel chose the Defense Civilian Personnel Data System (DCPDS) and Defense Business Management System (DBMS), which are derived from the AF PDS-C and the DLA DBMS respectively, as potential alternatives to meet the target functionality.

3.4 Functional and Operational Description of Each Alternative. DBMS was originally developed by DLA; it was first named the Automated Payroll, Cost and Personnel System (ADCAPS). DBMS is replacing the SRD-11's capability to provide on-line Defense Business Operations Fund (DBOF) data and unit cost accounting. DCPDS would be designed using a table-driven concept, with data descriptor tables defining the data structures and decision logic tables defining the functional logic.

3.5 Cost Comparison of Alternatives. Schedule 6 shows annual costs and cumulative expected Risk-Adjusted Discounted Cost Flow (RADCF) for each alternative.

Schedule 6 - Comparison of Annual IT Costs and RADCF Savings for Each Alternative (Dollars in Millions)

Application	IT Costs FY94 Dollars							Expected Cumulative RADCF Savings
	FY94	FY95	FY96	FY97	FY98	FY99	FY00	
Baseline Operations	36	36	36	36	36	36	36	n/a
DCPDS Migration Solution*	39	28	19	15	13	13	13	97*
DBMS Migration Solution								

Notes:

- * Includes Net Present Value (NPV), which is not risk-adjusted.

SECTION 4: PROPOSED MIGRATION SOLUTION

This section discusses the alternative proposed for Civilian Personnel, and the estimated migration path and timing for the proposed solution. This section also summarizes the Investment and Operating resources needed to acquire and operate the chosen application. Further, it describes the proposed solution's data, applications, and infrastructure, and discusses its compliance with Open Systems Environment (OSE) guidelines approved in DoD's Technical Architecture Framework for Information Management (TAFIM).

4.1 Proposed Migration Solution. Civilian Personnel should implement DCPDS, as its cumulative RADCF is greater than DBMS (see Schedule 6). Further, in 1991,

the Principal Staff Assistant (PSA) assigned to Civilian Personnel designated DCPDS as the migration application.

4.2 Migration Path and Timing. Schedule 7 includes the migration path and timing for the proposed solution, DCPDS.

Schedule 7 - Migration Path and Timing

Application	First Op Date		Phase	Last Op Date		Migrates To
	Mon	Year		Mon	Year	
AF PDC-C	9	1991	L	11	1994	DCPDS-CPO
Navy NCPDS	9	1991	L	11	1994	DCPDS-CPO
Army ACPERS	9	1991	L	11	1994	DCPDS-CPO
DIA	9	1991	L	9	1995	DCPDS-Funct.
DIS	9	1991	L	9	1995	DCPDS-Funct.
DNA	9	1991	L	9	1995	DCPDS-Funct.
OSIA	9	1991	L	9	1995	DCPDS-Funct.
DLA DBMS	9	1991	L	10	1995	DBMS
Army HQACPERS	9	1991	L	7	1996	DCPDS-DSS
OSD PPP	9	1991	L	1	1998	TBD
AF HAF	9	1991	L	7	1996	DCPDS-DSS
Navy HQ NCPDS	9	1991	L	7	1996	DCPDS-DSS
DLA ACPDB	9	1991	L	10	1995	DBMS
DCPDS-CPO	11	1994	M	9	1995	DCPDS-Funct
DCPDS-Funct.	9	1995	M	1	1998	TBD
DBMS	10	1995	M	1	1998	TBD
DCPDS-DSS	7	1996	M	1	1998	TBD
TBD (Target System)	1	1998	M	1	2011	TBD

4.3 Migration Description. This section describes the proposed migration's workload data, applications, and infrastructure. It also summarizes the proposed migration's compliance with OSE guidelines from the TAFIM.

4.3.1 Migration Workload Data. Schedule 8 includes workload information for the proposed solution, DCPDS.

Schedule 8 - Migration Workload Data

Application Name	Annual Cost (Direct FY94 \$M)	Supported Population	App. Size (% of Processes Supported)	Transaction Information			
				Average/Day	Peak	Total/Year	Average Cost/ Unit
DCPDS	13*						

Notes:

- * Represents the estimated operations cost after DCPDS is fully implemented.

4.3.2 Migration Applications. Schedule 9 includes applications information for the proposed solution, DCPDS.

Schedule 9 - Migration Applications

Application	Size (SLOC)	Program Languages	Sec. Level (T.S.C)	File Structure	DBMS Vendor	DBMS Interface	Processing Type*
DCPDS			C2				

4.3.3 Migration Infrastructure. Schedule 10 summarizes general infrastructure characteristics for the proposed solution, DCPDS.

Schedule 10 - Migration Infrastructure

Application	Processor	Operating System	DASD Size	Tape Drives	Number of IPCs	Communications
DCPDS						

4.3.4 Migration OSE Compliance. As shown in Schedule 11, DCPDS would meet selected OSE requirements approved in the Technical Reference Model (TRM) of DoD's TAFIM. The summarized list of standards available in TRM Version 1.3 (December 1992) is shown in Appendix I.

Schedule 11 - Migration OSE Compliance

Service Area	Service	Applicable Standard	Currently Compliant?	Planned Compliance
Operating System	Kernal	FIPS PUB 151-1 (POSIX)	No	
	Systems Management	FIPS PUB 119 (Ada)	No	
Programming			No	
User Interface	Client-Server Operations	FIPS PUB 158 (X Window System)	No	
	Window Management	FIPS PUB 158 (X Window System)	No	
Data Management	Data Management	FIPS PUB 127-1 (SQL)	No	
Data Interchange	Document Interchange	FIPS PUB 152 (SGML)	No	
Graphic Services			No	N/A
Network Services	Data Communications	FIPS PUB 146-1 (GOSIP)	No	
Security	Evaluation Criteria		No	

4.4 Migration Costs and RADCF. Schedule 12 provides estimated annual costs and expected RADCF for the proposed migration, DCPDS.

Schedule 12 - Annual Migration Costs and Cost Reductions (Millions of Constant FY94\$) and Expected RADCF (Millions of Discounted \$)

Cost Element	FY94	FY95	FY96	FY97	FY98	FY99	FY00	Total
Baseline Operations	36	36	36	36	36	36	36	252
Consolidated Baseline Ops*	(0)	(22)	(30)	(36)	(36)	(36)	(36)	(196)
Migration Investment	3	2	**	1	0	0	0	6
Migration Operations	0	12	13	13	13	13	13	77
Migration Solution***	39	28	19	14	13	13	13	151
Net Cost Reduction (or Investment)	(3)	8	17	22	23	23	23	113
Expected RADCF****	(3)	7	14	19	21	20	19	97

Notes:

- * Includes costs for Legacy Operations functions consolidated by intermediate or final migration applications.
- ** Value is less than \$500,000.
- *** Includes Migration Investment and Operations, plus Baseline Operations minus Consolidated Legacy Operations.
- **** Includes Net Present Value (NPV), which is not risk-adjusted.

SECTION 5 - RISK ASSESSMENT

This section lists risk areas that have the potential to impede timely migration implementation. The section also discusses the level of risk that these areas will occur, and the relative impact on the migration plans if each risk occurs. Further, the section identifies those risk areas Civilian Personnel deemed offer the most potential problems to timely DCPDS implementation, and it discusses steps Civilian Personnel could use to reduce the level of risk for each of these "major" areas. And, the section summarizes contingency plans Civilian Personnel could use to decrease the adverse impact of each major risk area that actually occurs.

5.1 Quantitative Risk Assessment. The Civilian Personnel Functional Area Program Manager (FAPM) and Joint Functional/Technical Team quantified the risk associated with DCPDS implementation using the methodology shown in Schedule 13.

5.2 Major Risk Area Identification. Based on the risk analysis summarized in Schedule 13, the FAPM determined that Technology and Budget are the risk areas that offer the most potential to restrict timely DCPDS implementation. The first major risk area is driven by concerns that technology may not be available to allow Civilian Personnel to extend full baseline functionality to DCPDS. Budget, the second major risk area, is driven by concerns that sufficient resources may not be available to allow timely implementation of the migration.

Schedule 13 - Risk Quantification

Risk Area	Level of Risk*	Relative Impact if Realized	Weighted Risk Value
Technology	Medium	0.20	0.10
Budget	High	0.25	0.18
Time	Medium	0.15	0.08
Strategy	Low	0.05	0.02
Assumptions	Medium	0.10	0.05
Management	Low	0.20	0.06
Security	Low	0.05	0.02
Total		1.00	0.51

Notes:

* Level of risk: Low - 0.3 Medium - 0.5 High - 0.7

5.3 Recommendation to Reduce the Risk Level of Major Risk Areas. Civilian Personnel could reduce the risk level of each major area by continually monitoring the migration's performance. Immediately after implementation, for example, Civilian Personnel should attempt to consolidate representative Civilian Personnel functions into the AF PDS-C application. If the consolidation fails, Civilian Personnel would immediately know that it needs to consider another alternative. Further, Civilian Personnel could reduce the risk that budget will be unavailable by identifying the cost-effectiveness of migrating other functional activities within the Human Resources functional area. If these other migration plans are not as cost-effective as the DCPDS migration plan, which is expected, then the Human Resources PSA will know that he or she should reallocate budget resources from the other functional activities to Civilian Personnel.

5.4 Contingency Plans if Either Major Risk Area Occurs. Civilian Personnel should consider the cost-effectiveness of other alternatives if, after the migration path is initiated, technology unavailability proves to restrict timely DCPDS implementation. Further, the PSA should consider the effectiveness of re-allocating budget from other functional activity accounts to this migration effort if adequate resources are not available.

SECTION 6 - IMPACTS FROM IMPLEMENTATION OF PROPOSED SOLUTION

This section discusses non-quantified impacts on Civilian Personnel and its workforce if DCPDS is chosen.

6.1 Impacts on the Organization. Civilian Personnel's path toward CIM objectives would keep the organization viable, since these objectives must be met by all agencies within the DoD.

6.2 Impact on Existing Personnel. Numerous managers and operating personnel would be dislocated by the the improvement in productivity made possible by the

migration; the satisfaction of these workers would decrease if they did not find enjoyable employment. However, the workers remaining in Civilian Personnel would likely feel "empowered", which could increase their productivity.

SECTION 7 - ISSUES AND CONCERNS

This section addresses issues that are well-defined or understood, but are in dispute and need to be resolved. Specifically, this section identifies issues and discusses potential actions to resolve them.

7.1 Issue Identification. Migration implementation may impede Civilian Personnel's operations if the transition from the baseline to DCPDS does not proceed smoothly. Specifically, for example, if Civilian Personnel underestimates the time needed to migrate all baseline operations to DCPDS, it may discontinue baseline operations before DCPDS is fully implemented.

7.2 Issue Resolution. Civilian Personnel could use a combination of interim testing and close-watching methods to resolve the transition issue identified above. For example, the Technical Integration Manager for the Human Resources could perform an interim migration test to verify the smoothness of the transition. Specifically, the TIM could migrate a selected set of Civilian Personnel baseline activities before it migrates all the activities. If the selected set of baseline activities transition smoothly, the TIM could sequentially migrate additional sets of baseline activities until full baseline functionality is achieved. The TIM should request the Human Resources PSA to seek assistance from DoD 8020.1-M and the DoD Information Policy Council or the Corporate Functional Integration Board if Civilian Personnel's interim testing has the potential to negatively impact DoD migration plans.

SECTION 8 - FINANCIAL IMPACT

This section identifies the cost reductions Civilian Personnel would not generate if it does not implement the proposed migration, DCPDS.

8.1 Financial Impact from Continuing Baseline Operations. If the proposed solution is not deployed, Civilian Personnel would not generate the post-implementation cost reduction of about \$23M annually, as shown in Schedule 12. Thus, the average monthly opportunity loss from continuing baseline operations would be about \$1,900,000, as shown in Schedule 14.

Schedule 14. Monthly Opportunity Loss (FY94\$)

	Month After Full Implementation of Migration					
	1st	2nd	3rd	4th	5th	6th**
Opportunity Loss*	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000

Note:

- * Monthly Opportunity Loss equals Baseline Operations cost minus Migration Solution cost (from Schedule 12), divided by twelve.
- ** Monthly Opportunity Loss is generated until operational phase-out of DCPDS.

This document presents the background for the decision to migrate all Civilian Personnel functions to DCPDS. The signature of the Director, CFI&I, certifies that interoperability, cross-functional integration, TAFIM compliance, technical risk, and cost effectiveness across the DoD have been satisfactorily addressed. The PSA signature below certifies functional activity approval of the proposed path.

Approved:

 Dr. Michael J. Mestrovich
 Director, Center for Integration and
 Interoperability

Date

 Principal Staff Assistant or
 Functional Area Program Manager

Date

APPENDICES

- A. **Baseline Application Functional Capabilities**
- B. **Baseline Architecture**
- C. **Executive Agent Technical Management Plan (October 1991)**
- D. **Migration Strategies**
- E. **Data Administration Strategic Plan**
- F. **DoD Enterprise Model**
- G. **Migration Net Present Value Calculation**
- H. **Target Architecture**
- I. **Technical Reference Model (Version 1.3) Standards Availability Summary**