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MB Air Systems (MBAS), Schlumberger-Sema, ATB, ICIMSI



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Acceleration of Innovative Ideas to Market

Annual Public Report 2: APR

Period 01.06.2003 - 31.05.2004

Consortium Partners:

LABEIN	E
Ball Packaging Europe (BPE)	D
Charles Robinson (Cutting Tools)	UK
MB Air Systems	UK
SchlumbergerSema	E
ATB	D
ICIMSI	CH

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DOCUMENT CHANGE LOG

Change Control Procedures

Each change or set of changes made to this document will result in an increment to the version number of the document. Minor changes will increment the decimal point of the version number. The change log will record this process and will identify for each version number of the document any modification(s), which caused the version number to be raised.

Version	Date	Reason for Change
0.1	20/05/2004	Document creation
1.0	16/09/2004	Implementation of all inputs and refinements

Use incremental, sequential version numbers (eg. 0.1, 0.2, ..). Final versions should be 1.0 for first versions, and 1.1, 1.2 for further updates if required.

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1. Summary

Good progress has been achieved in the reporting period:

- The 2nd review meeting was held in Brussels on the 6th of June 2003.
- The second version of the Project Management Plan was completed and issued.
- The AIM Early Prototypes were completed.
- The second version of the specification for the Collection System was completed and issued.
- The second version of the specification for the Innovation Engine was completed and issued.
- The second version of the specification for the Innovation Repository was completed and issued.
- The second version of the specification for the Innovation Viability Assessment Module was completed and issued.
- The second version of the specification for the Innovation Management System was completed and issued.
- The updated version of the System Concept/Architecture as requested by the reviewers, was completed and issued.
- The Assessment of the Early prototype of the AIM system has been initialised.
- The third version of the Technology Implementation Plan was completed and issued.
- The third version of the Dissemination and Use Plan was completed and issued.
- The project web-site (<http://www.atb-bremen.de/projects/aim>) has been updated and documents, presentations and Inter -Regional dimension information are accessible.
- Several dissemination actions have been performed.
- The Contract Amendment due to the inclusion of the New Swiss Partner ICIMSI and legal changes in BPE and MBAS was done, and the amended version issued for signature.
- The ICCA signed by all Partners, last step before the final endorsement, was done and presented for its acceptance.

2. Introduction

This document is deliverable D7.1.1 of the project AIM – Acceleration of Innovative Ideas to Market. This project aims to develop a system to support the collection of all useful knowledge throughout the extended enterprise for new and existing process and product developments, and to develop this knowledge into a means of fostering industrial innovations. Innovation by combining the ideas and feedback from all parts of the product life cycle, including customer interaction with existing products and new product ideas, and including customer service and field engineers, including suppliers, and including pooling of knowledge between multiple sites.

This document is the result of task T7.1 in Work Package WP7 Project Management. The objectives of this work package are to perform effective management of all project work and resources, and to manage all communications, reporting and financial administration with the Commission.

This document consists of:

Chapter 1 Summary- which describes the main achievements and actions done within the reporting period.

Chapter 2 Introduction – which describes the purposes of this document, the position of this document with respect to the whole project, and provides a brief overview of the contents of the document.

Chapter 3 Project Progress – which describes the progress of the work with regards to the objectives for the period. It also contains the work planned for the next 12 months.

Chapter 4 Deliverables – provides a summary of the status of the due deliverables for the period

Chapter 5 Project Gantt Chart – which contains the gantt chart

Chapter 6 Project Management and Co-ordination – which describes progress regarding the project management

Appendix 1 Deliverables Summary – contains the summary description of each deliverable due in the reporting period

3. Project Progress

3.1 Summary of project objectives for the period

The main project objectives in the second 12-month period where:

- To produce the second version of the Project Management Plan.
- To develop the AIM Early Prototypes.
- To generate the second version of the specification for the Collection System.
- To generate the second version of the specification for the Innovation Engine.
- To generate the second version of the specification for the Innovation Repository.
- To generate the second version of the specification for the Innovation Viability Assessment Module.
- To generate the second version of the specification for the Innovation Management System.
- To update the System Concept/architecture according to the reviewers requests
- To complete most of the AIM software components
- To initialise the testing and assessment of the Early Prototype
- To produce the third version of the Technology Implementation Plan.
- To produce the third version of the Dissemination and Use Plan.
- To update the project web-site (<http://www.atb-bremen.de/projects/aim>)
- To perform dissemination actions.
- To produce this 24-month Management Report.

3.2 Overview of the technical progress

Objective	Progress
To produce the second version of the Project Management Plan.	Done
To develop the AIM Early Prototypes.	Complete
To generate the second version of the specification for the Collection System	2 nd version Complete
To generate the second version of the specification for the Innovation Engine.	2 nd version Complete
To generate the second version of the specification for the Innovation Repository.	2 nd version Complete
To generate the second version of the specification for the Innovation Viability Assessment Module.	2 nd version Complete
To generate the second version of the specification for the Innovation Management System.	2 nd version Complete
To update the System Concept/architecture according to the reviewers requests	Update Complete
To complete most of the AIM software components	AIM components almost complete
To initialise the testing and assessment of the Early Prototype	Initial Testing performed

To produce the third version of the Technology Implementation Plan.	3 rd version Complete
To produce the third version of the Dissemination and Use Plan.	3 rd version Complete
To update the project web-site	Done
To perform dissemination actions.	Done
To produce this 24-month Management Report.	Complete

3.3 Progress Per Workpackage

WP1 System Requirements and Concept

Objectives: To analyse the user's needs, including the development of process and knowledge models and definition of the top-level requirements on the tools. To specify procedures and the system concept for the tools and to define the business cases where the tools will be tested in detail.

- The business cases for each of the 3 users (Ball Packaging Europe, Cutting Tools and MB Air Systems) were elaborated. These were documented into deliverable D1.1 Business Cases.
- Current state of the art was investigated. Based on the requirements of the end-users and the reviewed methods and tools, system concept was defined and documented in the deliverable D1.2 System Concept.
- The guide for the users to provide the requirements has been produced and the users have completed the requirements work. The requirements have been analysed along with the business cases to produce the final list of requirements, which are documented in deliverable D1.3 Requirements Analysis.

WP2 Specifications of Innovation Components

Objectives: To investigate the approaches and develop the design of the components required for the stimulation of innovation processes. These components will include facilities for stimulation and collection of ideas, nurturing of these ideas to bring them to fruition (i.e. develop innovations), and storage of these ideas for rapid access and synergies with similar ideas for cross-fertilisation.

- The second version of the specification for the collection system was developed (D2.1.2). This document presents the complete specification for the Collection System, one of the modules of the AIM System, and it is a second version of Deliverable 2.1.1, Specification for Collection System (first version). It includes a complete specification of the components addressing Collection of ideas and problems. A special emphasis is put on CBR application for identification of 'similar' problems and 'similar' ideas. Use Cases description is added, to enable a better understanding and tracing of the end-users needs w.r.t. the collection system and refined Use Cases diagrams, according to reviewers' comments. Collaboration and Interface-Role Diagrams are added, which allow a better overview on how the user will interact with the AIM system. Traceability from the Collection System functionality to the Business Cases is provided as well.
- The second version of the specification for the innovation engine was developed (D2.2.2). Based on the System Concept and the Requirements Analysis for the AIM Tool, a deeper insight is performed in this document for the Innovation Engine Module, oriented to finding innovative solutions following a systematic methodology. This second version of the specification for the Innovation Engine was created, deeply modelling the Application by using the "4+1 Views". Based on these specifications, the Early prototype for this Module was created.
- The second version of the specification for the innovation repository was developed (D2.3.2). This document presents a complete Specification for the Innovation Repository, which is a component of the AIM system. The refinement of the previous deliverable, which resulted in the present one, took into account the comments from AIM's second Review Meeting. The overview of existing

methodologies is added, the reference model, with mapping to AIM Model is provided, entities are modified, according to Reviewers comments, and a detailed specification of the technical solution for maintaining Ontologies within extended enterprise is included.

WP3 Innovation Management System Components

Objectives: To investigate and develop specifications for the innovation management components, which are needed to support the innovation components.

- The second version of the specification for the Innovation Viability Assessment Module was developed (D3.1.2). This document describes the specification of the Innovation Viability Assessment module. It is a refined initial list of the project module's specifications, collected in from the System Concept and Industrial Requirements. The second version of the specification for the Innovation Viability Assessment Module contains First Viability Assessment, Ideas Classification, and Second one, Decision Making, which were modelled using the "4+1 Views".
- The second version of the specification for the innovation management system was developed (D3.2.2). This document presents the initial ideas about the Innovation Management System module, included in the IT system to be applied during the course of "AIM" project. In the second version of the specification for the Innovation Management System, the main change was introducing the FORO Workflow, commercial tool from SEMA, in the overall AIM Management System.

WP4 System Implementation

Objectives: In order to verify the methods and tools, knowledge relevant for innovation processes is necessary (note: this capturing takes a relatively long time). To be able to verify the tools, early prototypes have to be implemented, to collect this data (information and knowledge). To implement final versions of the prototypes of the AIM system. To integrate the developed prototype tools to fully work together.

- Early prototypes. Based on the specifications from tasks 2.1 -2.3 and 3.1. and 3.2, early prototypes for the innovation components are developed. The main and critical functionality of the tools are implemented: Innovation Repository, System Set-up, components for Collection of problems and ideas including most of the specified functionality (e.g. search functions, CBR etc.), Innovation Engine (Innovation Generation based on TRIZ approach), Innovation Viability Assessment (1st Assessment), Innovation Management based on the Project Management Tool "FORO WORKFLOW".) Additionally, according the 2nd Project Review Report (June 5, 2003) the reviewers requested to produce this additional deliverable. In order to ensure that a more elaborated and crisp system concept and specifications of the system components within D2.1.2, D2.2.2, D2.3.2, D3.1.2, and D3.2.2 can guide the system implementation, exploitation and validation, the reviewers requested that the system concept (Chapters 4 and 5 of D1.2) will be extended into an annex "AIM System Architecture" to D4.1 (Early Prototypes) and that the 2nd versions of the AIM component specifications will fully reflect these system architecture descriptions. The deliverable (appendix to D4.1) is produced including detailed business use case scenarios and an updated system concept, as well as a traceable link between business use case and system concept/architecture.
- The work on the development of the full prototype components (D4.2) is almost complete. The early prototypes are being developed into final prototype solutions. Based on the test results of the early prototypes, the design of the tools will be updated by the developer partners. The missing functionality will be implemented. It is noticeable that although the development of system components was planned to start at month 17, it started indeed during T 4.1 as many functionalities are already working at that stage, not just as front-ends, but as partially functional software.
- Work has started on the Integration of the AIM Implemented Components (D4.2) into the D4.3 Integrated System.

WP5 System Training and Validation

Objectives: To validate the early prototypes against the user requirements. To collect data (information and knowledge) for the tools from the business cases for a longer period. To test critical modules of the tools in the industrial environments. To validate the concept and to update the specification of the final prototypes of

the tools. To develop training materials and plan a structured training programme and as a results train the end-users. To validate the final results against the user requirements and the project objectives.

- The work on testing of the Early prototype has been initialised. The Early prototype system is to be provided to end users and plans for testing and validations have been agreed in detail. The end-users will continuously provide their feedback to the developers to be taken into account within the development of the full prototype. The work upon the deliverable D.5.1 Early Prototypes Validation report has been planned in detail.

WP6 Exploitation and Dissemination

Objectives: To plan dissemination activities to support the commercial activities arising from the project. To produce an exploitation plan for post project collaboration. To define the ownership of the results between the project participants. To produce a project web site for promoting the project. To present and publish papers in national and international conferences.

- The Commission Technology Implementation Plan (TIP) template has been used to create the AIM TIP 4 (deliverable D6.1.4). This 4th version has been finalised. This document will be reviewed and updated every 6 months.
- The Dissemination and Use Plan (4th version) has been completed (deliverable D6.2.4). This document will be reviewed and updated every 6 months.
- The AIM web site has been updated, containing the D6.3.4 Project Presentation. This Project web site will be reviewed and updated every 6 months.

WP7 Project Management

Objectives: to perform effective management of all project work and resources, and to manage all communications, reporting and financial administration with the Commission.

- This management report has been produced (deliverable D7.1.1).
- The Consortium Collaboration Agreement (CCA – deliverable D7.1.3) has been completed (using the Commission standard CCA).
- The Project Management Plan 2 (deliverable D7.2.1) has been completed, which contains administrative, organisational and contact information required for carrying out the project. This document will be revisited every 6-month to ensure its applicability and will be updated when necessary.

3.4 Resources and deviations from the work schedule

There were no reported deviations from the work schedule, and the project is making good progress, and achieving the deliverables by their due dates.

3.5 State-of-the-art update

Thorough analysis of the state-of-the-art methods and tools relevant for AIM has been performed within the WP 1. task 1.2- System Concept. Results of this analysis are documented in the deliverable D.12. System Concept. The updated version of this deliverable (1.2) includes the updates of the state of the art particularly regarding ontology issues, and system development approach ('4+1 views modelling and Extreme Programming). The main conclusions are:

- Practical means for developing ideas into innovations in products and processes are still missing. This will involve taking what is currently available and producing methods of rapidly taking many creative ideas, and assisting people to work together in a structured manner to develop these ideas into innovations.
- Methods and tools for capturing and structuring innovative ideas, over extended enterprise, in a way that enable the best used for product/process innovation are still missing. This is the typical idea of 'difficult to structure knowledge', which asks for high-level 'innovation' and meta classification. On one side, the

structure must not restrict creativity of the people; and on the other hand, they must be structured in such a way to be easy to access and re-use.

- Providing means for team development of innovative ideas over extended enterprise is a high challenge and asks for a generic approach for development of ontologies applicable in the context of specific products/processes.

The research needs, in comparison to the state-of-the-art, which will be covered by the AIM project (i.e. differentiating factors of the proposed research work), include:

- **Ontologies:** Although ontologies attract high intention of RTD community, their application in practice is not still wide spread and additional RTD activities are needed to provide application-oriented method for product and process innovation domain. Especially what is needed is a means for continuous update of ontologies enabling long life of knowledge systems. AIM intends to **re-use and further enhance ontologies** that can be applied in the context of **product/process innovation**. The AIM tool will include a **set-up** enabling continuous update of ontologies.
- **Structuring of ideas:** Since ideas are typical ‘difficult to structure knowledge’, there is no appropriate approach for structuring of such knowledge in such a way that they can be best used for product/process innovation. AIM will develop a high-level meta classification of ideas which will enable structuring of this knowledge for effective re-use (serve to structure idea and innovation repository). The classification will be adjustable to specific user needs, i.e. the system will include module for **set-up of the classification** appropriate for user.
- **Methods and tools for gathering knowledge on product/processes and problems and ideas:** An evaluation of the considered approaches shows that each of the analysed approaches has certain advantages and disadvantages. The main problems with the reasoning methods/tools are a re-use and sharing of knowledge among different experts and partners within distributed and extended industrial companies. AIM intends to **use existing tools** (RBR and CBR) in combination to appropriate ontologies definition, meta classification of ideas, product/process models to be included in the knowledge repository and adequate user interface to provide presentation of the captured knowledge in appropriate form to different actors. AIM will provide an enhancement of classical reasoning tools to achieve personalised, context-, task- and role-sensitive functionality and an effective maintenance of such knowledge systems.
- **Methods that can be used to develop innovations:** Existing methods aim at the scientist level of user, and not at the industrial manufacturing level. AIM intends to provide methods and tools that will be applicable in the **industrial environment**. A **combination of TRIZ, RBR and CBR** as well as repositories of ideas and knowledge on product/processes (included in models) will be applied which is currently not available for innovations development domain.
- **Methods and tools for Graphical User Interfaces:** Existing methods and tools to develop adaptable and personalised user interfaces are especially focussed on web browser software (so-called thin clients). AIM intends to extend these methods, in order to provide the same type of functionality in a standard software application (called fat client).

In summary, based on this analysis the following **design decisions** are made:

Topic/AIM component	Design decisions
Ontologies	Re-use and further enhancement of the existing ontologies and re-use of the exiting tool for ontology definition (selection left for the specification phase).
Knowledge to support definition of ideas	A new structure will be developed.
Methods and tools for gathering knowledge on product/processes and problems and ideas	Re-use of existing methods and tools - RBR and CBR (selection left to laboratory prototype).
Innovation Engine: Methods and tool for development of innovations:	A combination of existing methods, as RBR and CBR (selection left to laboratory prototype) and a

	Methodology based on TRIZ.
Innovation Management	Apply Foro Workflow, developed for SchlumbergerSema, LVT will be considered in the specification phase.
Innovation Viability Assessment	To be developed based on CBR, RBR tools, decision trees and TRIZ principles.
Adaptable and personalised user interface	Use existing methods and tools applied in web browser software.

3.6 Work planned for the next period

- To update the exploitation issues and produce the fifth and sixth versions of the Dissemination and Use Plan
- To update the Technology Implementation Plan
- To update the project web site (Project Presentation)
- To update the Project Management Plan to version 3
- To develop the early prototypes
- To complete the AIM software components
- To develop the AIM integrated system
- To validate the early prototypes and produce the early prototypes validation report
- To generate the training materials and the training report
- To carry out the system validation and produce the system validation report
- To generate the cost statement 3
- To produce the final version of the PPR Management Report 4 (this document)
- To produce the Annual Public reports 2 and 3
- To produce the Management Reports 5 and 6

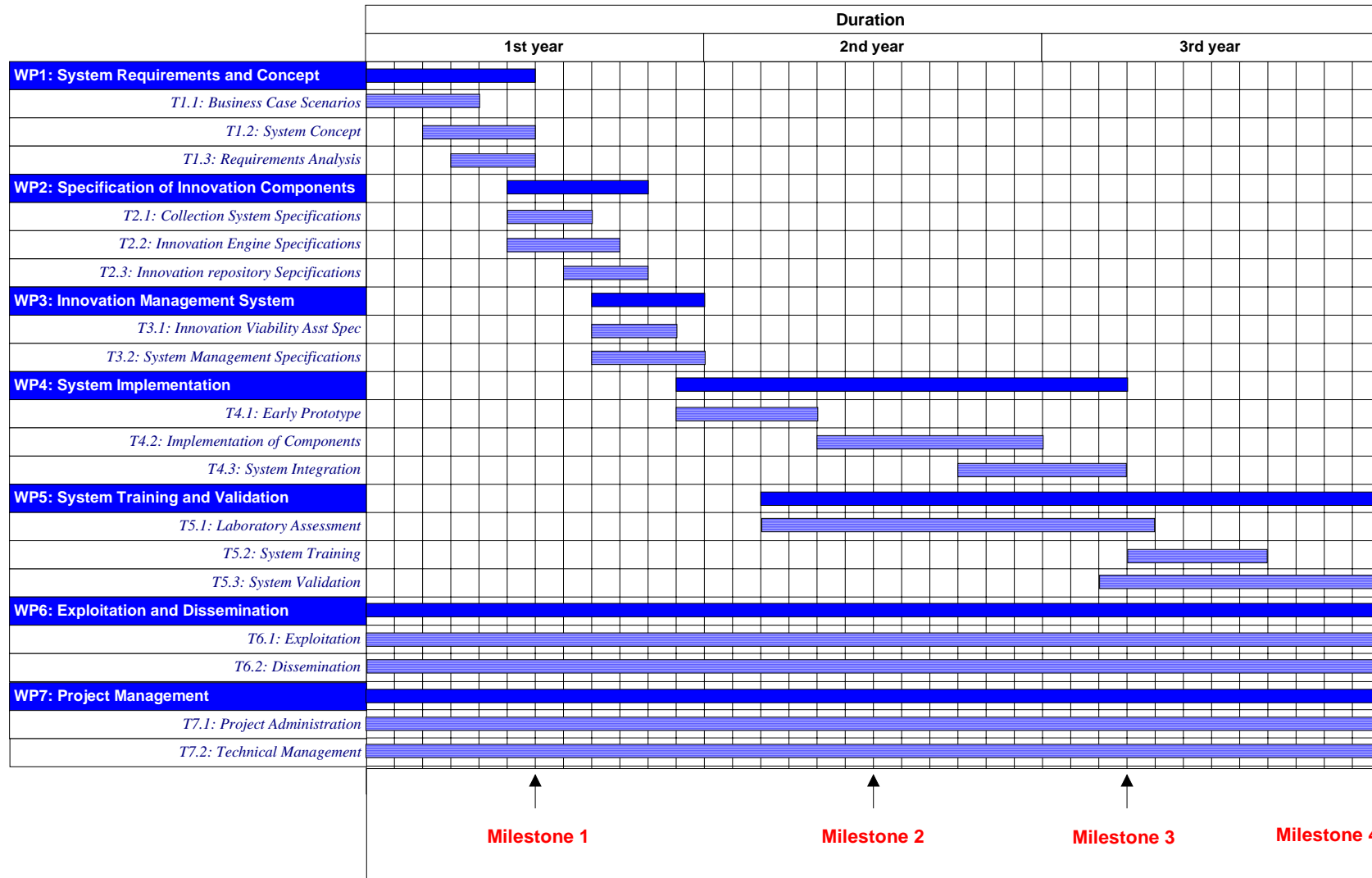
4. Deliverables Table

The following table summarizes the deliverables (not including consortium agreements, management reports or cost statements) produced during the report period. A short description of each deliverable is provided in Appendix 1.

Del. No.	Revision	Title	Type	Classification	Due Date	Issue Date (*)
D7.2.2	2.0	Project Management Plan 2	R	Restricted	31/07/2003	31/07/2003
D4.1	1.0	Early Prototypes	P	Restricted	30/09/2003	30/10/2003
D6.3.4	4.0	Project web presentation	P	Public	31/05/2004	31/05/2004
D2.1.2	2.0	Specification for Collection System 2	R	Restricted	30/11/2003	15/12/2003
D2.2.2	2.0	Specification for Innovation Engine 2	R	Restricted	30/11/2003	28/11/2003
D2.3.2	2.0	Specification for Innovation Repository 2	R	Restricted	30/11/2003	15/12/2003
D3.1.2	2.0	Innovation Viability Assessment Specification 2	R	Restricted	30/11/2003	28/11/2003
D3.2.2	2.0	Innovation Management System Specification 2	R	Restricted	30/11/2003	15/12/2003
D6.1.3	3.0	Technology Implementation Plan 3	R	Confidential	30/11/2003	30/11/2003
D6.1.4	4.0	Technology Implementation Plan 4	R	Confidential	31/05/2004	31/05/2004
D6.2.3	3.0	Dissemination Plan 3	R	Restricted	30/11/2003	15/12/2003
D6.2.4	4.0	Dissemination Plan 4	R	Restricted	31/05/2004	31/05/2004
D6.2annex	1.7	MBAS Business Plan	R	Restricted	N/a	08/01/2004
D6.3.3	3.0	Project Presentation	R	Public	30/11/2003	29/01/2004
D4.2	1.0	Implemented Components	P	Restricted	31/05/2004	31/05/2004

(*) This is the issue date for the latest revision.

5. Project Gantt Chart



6. Project Management and Co-ordination

6.1 Financial Co-ordination

LABEIN are co-ordinating the financial administration work, and will handle all the payments, financial planning, resources monitoring, co-ordination of cost statements, liaising with the Commission, checking cost statements, checking payment request submissions. The advance payment was received and distributed to all the project partners.

6.2 Project Monitoring

The Project Management Plan (D7.2.1) for the project was produced to monitor and control the work and to ensure that the technical work is of an acceptable standard. All partners are monitoring their own work progress and are working together on the various tasks. The first Management Report (this document) has been produced.

6.3 Project Co-ordination Activities

6.3.1 Meetings

The following meetings took place in the reporting period:

- Meeting in Brussels (4 June 2003) at Spanish National Research Office
- Review meeting in Brussels (5 June 2003) at CEC
- IMS Meeting in Bremen, Germany (23 – 24 June 2003) at ATB
- Technical Meeting in Bremen, Germany (24 and 25 June 2003) at ATB.
- Meeting in Madrid, Spain (29 – 30 October 2003) at SchlumbergerSema
- Meeting in Brussels (21 January 2004) at Spanish National Research Office
- Review meeting in Brussels (22 January 2004) at CEC
- Technical Meeting in Bilbao (12 – 13 February 2004) in Bilbao
- Technical Meeting in Magdeburg (28 April 2004) at BPE
- Meeting in Lugano (13-14 May 2004) at ICIMCI.

Furthermore, meetings have been planned for the next period, and partners continue to work together closely. The minutes of these meetings show the efficient management and effective co-operation of this project..

6.3.2 Conference Attendance

ISPE/CE2003 conference on Concurrent Engineering, 26-30 July, 2003 Madeira, Portugal (Title: KM System to support Incremental Innovation in Manufacturing Industry, Authors: D. Stokic, A.R. Campos, M. Sorli, A. Gorostiza)

6.3.3 Other projects / Programmes

The AIM project is aware of two major networks of excellence: The European KM Forum and CE-NET. The European KM Forum is a network which focuses on Knowledge Management and which has currently found over 2.200 members mainly from industry. The European KM Forum represents itself mainly through the website <http://www.knowledgeboard.com>. CE-NET on the other hand is a small network (>220 members) of CE experts mainly from academia. The members have strong relations among each other which can be seen when many of them meet yearly at the ICE conference. CE-NET is represented by their website <http://www.ce-net.org>.

Both networks will be approached in the near future to help disseminate the results of the AIM project, and to provide further opportunities to benefit the project.

The AIM project has participated in the " Innovation Cluster Review". This has made it possible to identify potentials for collaboration with the other projects. Collaboration is sought with the DISRUPT-IT project, which is seen as complementary to AIM. AIM is a structured, incremental approach to innovation, whereas DISRUPT-IT is a radical approach to innovation. SchlumbergerSema is involved in both projects as software solution provider and will provide a means for deep collaboration between AIM and DISRUPT-IT.

Furthermore, AIM will take note of the results of the IMS Humacs and PSIM (IMS-1999-04) projects, to position the AIM deliverables, the relationships to standards, methodology, system architecture and the problem of semantic interoperability.

AIM will explore the possibility to develop links with CO-IMPROVE, a research project funded by the European Commission, under the Growth programme. The aim of the project is to support Collaborative Improvement (CI) in Extended Manufacturing Enterprises (EMEs). Co-Improve aims to develop a web-based software system, to enable and enhance the capturing, storage, retrieval, transfer and dissemination of knowledge generated as part of ongoing collaborative efforts to improve the new product development and the performance of EMEs. It addresses the continuous improvement perspective, the extended enterprise perspective and the IT perspective.

6.4 Project Schedule

Please refer to chapter 4 for details of the project schedule.

Appendix 1- Deliverables Summary

Deliverable N°: ***D2.1.2 Specification for Collection System***

Due date: 30/11/2003

Delivery Date: 15/12/2003

Short Description:

This document presents the complete specification for the Collection System, one of the modules of the AIM System, and it is a second version of Deliverable 2.1.1, Specification for Collection System (first version).

Based on the specifications from tasks 2.1, Collection System Specification (in Work Package 2- Specifications of Innovation Components), an early prototype for the collection system was developed in task T4.1 Early Prototypes (in Work Package 4 – System Implementation). Data from the business cases was collected to verify the approach and collect data for subsequent detailed testing. This reflects AIM's study logic, of testing chosen approaches early to make sure that ideas can be collected and can be developed into innovations.

This document represents an extension and enhancement of the first specification made, based on the results obtained from the early prototype testing and the end-users feedback.

The Collection System Specification comprehends the following:

- Identification of AIM's system users.
- Complete specification of the AIM Collection System, using "4+1" View Model. This specification comprehends the CBR component, which uses the tool ReCall from ISoft.
- An overview of human constraints and organisational measures that have to be put into practice to guarantee a successful introduction of the AIM system in the end-users' daily operations.

The refinement of the previous deliverable, which resulted in the present one, took into account the comments from AIM's second Review Meeting. The main modification from the previous version are:

- Added Use Cases description, to enable a better understanding and tracing of the end-users needs w.r.t. the collection system and refined Use Cases diagrams, according to reviewers' comments.
- Added Collaboration and Interface-Role Diagrams, which allow a better overview on how the user will interact with the AIM system.
- Added specification on how Case-Based Reasoning is used in the Collection System.
- Added traceability from the Collection System functionality to the Business Cases.

Partners owning: AIM Consortium

Partners contributed: BPE, ATB, LABEIN, SEMA.

Made available to: Restricted

Deliverable N°: ***D2.2.2 Specification for the Innovation Engine***

Due date: 30/11/2003

Delivery Date: 28/11/2003

Short description:

Based on the System Concept and the Requirements Analysis for the AIM Tool, a deeper insight is performed in this document for the Innovation Engine Module, oriented to finding innovative solutions following a systematic methodology.

A solution has been investigated to stimulate creativity of ideas, and develop these into innovative concepts. For this, a methodology, taking the most appropriate parts from state of the art methods for innovation development, will be designed providing the capabilities required by the end users for the Innovation module and specifications for its implementation will be stated.

Aiming to be a refined list of the module's specifications, collected and identified within the System Concept and Industrial Requirements documents, this document, " Specification of Innovation Engine ", provides a base for a detailed requirements definition and their transformation into a set of standard SW functions to be implemented in the IT system which in turn should fulfil all of the end user's requirements. The approach applied for modelling this application is the 4+1 Views Model, that organises a description of a software architecture using five concurrent views, each of which addresses a specific set of concerns.

The scope of this document is to

- a) Describe the conception of the application, including relevant benefits, objectives and goals, use cases...
- b) Refine the Methodology for the Innovation Engine, based on the Business Cases and the State of the Art.
- c) Describe at the level of specifications for the development of what the Innovation Engine will and, if necessary, what will not do.

Partners owning: AIM Consortium

Partners contributed: BPE, ATB, LABEIN, SEMA.

Made available to: Restricted

Deliverable N°: ***D2.3.2 Specification for the Innovation Repository***

Due date: 30/11/2003

Delivery Date: 15/12/2003

Short Description:

This document presents a complete Specification for the Innovation Repository, which is a component of the AIM system. The present deliverable is a refinement of D2.1.1, performed with the results of the early prototype testing, following AIM's study logic. The early prototype was tested by the consortium's end-users, giving useful feedback to allow an improvement and clear specification of the system.

Within this document, an analysis of existing modelling methodologies was performed, intending to guide the consortium in adopting the most suitable model. This study covered the following methodologies: ARIS, CIMOSA, GRAI/GIM, IEM, PERA and ENV 12204. As AIM intends to achieve the most adequate solution for effective knowledge management across the extended enterprise, which is flexible but also easy to understand, the most appropriate modelling language is the European PreStandard ENV 12204. This PreStandard is recognised in 18 European countries, and was realised with after a study of existing methodologies and modelling languages.

The specification of ontology approach and its use in the AIM system was further specified and is presented in this deliverable.

Based on the work performed, the following decisions were made concerning the Innovation Repository:

- Adoption of the PreStandard ENV 12204 as a basis to develop the Repository Model.
- Use of Protégé-2000 as ontology tool.

The refinement of the previous deliverable, which resulted in the present one, took into account the comments from AIM's second Review Meeting. The main modification from the previous version are:

- ❖ added overview of existing methodologies;
- ❖ added reference model, with mapping to AIM Model;
- ❖ modified entities, according to Reviewers comments;
- ❖ Detailed specification of the technical solution for maintaining Ontologies within extended enterprise.

Partners owning: AIM Consortium

Partners contributed: BPE, ATB, LABEIN, SEMA.

Made available to: Restricted

Deliverable N°: ***D3.1.2 Specification of the Innovation Viability Assessment***

Due date: 30/11/2003

Delivery Date: 28/11/2003

Short Description:

This document describes the specification of the Innovation Viability Assessment module. It is a refined initial list of the project module's specifications, collected in from the System Concept and Industrial Requirements. These Innovation Viability Assessment Specifications should provide a base for a detailed requirements definition and their transformation into a set of standard SW functions to be implemented in the future IT system, which in turn should fulfil all of the end user's requirements. They include specifications on main functionalities, principal and secondary, and functions and interfaces with other environmental elements, constraints, etc. This document describes the initial idea about the application, it introduces the Methodology for the Innovation Viability Assessment, based on the Business Cases and the State-of-the-arts, and describes (at the level of specifications) the development of the Innovation Viability Assessment.

The document includes the "IT System Perspective for the Innovation Viability Assessment", which presents the general description of the intended system layout containing the general factors affecting the IT System. The next section is "Classification of Ideas" introducing the Methodology. It provides a background for the requirements, defined in detail in the specification section, and make them easier to understand. The document also includes the "Specifications", which contains defined requirements specific for this IT solution and solution independent requirements.

Based on the system concept work from task 1.2 and the user requirements from task 1.3, a solution was investigated to assist users in making practical and commercial assessments about the feasibility of the innovation concepts, which are generated by the users. This involved taking the state of the art innovation assessment methods and specifying a solution to provide viability assessments of ideas at the collection stage, and innovation assessment facilities for design teams. Methods for structuring the viability assessment process were investigated such as decision trees. The result was a viability assessment methodology and specification for the development of the viability assessment system

- ❖ A solution was investigated to stimulate the assessment of ideas, allowing a further development of them into innovative concepts. For this, a methodology, taking the most appropriate parts from State-of-the-art methods for innovation viability assessment, was designed providing the capabilities required by the end users for the Innovation Viability Assessment module and specifications for its implementation were stated.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Restricted

Deliverable N°: ***D3.2.2 Specification of the Innovation Management System***

Due date: 30/11/2003

Delivery Date: 15/12/2003

Short Description:

This document presents the initial ideas about the Innovation Management System module, included in the IT system to be applied during the course of "AIM" project. The document includes the "IT System Perspective", which presents the general description of the intended system layout containing the general factors affecting the IT System. This section introduces the applications for the Innovation management System: Delivery of Ideas and Project Management. The next section "Delivery of Ideas" introduces the expected use and scope of the Delivery of Ideas application. The software modelling approach is analysed based on the 4+1 Views Modelling. The final part of the document "Project Management" analyses the use, objectives and modelling of the Project Management. The supplemental section introduces the LogoVisual Technology.

Based on the system concept work from task 1.2 and the user requirements from task 1.3, a solution was investigated to provide structured delivery of the innovations to the process and product Design Teams. To have a means of managing the ideas, so that the best use of these ideas is made for innovative product and process Designs. This involved the specification of the best method of providing an on-line service to support the innovation process by enabling people to work together remotely on innovation concepts, and by providing the innovation concepts to the designers on-line. It also involved the specification of a project management tool to manage the development and best use of innovation knowledge. The result was a specification for the development of the innovation management system.

Intended for the application as a refined initial list of the project module's specifications (collected in from the System Concept and Industrial Requirements) these Innovation Management System Specifications should provide a base for a detailed requirements definition and their transformation into a set of standard SW functions to be implemented in the future IT system. This in turn should fulfil all of the end user's requirements. This includes the following specifications: main functionalities, principal and secondary, if they are, functions, interfaces with other environmental elements, constraints, etc.

The scope of this document is to

- a) Describe the initial idea about the application, objectives and goals...
- b) Introduce the Methodology for the Innovation Management System, and an initial approach to the software architecture.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Restricted

Deliverable N°: **D4.1 Early Prototypes**

Due date: 30/09/2003

Delivery Date: 30/10/2003

Short Description:

The deliverable includes:

- set of the developed SW components and manual
- Appendix with Updated System Concept/architecture

Based on the specifications from tasks 2.1- 2.3 and 3.1. - 3.2, early prototypes for the innovation components are developed. Data from the business cases are collected to verify the approach and collect data for subsequent detailed testing. Note: the innovation components are the key to the project, and it is important to check these approaches early to make sure that ideas can be collected and can be developed into innovations. The detailed design of tools includes detailed definition of interfaces and the data required for the tools. The main and critical functionality of the tools are implemented: Innovation Repository, System Set-up, components for Collection of problems and ideas including most of the specified functionality (e.g. search functions, CBR etc.), Innovation Engine (Innovation Generation based on TRIZ approach), Innovation Viability Assessment (1st Assessment), Innovation Management based on the Project Management Tool "FORO WORKFLOW".)

Additionally, according the 2nd Project Review Report (June 5, 2003) the reviewers requested to produce this additional deliverable. In order to ensure that a more elaborated and crisp system concept and specifications of the system components within D2.1.2, D2.2.2, D2.3.2, D3.1.2, and D.3.2.2 can guide the system implementation, exploitation and validation, the reviewers requested that the system concept (Chapters 4 and 5 of D1.2) will be extended into an annex "AIM System Architecture" to D4.1 (Early Prototypes) and that the 2nd versions of the AIM component specifications will fully reflect these system architecture descriptions.

The Consortium re-evaluated the methodological development approach, thereby putting more effort on the definition of detailed use case scenarios representing the specific business environment in the application domains of the three different users. As recommended, the Consortium used the 4+1 model not only for the system concept/architecture development, but also for the development of the business use case scenarios in their respective domain, in which the AIM system will be implemented. In this context - both for business use case scenarios and system concept/architecture - standard enterprise and process modelling methodologies, currently available enterprise reference meta-models (see Deliverable D.2.3.2) and best practices in the use of general modelling languages (UML) have been taken into account.

A clear and traceable link between the business use case scenarios, the system concept/architecture and the system component specification is established.

The deliverable (appendix to D4.1) provides detailed business use case scenarios and an updated system concept, as well as a traceable link between business use case and system concept/architecture.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Restricted

Deliverable N°: **D6.1.4 Technology Implementation Plan v4.0**

Due date: 31/05/2004

Delivery Date: 31/05/2004

Short Description:

This document contains all the information required by the Commissions Technology Implementation Plan Data Sheets template. It contains an executive summary about the project. Next is an overview of the project results – the exploitable main results; AIM methodology and software system. Then follows a section about the dissemination and use of the project results. The next section contains details about the European added value of the project and a section on the expected project impact. Then the detailed tables are presented about each exploitable result. The final section contains the exploitation intentions, completed by each partner.

The AIM system and the training Methodology for the AIM system (the AIM results) will be targeted at industrial companies needing to innovate, which have to provide significant product and process information throughout the product life cycle, and which need to harness the ideas about product and process knowledge of their staff, suppliers and customers. The AIM results are expected to have widespread socio-economic impact for important industries, such as metal industry, machine tools, engineering, chemical etc.

Within the Consortium the use intentions are, in first place, for industrial partners to be able to extend the use of the methodology to their production plants in other places and countries. Secondly, for developer partners to launch a general market approach based on the previously signed **consortium agreement** and **Inter-Regional Consortium Co-operation Agreement**.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Confidential

Deliverable N°: ***D6.2.4 Dissemination and Use Plan v4.0***

Due date: 31/05/2004

Delivery Date: 31/05/2004

Short Description:

This document is the exploitation plan and dissemination plan / report for the AIM project. The document includes a description of the products and services resulting from the AIM project, i.e. the AIM System and AIM Value Added Services. The next section is about the market and contains a general description of the targeted AIM market, and contains the individual implementation and exploitation plans. The next section contains the general dissemination plan. The final section contains the financial forecasts for the exploitation of the results, containing ROI, CF, etc. analysis.

This project aims to develop a system to support the collection of all useful knowledge throughout the extended enterprise for new and existing process and product developments, and to develop this knowledge into a means of fostering industrial innovations. Innovation by combining the ideas and feedback from all parts of the product life cycle, including customer interaction with existing products and new product ideas, and including customer service and field engineers, including suppliers, and including pooling of knowledge between multiple sites.

This document is the result of task T6.2 (Dissemination) in Work Package 6 (Exploitation and Dissemination of Results). The objectives of this work package are to plan dissemination activities to support the commercial activities arising from the project; to produce an exploitation plan for post project collaboration; to define the ownership of the results between the project participants; to produce a project web site for promoting the project; and to present and publish papers in national and international conferences.

This document now contains an annex: the MBAS Business Plan which contains a specific business plan for one of the AIM users.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Restricted

Deliverable N°: **D6.3.4 Project Presentation v4.0**

Due date: 31/05/2004

Delivery Date: 31/05/2004

Short Description:

The Project Presentation is a short description of the project objectives and goals, approach and expected results as well as the participants in the project. The Project Presentation is in the form of a Project brochure, that is being presented at events, and is available on-line from the project web site. The aim of the brochure is to give a quick feel for the project and to inform people about the aims and objectives of AIM. It also provides consortium partner contact details so that people will know who is in the project and will be able to contact individual partners, or the Co-ordinator.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LABEIN, SEMA.

Made available to: Public

Deliverable N°: ***D7.1.3. Consortium Collaboration Agreement v1.0***

Due date: 30/11/2002

Delivery Date: 08/10/2003

Short Description:

The *Consortium Collaboration Agreement* has been negotiated to reflect and balance the interests of all interest-groups concerned in European Framework Programme projects. It is the standard one developed by the European Commission.

Partners owning: AIM Consortium

Partners contributed: BPE, C-Tools, MBAS, ATB, LBEIN, SEMA.

Made available to: Confidential

Deliverable N°: **D7.2.2 Project Management Plan v2.0**

Due date: 31/07/2003

Delivery Date: 31/07/2003

Short Description:

This document is the main management reference document for the project for the co-ordination and effective running of the project. The document consists of the management structure and roles of the partners, which describes the definitions of each of the project roles. The next section covers progress reporting, which describes the reporting procedures, which will be followed during the project. The next section contains the software quality plan, which describes in detail the plans to control the output of the software and the supporting documentation. Then the project standard for document look and feel is described, which lays out the way the project documents should be presented. The final section contains the contact details for each of the partners, and the project acronyms.

This document is the result of task T7.2 in Work Package WP7. The objectives of this work package are to perform effective management of all project work and resources, and to manage all communications, reporting and financial administration with the Commission. This document, used as a guideline for all the project management, includes a risk register where all detected risks are analysed during the project development.

Partners owning: AIM Consortium

Partners contributed: LABEIN

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