PROGRAMME FOR
HARMONISED AIR TRAFFIC
MANAGEMENT RESEARCH
IN EUROCONTROL

PHARE

EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION, EUROCONTROL

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PD1 DEMONSTRATION PROJECT PLAN

PHARE/CAA/PD1-2.4/DPP;1

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REVISION HISTORY

Date	Version	Reason for Update	PD Review Team
October 1993	Draft Version 0		PRT/2 members M van Gool (Chairman) R M Gingell (PD/1) J Reichmuth (PD/2) P Huet (PD/3) E Petre (PATs) P Jorna (GHMI) J-R Velten (CMS) F Schick (VAL)
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PD1 DEMONSTRATION PROJECT PLAN

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CONTENTS

1. SCOPE

The project plan contains a description of all elements applicable to the PD1 project, including an Annex with a full Work Breakdown Structure (WBS) with work package descriptions, resource allocations and project schedule. The document forms the deliverable of task PD1-2.4. Details of certain elements are provided in specific documents, where this is the case outline descriptions are given in this document and reference made to the requisite documents. Related documents are outlined in section 14.

Where reference is made to related documents the version and issue of such documents will be the most recent as specified in the Configuration Control document (see related documents).

2. INTRODUCTION

Today's ATC system in Europe (and elsewhere) is at times unable to handle the demands made upon it. Flow restrictions imposed to safeguard the system from overload often lead to delays during peak periods. In many of the less busy areas in Europe, the required capacity goals can be achieved by well-proven technology and procedures, representing "best current practice". In the busiest areas, however, the scope for increasing capacity through existing ATC methods and technology is limited. Although developments as regards airspace, routes and sectorisation undoubtedly must and indeed will be pursued, changes in the technology and the process of ATC must also be envisaged if capacity and productivity gains are to be secured. The limiting factor in the present ATC system is the capacity of the controller. A means has to be found by which the controller can be enabled to handle a larger number of aircraft in a given airspace without significant increase in workload. This will have to be achieved whilst maintaining or improving system safety.

One proposed method is by providing automated assistance to both the planning and tactical controllers and, by the application of data links for air to ground communication. The provision of automated assistance to the controller will support him in the resolution of conflicts and in planning efficient use of the airspace. The introduction of datalink to communicate between the airborne systems and ground environment will remove some of the current communication load from the controller and in addition enable the use of onboard data to improve the precision of the ground system's aircraft model for track prediction and conflict prediction. In providing such support and removing from the controller and pilot certain executive tasks by means of direct computer to computer communication, it is necessary to ensure that the tasks removed from the pilot and controller are those which are best executed by computer and those which remain are those best executed using the flexibility and adaptability of human skills. The areas where computer support is expected to yield improvements are the accurate predictions of future aircraft profiles, the analysis of potential options for the resolution of conflicts and sequencing of aircraft for optimum use of airspace and runways. These, together with the monitoring of flight execution, could provide a support environment that would allow a safe reduction in aircraft separation. To achieve this, detailed aircraft performance data, meteo condition information and criteria concerning aircraft operational requirements would need to be made available to the ground environment using data link communications. These proposals raise a number of questions concerning the resulting division of responsibility and tasks between the aircraft and the ground. Proposed solutions for this responsibility sharing will need to take into account, *inter alia*, the relatively small bandwidth of the available data links and the differing strengths and weaknesses of the human and the computer. It is to answer some of these questions that the developments within the PHARE Programme have been proposed.

PHARE, has developed the necessary ground and airborne tools that will be initially evaluated as individual components. To evaluate the performance of the resulting air/ground integrated ATM system, a series of real time simulations entitled "PHARE Demonstrations" will be executed in which the proposed options will be compared and recommendations made on the contribution such automated support could make to the future European ATM system. The PHARE Demonstrations will be initiated by separate simulations of the en-route and TMA environments that will take place concurrently.

The subject of this Facility Specification for PD1 is the initial demonstration of the en-route environment. The results from PD1 together with those from PD2, which examines the TMA environment, will be used to guide further development and adaptation of facilities that will be evaluated in subsequent demonstrations covering the full flight regime.

3. OBJECTIVES

3.1. GENERAL

- Validation of the EATCHIP concepts
- Partial definition of the description of the future Air Traffic System concepts

3.2. SPECIFIC

PD1 is intended to demonstrate the quantitative capacity and productivity change resulting form the introduction of computer assistance tools and data link facilities. The environment will be en-route airspace in the timescale circa 2000 simulating several en-route sectors and emulating entry and exit conditions at TMA sectors. It will be hosted by CAA at DRA Malvern. It is envisaged that the controller's basic roles of planner and tactical will not be subject to major changes but assistance will be provided in terms of "computer assistance tools" and datalink. The new elements will support the definition of a new control method, still based on current practices, but improved and adapted to provide "look ahead" facilities. It is this "look ahead" capability that is expected to lead to increased capacity. The fact that ATC will be performed in a similar manner to today's operation (i.e. maintaining the basic roles of planner and tactical together with the same sectorisation) will considerably reduce the number of options to be considered. The sectors to be used for the simulation will be the UK New En-Route (NERC) sectors 10 and 11.

These objectives can be summarised as follows:

1. To determine the effect on controller workload and traffic throughput of the introduction of computer assistance tools from the PATs programme.
2. To determine the effect on controller workload and traffic throughput of the increasing proportion of 4D FMS aircraft with full duplex datalink;
3. To gain a degree of controller approval for the introduced computer assistance.

The requirements definition phase should be complete by the end of this year, the facility will be adapted to include new components from PHARE partners by the end of 1994, the first quarter of 1995 will be used for integration tests and pilot studies, and the demonstration will take place over the remainder of 1995. The first half of 1996 will be spent analysing the results.

4. AUTHORITIES, ACCOUNTABILITIES AND RESPONSIBILITIES

Within PHARE two management bodies exist:

PHARE Management Board, PMB, consisting of high-level representatives of the PHARE partners, taking decisions on a political level concerning the execution of the PHARE Agreement, reporting to the EUROCONTROL Committee of Management.

PHARE Project Coordination Committee, PCC, chaired by the PHARE Programme Manager, taking decisions on progress of planned activities and priorities between activities and reporting to the PMB.

For PD1 a project management structure as indicated in figure 1 is foreseen:

The different bodies visible in the figure have the following responsibilities and reporting channels.

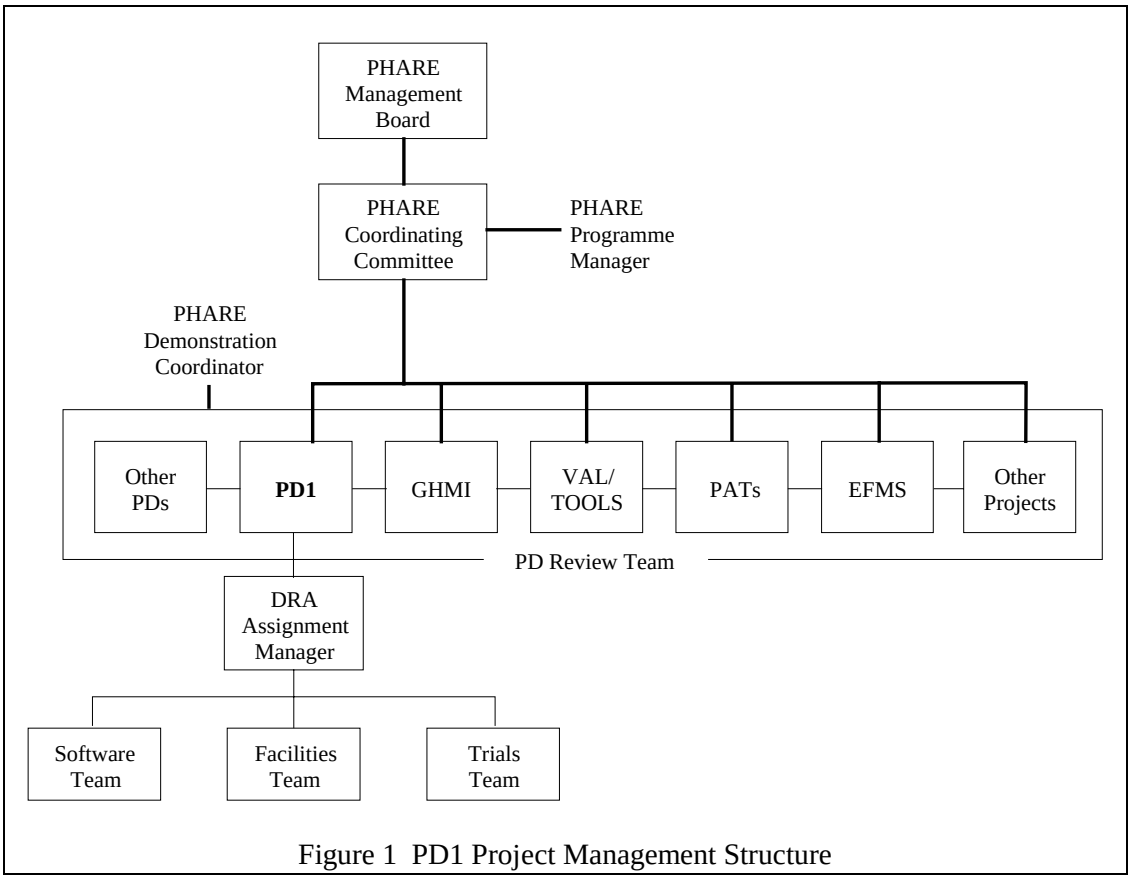

Figure 1 PD1 Project Management Structure

4.1. PD1 PROJECT MANAGER

Responsible for the organisation and coordination of different tasks within PD1, and the relations with other PHARE projects delivering to PD1. The major contributing projects are:-

- the PHARE Advanced Tools (PATs) group which is responsible for the provision of the advanced computer assistance tools for PD1.
- the GHMI group which is responsible for the specification of the HMI for both the reference system and the advanced system (the system including the PATs) necessary to support the PD1 organisations.
- Experimental Flight Management System (EFMS). Responsible for aspects related to the provision of air/ground dialogue.
- Validation Tools group which is responsible for the definition of the requirements for the measurement and analysis techniques for PD1.

The PD1 Project Manager reports to the PCC.

4.2. PD1 DRA ASSIGNMENT MANAGER

The DRA PD1 Assignment manager is responsible to the PD1 Project Manager for the execution of PD1

4.3. TASK MANAGERS

There are three task leaders responsible to the PD1 Assignment Manager:-

- Software Team leader
- Facilities Team leader
- Trials Team leader

These task leaders are responsible for the organisation and coordination of work within a task.

4.4. PHARE DEMONSTRATION COORDINATOR

Responsible for the organisation and coordination of work between different PHARE demonstration projects. (PD1, PD/2, PD/3, etc.). He reports to PCC.

4.5. PHARE DEMONSTRATION REVIEW TEAM

A PHARE Demonstration Review Team (PRT) will be established to review the technical acceptability of deliverables. It will comprise the PHARE Demonstration Coordinator, who will be chairman of the group, and the project leaders (or their designated representative) from the various projects. The operation of this group is described in section 10.1..

5. DELIVERABLES

5.1. DELIVERABLES TO PD1

The following table indicates the deliverables to PD1, the appropriate project and the person responsible for ensuring the milestone is delivered. The deliverables are identified as milestones in the PD1 programme with the delivery dates given in the Gantt chart at Annex C and the risk associated with these deliverables are discussed in section 6.

In addition this table provides an indication of the groups/establishments contributing effort to PD1.

PROJECT (RESPONSIBLE)	MILESTONE (DELIVERY TO PD1)
PATs (PATs Coordinator)	PAT-4.4.1m (PD1 PATs requirements delivered to PD1) PAT-7.1.1m (PATs for PD1 integrated)
G-HMI (GHMI Chairman)	GHMI-2.1.1m (PD1 Ground System HMI requirements delivered to PD1) GHMI-2.1.5m (CWP HMI for PD1 ready for PD1 host integration)
EFMS (EFMS Project leader)	EFMS-3.5m (EFMS phase 1b SRD reviewed) EFMS-4.1m (EFMS equipped A/C ready for PD1
VALIDATION TOOLS (Validation Tools Project leader)	VAL-2.1m (PD1 Experimental methodology requirements delivered) VAL-6.1m (Methods and Measurements provided)
CMS (CMS Project Leader)	CMS-2.3.1m (PAT/CMS API available)

5.2. KEY DELIVERABLE DOCUMENTS

The following table lists the key deliverable documents from PD1, the schedule for their delivery is given in the PD1 Gantt chart at Annex C.

WBS	Task name	Deliverable
PD1-1.2m	Operational specification of PD1	"Operational specification of PD1"
PD1-2.1	PD1 Outline Project Plan	PD1 Outline Project Plan
PD1-2.2	PD1 Facility Specification	A full specification of the ground-, air- and air-ground systems to be used at the hosting site.
PD1-2.4	PD1 Demonstration Project Plan	PD1 Demonstration Project Plan baseline
PD1-3.1	Reference system development on host	User manual to brief controllers on the system organisation and capabilities.
PD1-4.1	Datalink development	Software package + user's guide for host system dedicated data link facilities
PD1-4.3	HMI integration and testing on host	User manual updated with advanced system options to brief controllers of system organisation and capabilities
PD1-7.1	Develop operational scenarios	Operational scenarios and scripts document.
PD1-7.2	Airspace scenario scripts	Airspace scenarios/scripts document containing a description of: Set of pre-checked flight plans Database with airspace description Database with infrastructure description
PD1-7.3	Integration test	Tested and approved full script of exercise execution Training manuals for controllers and (pseudo) pilots
PD1-9.1	Facility test for PD1	Facility test report Go-ahead for the PD1 pilot phase

WBS	Task name	Deliverable
PD1-9.3	PD1 Demonstration (pilot phase)	Exercise log Results of recording facilities - quick-look - for subsequent analysis Pilot and controller comment and responses to questionnaires
PD1-9.4	Analyse PD1 pilot phase and produce modification specification	Ground system modification specification Air system modification specification Operational procedure modification specification Evaluation procedure modification specification
PD1-9.6	PD1 Demonstration (main phase)	Exercise log Results of recording facilities - quick-look - for subsequent analysis Pilot and controller comment and responses to questionnaires
PD1-10.1	PD1 Analysis	Grouping of data that show interesting correlations Indicators of statistically important differences Conclusions from analysis concerning influence of variables on issues addressed in the investigation
PD1-10.2	PD1 Report	Final report

6. SIMULATION ELEMENTS

The PD1 simulation system is built around the concepts of a client server architecture and comprises all the elements necessary to simulate the air/ground environment. A detailed description is given in the PD1 Facility Specification with a summary provided below.

6.1. GROUND SYSTEM

The major components of the simulated ground facility are: the controller MMI, computer assistance tools, surveillance/tracking, datalink interfacing, flight plan processing, electronic inter-sector co-ordination and supporting databases.

Surveillance and tracking functions are available for both simulated surveillance data from AirSim and live data from external sources, including the Malvern and Gatwick Mode S systems. Datalink interfacing is also available to AirSim and the Malvern Mode S ground station software provides a general purpose interface to permit live experiments involving the flying avionics test-bed (BAC 1-11), based at DRA Bedford. Supporting databases maintain the details of aircraft modelling parameters, airspace descriptions and environmental data (primarily weather). Separate air and ground weather models are employed.

6.2. AIR SIMULATION SYSTEM

The Air Simulation will be provided by AirSim. This is a multi-aircraft simulator capable of supporting up to 200 simultaneously active aircraft with various combinations of avionics fit. Aircraft equipped with various levels of sophistication of Flight Management System and datalink will be supported. AirSim employs an aircraft dynamics model based on SIM and the use of the BADA database. Navigation functions permit flight along pre-scripted or uplinked routes or on direct routings and headings. A pseudo pilot interface is provided with each pilot operator having a graphical user interface at a workstation. Each pseudo pilot position is capable of handling between 10 and 15 aircraft at one time.

6.3. LIVE AIRCRAFT

In addition to the simulation provided by the Air Server trajectory negotiation and ATC clearance exchange experiments will be supported by a live aircraft. The live aircraft experiments will utilise the flying avionics testbed (BAC 1-11), based at DRA Bedford. Communication will be via the Malvern Mode S ground station.

6.4. COMMUNICATIONS FACILITIES

The facility will include simulated communications for air/ground, ground/ground and intercoms.

The communications equipment falls into the following categories:

- simulated radio telephony equipment
- ground-ground telephone equipment
- data link
- landline interface equipment
- data-logging equipment (to log the origin, destination and duration of all radio and telephone communication)
- voice-recording equipment (to log all radio and telephone communication)

A detailed description of the full communications requirement is given in the PD1 Facility Specification.

7. ANALYSIS REQUIREMENTS

The aim of the PHARE Demonstrations is to show quantitative productivity increase which can be expected from introducing advanced computer assistance tools and data link facilities, as well as controller approval of the new working environment. However, the experiments are not expected to provide validated and exact reference values for future En-route capacity but they should be able to verify the feasibility of a highly integrated system under near reality conditions. Full details of the measurements and analysis to be performed are provided in the PD1 Facility Specification.

A number of measurement techniques will be identified by the PHARE Validation Tools group which will be used to evaluate questions relating to performance, workload and acceptance. The aim is to apply, as far as possible, the same experimental procedures and techniques to the individual PD's.

Two categories of measurements have been identified, mandatory and optional. The mandatory measurements will be applied in all simulation runs of the Main Phase and will be for quantitative evaluation. The optional measurements are those for analysing and documenting individual simulation runs and are to be applied predominantly in the Pilot Phase experiments.

The measurements to be used for the evaluation of PD1 will refer to the following criteria:-

- performance (quantitative traffic handling), this will be manned system performance as well as operator performance;
- workload, in a highly automated system the will largely be a matter of mental load on the controller. In addition to peak workload, the questions of underload and situation awareness should also be addressed;
- acceptance (controller approval), this refers to the man/machine interface as well as the operational procedures.

The methods used to measure these criteria must be non-intrusive. Any techniques which require a controller to perform a secondary task are considered to be too intrusive for use in the Main Phase. Physiological measurements and eye movement recordings which might be perceived intrusive and also require considerable effort in subject preparation and calibration will be considered only as optional methods.

Mandatory measurements will concentrate on the following groups:-

- system output data, this will include "objective" metrics describing performance aspects, such as accuracy of flight path observance, traffic flow, and delay/economy figures in a given ATC scenario;
- operational data, this will include the registration of events depending on subject behaviour (such as communication behaviour) or operator inputs (frequency, errors etc.). The operational aspect may also include visual perception and decision making;
- controller judgements and opinions, these measurements will be collected by means of questionnaires, post-session interviews and debriefings.

8. RESOURCES

Resources for the project are given in the detailed baseline plan at Annex D.

Where projects are delivering to PD1 their individual project plans will detail the resources and exact nature of the deliverables.

Where tasks are led by the CAA with contributions from other PHARE partners the PD1 Project Manager will contact the designated representative for each contributor and agree the nature and schedule for the work to be undertaken.

9. PROJECT SCHEDULE

The project schedule is provided in a Gantt chart at Annex C.

10. PROJECT ACCEPTANCE

10.1. REVIEW PROCESS

Introduction

The PHARE Demonstrations are collaborative projects which are managed by the respective hosting sites and require deliverables from other PHARE projects for their successful outcome. The following PHARE projects are providing deliverables to the PD's:-

- Ground HMI (GHMI)
- Validation Tools
- PHARE Advanced Tools (PAT's)
- Experimental Flight Management System (EFMS)
- Common Modular Simulator (CMS)
- PHARE Aeronautical Telecommunications Network (PATN)

Each of these groups will provide information relating to their respective deliverables to the individual PD's which will be incorporated into the PD deliverable documents. These documents require an agreed review process and it is for this purpose that the PD Review Team (PRT) has been established.

PD Review Team

The PRT will comprise the respective PD project manager, the project manager (or his designated representative) from each of the projects supporting the PD and the PHARE Demonstration Coordinator. The PHARE Demonstration Coordinator will be chairman of the group.

The PRT will be responsible for technical review of deliverable documents from the PD's.

Categories of PD Deliverables

PD's have 3 categories of deliverables as follows:-

1. Internal deliverables (deliverables that are important for the internal project progress)
2. External deliverables (deliverables important both for the project itself but also for other projects)
3. Major deliverables (external deliverables identified by PMB as needing their approval)

Approval/Signing-off Procedures for PD Deliverables

The following approval procedure is to be applied:

Internal deliverables are to be approved (signed off) by the project leader, and reported as completed in a progress report to PCC.

External deliverables are to be approved in three stages:

1. Approval by the project leader. The document will be signed by the author(s) and submitted to the PRT for technical acceptance.

2. Approval of technical contents by the PRT. On acceptance the document will be signed by the PRT leader and then be submitted to the PCC for final acceptance

3. Approval of organisational and inter-project co-ordination aspects by the PCC and signing by the PHARE Programme Manager.

Major deliverables should also follow the 3-step approval mentioned for external deliverables and should involve work (preferably in the form of an executive summary, approved by PCC) to lead to a 4th step:

4. Approval of political and external to PHARE aspects by the PMB.

10.2. SOFTWARE CONTROL

The design, production, testing and control of software developed to support PD1 will be subject to the local procedures of the hosting site. Procedures will be developed to handle software delivered from other PHARE partners for inclusion with the hosting site facility.

11. TRAINING AND SIMULATION NEEDS

The Training and Simulation needs vary according to the phase of the Demonstration which is in progress. It is simplest to consider them separately under each phase, the phases being Reference System Development and Testing Phase, Facility Test Phase, Training and Pilot Phase, and Main Phase. A detailed training and simulation is provided in the PD1 Facility Specification.

11.1. REFERENCE SYSTEM DEVELOPMENT AND TEST PHASE

During the early stages of the development and testing of the Reference System, use will be made of non-operational controllers, that is controllers who although fully qualified are currently in desk jobs. This will include making maximum use of any such staff already associated with or committed to tasks at DRA Malvern. Test runs will be arranged to fit in with the development needs and with the availability of staff. Towards the completion of the Reference System Development there will be a need for two, more formal, simulation test periods during which it will be necessary to use operational controllers, that is controllers currently practising and validated on En-Route sectors.

These test periods will each need to be approximately 1 week long. During these weeks the subjects will become familiar with the HMI and other functions of the system and will take part in a series of trial runs which will build up to full two sector runs. This period will allow testing of traffic samples to establish reasonable loadings and adjustment of system and experimental parameters and of operational procedures before the formal measured test runs of the Main phase are carried out. The two weeks will be separated by a short period during which modifications to the simulation and its parameters can be made if necessary and new traffic scenarios can be built to take account of controllers reactions and comments. The same controllers should if possible be made available for each of these 1 week periods.

11.2. FACILITY TEST PHASE

This phase, for the Advanced System (i.e. the system which includes the computer assistance tools), is the equivalent of the early development and testing phase of the Reference System. The objective of the period is the testing of the facility, the adjustment of parameters relating to operational scenarios and the advanced tools and the fine tuning of operational displays and procedures. The training and simulation needs and provisions will be similar to those indicated for the Reference System. Non-operational controller staff will be used and trials arranged to fit in with system testing needs and controller availability.

11.3. TRAINING AND PILOT PHASE

The objective of the training part of this phase is the formal *ab initio* training of the subjects for the main phase sessions. Subjects for the main phase must attend one of the repeated training sessions which will each occupy 3 to 4 days. During each session the subjects will be trained on both Reference and Advanced systems and their interfaces and also on the operational procedures which differentiate the "Organisations" using the Advanced System.

The Pilot part of this phase is the final shake-down and practise phase for the whole demonstration facility. Fine tuning of all aspects of the system will be completed. Logistics of all aspects of the simulation including those relating to the interface of the BAC 1-11 will be tested out. Non-operational staff can be used for this part of the Phase.

11.4. MAIN PHASE

For the Main Phase it is experimentally desirable that a minimum of eight sets of controllers, 4 controllers per set, should each perform the whole proposed experimental series. The series of 12 sessions, along with refresher training, occupies five days and therefore will be repeated eight times. The BAC 1-11, the DRA Malvern Mode S datalink facility and its support staff will be needed for parts of each of the eight weeks.

12. RISK MANAGEMENT

PD1 as currently planned requires deliverables from other PHARE activities during the build up to the demonstration. The deliverables which have been identified as potential risks to the successful completion of the project are detailed below together with the steps taken to minimise the effects of the risks. Each of the deliverables are identified as milestones in the PD1 programme and progress towards these milestones is continuously monitored and reported in the PD1 Project Managers report to the PCC.

TOPIC	RISK	RISK ASSESSMENT	MITIGATION
CMS-2.3.1: PAT/CMS API available	The identified risk is that the standards will not be agreed before the reference system has to be built.	HIGH risk of not meeting deliverable LOW programme impact if delivery not met.	The group involved in the definition of the CMS standards involves participants from DRA (Malvern) the PD/1 hosting site, with experience of the UK CAER API architecture. Therefore if the CMS standards are not completely defined then the API specifications developed for the UK CAER programme could be used. As a result of the cooperation identified above the details of the CAER API should not ultimately be very different from the eventual CMS API and hence compatibility for future collaborative programmes should not be jeopardised.
PAT-7.1.1m: PATs for PD/1 integrated	The identified risk is that the PATs will not be delivered on schedule	LOW risk of not meeting deliverable LOW programme impact if delivery milestone not met.	The risk to the PD/1 programme of failure to meet this deliverable is mitigated by the fact that CAER is developing some of the tools for PD/1 and other tools for the UK national programme which could be used in PD/1 if other PHARE tools were not available.

TOPIC	RISK	RISK ASSESSMENT	MITIGATION
GHMI-2.1.5m Delivery of Ground HMI to PD/1	The identified risk is that the Ground HMI group will not have the resources to complete the task of specifying and prototyping an HMI for PD/1 within the PD/1 timescales.	HIGH risk if not meeting deliverable. LOW programme impact if delivery milestone is not met.	There are two potential fallback optionsif the Ground HMI specification is not delivered on schedule. 1. The UK CAER programme is to develop a new HMI facility which will be able to handle reconfigurations in a timely manner. The HMI developed to support the national tools programme could be configured for the PD/1. 2. HMI work performed in support of the ODID programme could be adopted as a basis for PD/1.
VAL-2.1m: Experimental methodology	The experimental methodology for all the PD's is to be defined in the PHARE task TM/03: Validation Tools. The methodology for PD/1 is to be defined as part of this task and delivered to PD/1. The risk is that there will not be sufficient resources to meet the PD/1 deliverable.	LOW risk of not meeting deliverable. LOW programme impact if delivery milestone not met.	The risk to the PD/1 programme of failure to meet this deliverable is mitigated by the fact that CAER is developing an extensive experimental and analysis facility which could be used in PD/1 if other PHARE task TM/03 does not deliver.
EFMS-4.1m: EFMS equipped A/C/fl-sim ready for PD/1 integration test.	The identified risk is that the EFMS project does not deliver the validated phase 1b equipped aircraft.	Low risk of not meeting deliverable LOW programme impact if milestone not met.	There is considerable organisation involved in the use of live aircraft in a demonstration. The risk is mitigated by the fact that there will have been live aircraft involved in CAER trials prior to PD/1. Also the requirement for live aircraft is not mandatory for PD/1 as the air server can simulate EFMS equipped aircraft. Live aircraft will provide credibility to the results.

13. PROJECT REPORTING

The major steps in the management of the project plan and reporting of progress are as follows:-

A PROJECT REVIEW

The PD1 Project manager will receive progress reports monthly from the DRA Assignment Manager who will be in receipt of monthly progress reports from task managers. Three weeks prior to the PCC meeting the PD1 Project Manager will update his project plan and deliver it to the PHARE Demonstration coordinator.

B FIRST CONSOLIDATION

The PHARE Demonstration coordinator will integrate the updated project plan together with updates of the plans from all other PHARE projects into one consolidated plan. A clear indication of changes as compared to the last version of the plan will be included in the last version of the plan which will be distributed to the PCC for approval two weeks before the next PCC meeting.

C APPROVAL

The PCC will assess the results of the consolidated plans and determine where changes need to be made in order to improve coordination between projects.

Where necessary, the PCC will pass major problems to the PMB for decision.

D SECOND CONSOLIDATION

The demonstration coordinator will update the plans according to the PCC decisions and produce the next version of the consolidated plan. He will then distribute the resulting project plans and top-level milestones to all PHARE project leaders one week after the PCC meeting. Project managers should confirm within one week that changes are acceptable and will be implemented.

In this way it is assured that all project review meetings are held on the basis of the latest information.

SCHEDULE FOR MEETINGS

Three types of meetings have been identified to support the above project reviewing cycle:

	TYPE	FREQUENCY	TIMING
1	PHARE Demonstration coordination meetings:	6 monthly	1 month before PMB
2.	PD/1 Progress review meeting	2 monthly	3 weeks before PCC
3	Task status meeting	monthly	as required by the work

14. RELATED DOCUMENTS

A list of all PD1 related documents will be maintained in the PD1 database.

The following is a list of documents related to this Demonstration Project Plan.

1. PD1 Operational Specification, PHARE/CAA/PD1-2.3/OPS

   This document defines the broad operational objectives of PD1

2. PD1 Outline Project Plan, PHARE/EHQ/PD1-2.1/OPP

   This document provided the PD1 project information, on which the PD1 Agreement has been based.

3. PD1 Facility Specification, PHARE/CAA/PD1-2.2/FAC

   The Facility Specification is a detailed description of the technical, operational and analysis requirements to be met by the simulation environment in support of PD1.

4. PD1 Operational Scenario, PHARE/CAA/PD1-7.1/OSD

   This document describes the *modus operandi* for the Planning Controller (PC) and Tactical Controllers (TC) necessary to support the organisations in PD1. It concentrates on the tasks and operations to be performed rather than the mechanisms available to implement the tasks.

5. PD1 Airspace Scenarios and Scripts

   This document will describe the detailed airspace scenarios and air server scripts used for each of the traffic samples.

6. Configuration Control Document.

   This document will contain the status in terms of version of all the PD1 related documents and will be re-issued whenever a document is updated.

ANNEX A

DOCUMENT CONFIGURATION

A.1. Document Identification

Document configuration will be controlled by revision number which will be maintained by the PHARE Cell. Documents will be uniquely identified as follows:-

<Programme>/<Establishment>/<WBS no.>/<document type>;<revision no.>

Programme> is always PHARE.

<Establishment> is the identification of the establishment holding and maintaining the document (e.g. EHQ, CAA, EEC etc.). In the case of a document containing contributions from a number of establishments this will be the Task Manager establishment.

<WBS no.> is to be taken from the task description.

<document type> is to be taken from the following list.

ADD	Architectural Design Document
AGN	Agenda
ATP	Acceptance Test Plan
DDD	Detailed Design Document
DPP	Demonstration Project Plan
IDn	Information Document number n of a meeting
ITR	Integration Test Report
FAC	Facility Specification
MIN	Minutes of Meeting
OPM	Operator's Manual
OPP	Outline Project Plan
OPS	Operational Specification
OSD	Operational Scenarios Document
PNn	Project Note number n of a task
QAP	Quality Assurance Plan
QAR	Quality Assessment Report
REQ	Requirements
SAP	Safety Assurance Plan
SMM	System Managers Manual
SRD	Software Requirement Document
SSD	Scenarios Scripts Document
SSR	Study Report
STP	Software/System Test Plan
STR	System Test Report
TDn	Technical Document number n of a meeting
TPR	Task Progress Report
TRM	Training Manual
URD	User Requirement Document
UTR	Unit Test Report
WDn	Working Document number n of a meeting
WPn	Working Paper n of a task

The status of each document will be maintained in a Configuration Control Document which will be re-issued each time one of the configured documents is updated.

ANNEX B

RESOURCE PLAN

ANNEX C

GANTT CHART