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open middleware infrastructure institute



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Alistair Dunlop
University of Southampton, England

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	Contributors:	All OMII-Europe partners
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Section 1 – Project objectives and major achievements

1.1 – Project objectives

The Open Middleware Infrastructure Institute for Europe has the following objectives which are described more fully in the Technical Annex 1 – Description of Work:

- To provide key software components for building e-Infrastructures within the European Research Area.
- To facilitate the development and porting of a common set of application level services to a number of major Grid software distributions.
- To develop tighter interoperability between different Grid distributions... in a standards-compliant and open-source manner.
- To develop and maintain a repository of quality-assured Grid services that have been reengineered and sourced from existing open source repositories. All OMII-Europe-endorsed software components will undergo rigorous testing following a quality assurance methodology published by OMII-Europe.
- To position itself as an impartial broker for potential users of key middleware platforms providing impartial, unbiased advice and services. In line with this, OMII-Europe will initiate development of a Grid benchmarking methodology and publish results on a number of major Grid distributions.
- To bring together 16 partners from Europe, the USA and China in an initial 2 year project involving in excess of 100 staff years of effort and a budget of 4.83 Million Euros.

1.2 – Major achievements

The major achievements for the first year are:

- Deliverables: all satisfied
- Milestones: all but three achieved (remaining three expected by the end of July 2007)
- NA1 – Management:
 - Consortium decision signed
 - Focused and motivated team has emerged within 12 months
- NA2 – Outreach/Inreach:
 - Web site and intranet are communication hub for project
 - High profile at OGF20, Manchester, UK
- NA3 – Training:
 - China and UK training established with good feedback
- JRA1 – Re-engineering:
 - JRA1-Database Access:
 - UNICORE OGSA-DAI 2.2 achieved
 - Alpha versions of UNICORE, gLite and OGSA-DAI 3.0
 - JRA1-Virtual Organisation Management:
 - Involvement with relevant OGF working group
 - prototype of a VOMS service using the identified Attribute Authority interface
 - UNICORE/VOMS integration well underway.
 - JRA1-Accounting:
 - RUS interface developed for Globus and UNICORE

- JRA1-Job Submission and Job Monitoring:
 - Analysis documents produced on OGSA-BES and JSDL
- JRA1-Portal Interface:
 - GridSphere deployed on gLite and UNICORE test beds
- JRA1-Component Exchange:
 - Close working relationship with (unfunded) Chinese partners established
 - Demonstrated CROWN Grid Scheduler on OMII-UK stack as proof of concept
- JRA2 – New Services:
 - Detailed analysis led to decision to allocate budget to information modelling and also develop an authorisation service and implement a storage resource manager (SRM) with existing planned budget
- JRA3 – Infrastructure Integration:
 - JRA3-Common Security Infrastructure:
 - Proxy certificate-based credential provisioning solution for UNICORE
 - Engagement with OGF over emerging related standards
 - JRA3-Infrastructure Integration:
 - Produced road map for the integration of OMII-Europe re-engineered components into unified multi-platform grid infrastructure
 - Engagement with OGF over emerging related standards
- JRA4 – Benchmarking:
 - Set of tools developed following extensive literature search
 - Test bed up and running
- SA1 – Repository:
 - Design and analysis completed
 - Repository in place and awaiting content
- SA2 – Quality Assurance:
 - Policies and procedures in place
 - ETICS and Metronome build and test facility installed
 - compliance test suite evolving
- SA3 – Support:
 - Evaluation Infrastructure established over six sites in Europe and China
 - Support service in place including Web site and network of experts
- Sustainability:
 - Middleware developers have started to show real interest in rolling back project output into their products.
 - Involvement in specific OGF working groups is leading to OMII-Europe research influencing emerging standards
 - Training and outreach is disseminating the interoperability theme
 - Repository will allow early adopters to become change agents

1.2 - Deliverables and Milestones for the period

Deliverables due in the period					
Number	Name	Work package	Date due	Actual delivery date	Lead contractor
D:NA2.3	Report containing letters of intent from grid distribution providers	NA2 – Outreach	End of May 2006	2 June 2006	SOTON
D:NA2.4	Initial information flyer on OMII-Europe	NA2 – Outreach	End of May 2006	2 June 2006	SOTON
D:NA1.4a	Quarterly Progress Report	NA1 - Management	End of July 2006	Late August 2006	
D:NA2.5	Project presentation	NA2 – Outreach	End of July 2006	Late August 2006	SOTON
D:SA1.0	Design document for the repository including database schema definition	SA1 – Repository	End of July 2006	Late August 2006	INFN
D:SA3.0 (part a) D:SA3.0 (part b)	Support activity operation specification including valuation Infrastructure documentation and User support operations manual	SA3- Support	End of October 2006	End of November 2007	UEDIN
D:JRA2.0	First report on the identification of new services	JRA2 – New Services	End of October 2006	End of November 2007	INFN
D:SA2.0	Initial specification of OMII-Europe QA procedure, tools, policies and practices	SA2 - QA	End of October 2006	January 2007	SOTON
D:NA1.4b	Quarterly Technical update Report	NA1 - Management	End of October 2006	Early December 2006	SOTON
D:NA1.4c	Quarterly Technical update Report	NA1 - Management	End of January 2007	End of February 2007	SOTON
D:JRA1.1	The first yearly management report of the re-engineering activity containing a summary of each task within the activity [all]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.3	The first yearly report on progress on the Data Access task [database]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.5	The first yearly report on progress on the Virtual Organisation Management task [voms]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.7	The first yearly report on progress on the Accounting task [accounting]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.9	The first yearly report on progress on the Job Submission and Monitoring task [job submit]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.11	The first yearly report on the Portal Interface task [portal]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA1.13	The first yearly report on the Component Exchange task [component]	JRA1 – Re-engineering Activity	End of April 2007	Early June 2007	SOTON
D:JRA2.1	First update report on the identification of new services activity	JRA2 – New Services	End of April 2007	Early June 2007	INFN

D:JRA3.1	Report on progress on the Infrastructure Integration task	JRA3 – Infrastructure Integration (combined)	End of April 2007	Early June 2007	KTH
D:JRA3.3	First report on all the sub-tasks of the Common Security task [security]	JRA3 – Infrastructure Integration (security)	End of April 2007	Early June 2007	KTH
D:JRA3.5	First report on all the sub-tasks of the Infrastructure Integration task [infra]	JRA3 – Infrastructure Integration (infrastructure)	End of April 2007	Early June 2007	KTH
D:JRA4.1	First report on the Benchmarking	JRA4 – Benchmarking	End of April 2007	Early June 2007	KTH
D:NA1.1	Project Management Report 1	NA1 – Management	End of April 2007	Early June 2007	SOTON
D:NA1.3a	OMII-Europe Sustainability	NA1 – Management	End of April 2007	Early June 2007	SOTON
D:NA1.5a	Plan for using and disseminating knowledge	NA1 – Management	End of April 2007	Early June 2007	SOTON
D:NA2.1	Outreach and Inreach Activity Management Report 1	NA2 – Outreach	End of April 2007	Early June 2007	SOTON
D:NA3.1	Training activity - First yearly activity report	NA3 - Training	End of April 2007	Early June 2007	SOTON
D:SA1.1	First annual report on the Repository activity	SA1 - Repository	End of April 2007	Early June 2007	INFN
D:SA2.1	First yearly report on QA activity detailing each of the five tasks	SA2 – QA	End of April 2007	Early June 2007	SOTON
D:SA2.0	Updated specification of OMII-Europe QA procedure, tools, policies and practices	SA2 – QA	End of April 2007	Early June 2007	SOTON
D:SA3.1	12 month management report on SA3 and collation of SA1 and SA2 reports	SA3 - Support	End of April 2007	Early June 2007	UEDIN

Milestones due in the period					
Number	Name	Work package	Date due	Actual delivery date	Lead contractor
M:NA1.1	Management structures in place and running effectively	NA1 – Management	June 2006	May 2006	SOTON
M:NA2.1	OMII Website	NA2 – Outreach	June 2006	June 2006	SOTON
M:NA3.1	First training course in Europe	NA3 – Training	July 2006	June 2006	UEDIN
M:JRA1.4	Preliminary design documents completed [accounting]	JRA1- Accounting	July 2006	September 2006	SOTON
M:NA2.2	OMII-Europe Dissemination material	NA2 – Outreach	End of October 2006	End of October 2006	SOTON
M:NA2.3	Directory of world-wide Grid initiatives published on website	NA2 – Outreach	End of October 2006	End of January 2007	SOTON
M:NA3.2	First training course in China	NA3 – Training	End of October 2006	March 2007	UEDIN
M:SA1.1	Implementation of the basic repository functionality	SA1- Repository	End of October 2006	End of November 2007	INFN
M:SA1.2	Implementation of the basic search functionality within OMII-UK repository	SA1- Repository	End of October 2006	End of November 2007	INFN
M:SA2.1	Publication of OMII-Europe QA procedures	SA2 – QA	End of October 2006	February of 2007	SOTON

M:SA2.2	Publication of initial set of QA tools, policies and practices	SA2 – QA	End of October 2006	February of 2007	SOTON
M:SA2.3	Publication of initial compliance test suite	SA2 – QA	End of October 2006	February of 2007	SOTON
M:SA3.1	Evaluation infrastructure in place	SA3 – Support	End of October 2006	October of 2006	UEDIN
M:SA3.2	User support in place including telephone helpdesk, online support and bug-reporting service	SA3 – Support	End of October 2006	October of 2006	UEDIN
M:JRA1.v1 (part a)(part b)	Availability of VOMS under UNICORE, design documents (Note: this replaces M:JRA1.3 due M24)	JRA1 – VOMS	End of October 2006	End of October 2006	INFN
M:JRA1.7	Definition of the required extensions needed to JSDL to satisfy OMII-Europe requirements [job submit]	JRA1 – Job submit	End of October 2006	October 2006	INFN
M:JRA1.11	GridSphere deployed on the EGEE and UNICORE testbeds [portal]	JRA1 – Portal	End of October 2006	October 2006	PSNC
M:JRA2.1	Publication of first report giving global view of Grid activities and indicating priorities for service implementation	JRA2 – New Services	End of October 2006	November 2006	INFN
M:SA1.3	Completion of the Integrated OMII-Europe repository	SA1 – Repository	End of January 2007	End of March 2007	INFN
M:SA1.5	Population of the repository with test certification information, test reports, sample use cases and tutorials	SA1 – Repository	January 2007 until end of project	Ongoing	INFN
M:SA1.6	Population of the repository with initial software components	SA1 – Repository	January 2007 until end of project	Ongoing	INFN
M:SA2.4	Initial integration of test suites into the NMI Test and Build Facility	SA2 – QA	End of January 2007	End of February 2007	SOTON
M:JRA1.17	BES will be evaluated with respect to its adoption in the middleware of the OMII-Europe partners [job submit]	JRA1 – Job Submit	End of January 2007	End of February 2007	INFN
M:SA2.5	Specification of packaging model	SA2 – QA	End of April 2007	Expected July 2007	SOTON
M:JRA1.v2	prototype implementations for SAML support into VOMS and prototype integration of VOMS under UNICORE	JRA1 – VOMS	End of April 2007	End of April 2007 (SAML), UNICORE expected by the end of June	INFN
M:JRA1.1	Availability of OGSA-DAI under EGEE [database]	JRA1 – Database	End of April 2007	Expected June 2007	UEDIN
M:JRA1.5	Feature-complete alpha implementations [accounting]	JRA1 – Accounting	End of April 2007	End of April 2007	KTH
M:JRA1.8	GridSAM integration into UNICORE: architecture and implementation available [job submit]	JRA1 – Job Submit	End of April 2007	End of April 2007	INFN
M:JRA1.14	Components for porting to CROWNGrid identified [component]	JRA1 – Component Exchange	End of April 2007	End of April 2007	SOTON
M:JRA1.15	Grip ported to the OMII-Europe repository [component]	JRA1 – Component Exchange	End of April 2007	End of April 2007	SOTON




M:JRA3.1	Definition of a common security technology base [security]	JRA3 – Common Security Infrastructure	End of April 2007	End of April 2007	KTH
M:JRA3.2	Credential provision in UNICORE available [security]	JRA3 – Common Security Infrastructure	End of April 2007	End of April 2007	KTH
M:JRA3.4	First prototype of the multi-platform Grid infrastructure [infra]	JRA3 – Infrastructure integration	End of April 2007	End of April 2007	KTH
M:JRA4.1	First release of tools and supporting documentation in the repository	JRA4 – Benchmarking	End of April 2007	End of April 2007	KTH
M:JRA4.2	Material made available to the training activity	JRA4 – Benchmarking	End of April 2007	End of April 2007	KTH

Section 2 – Work package progress

2.1 Overview of Work Package Participation and Progress

This section contains an overview of the actions carried out in each activity (excluding management) during the first year of the project. The project is arranged as 16 activities, even though there are only 10 work packages. This is because 2 work packages, notably JRA1 and JRA3, are subdivided further into 6 and 2 activities respectively. A summary table showing which partners are involved in each activity, together with the activity leader and unfunded participants is given in the below. Note that the actual amount of funding as well as any unfunded contributions from funded partners is not shown in this table. This information can be obtained from the Technical Annex.

OMII-Europe Partner Participation Overview																	
Project Partner	NA1	NA2	NA3	SA1	SA2	SA3	JRA1 - Re-engineering					JRA2	JRA3 - Infra		JRA4		
	Man	Outr	Trai	Rep	QA	Sup	Datab	VOM	Accou	Job S	Porta	Comp	2	Com	Infras	4	
SOTON																	
FLE																	
FZJ																	
KTH																	
INFN																	
PSNC																	
UEDIN																	
UCHIC																	
UILL																	
USC																	
UWM																	
BU																	
ICT																	
CNIC																	
TU																	
CERN																	

Key	
	Coordinating partner (funded)
	Participating partner (funded)
	Participating partner (unfunded)

There has been no deviation in terms of the work performed from that described in the Technical Annex other than BU taking on further unfunded work.

Please note that summary information has been extracted from the executive summaries of the month 12 Activity Reports for each activity.

2.2 Work Package NA2 – Outreach and Inreach

The role of NA2 during the first year has been two-fold: to provide internal channels of communication for the project participants and to communicate with external groups and users; thus raising awareness of OMII-Europe's existence.

Internal communication within the project has been achieved by maintaining a comprehensive "intranet" and by various conventional mechanisms such as teleconferences, regular face-to-face meetings and electronic communication. These have worked well to keep the activities progressing smoothly.

The website, a number of public presentations and publications have formed the principal means so far of raising the project profile. This has helped ensure that people had a clear and correct idea of OMII-Europe. There has also been a brochure and video produced about the four Research Infrastructure projects, of which OMII-Europe is one. Having reached a crucial stage in our development, we went public with a significant presence at OGF20 in Manchester in May 2007 where we were approached by Grid users and developers of Grid software. This marked the beginning of the work we have planned for the second year. During the second year, the focus of the NA2 activity will naturally become more outreaching and will shift more towards identifying and engaging users.

NA2 will continue with a high level and rate of activity. We will continue with the existing modes of internal communication since they are working well. In the second year of the project there will be more emphasis on getting into direct collaboration with other projects and users that can benefit from our work. We will take a lead from the interaction that we got at OGF20 as to which projects can best benefit from our support.

2.3 Work Package NA3 – Training

The objective of this activity NA3 is to transfer knowledge and hands-on experience concerning the use of Grids to both potential and current Grid users, with emphasis upon the components selected by and re-engineered by OMII-Europe. This activity is a partnership between UEDIN and Chinese partners (BU and CNIC).

Milestones have been achieved for this first 12 months; plans are in place to achieve the targets for the remaining period. These targets were specified to be: 12 courses in Europe and 6 in China during the 2 years of the project [1].

The emphasis to date has been upon:

1. Building foundations – the training web site, digital library collection for OMII-Europe, establishing OMII-Europe procedures for training and establishing links with colleagues in the project.
2. Establishing a pattern of internal training associated with 3-monthly face-to-face meetings
3. Running initial courses in both Europe and China.
4. Liaison with the providers of the Evaluation Infrastructures so that courses can use these.

The first course using Evaluation Infrastructures will be in July 2007.

The plans for the next 12 months are to continue with the internal training, and to increase the frequency of external courses, in phase with the provision of new OMII-Europe components. A milestone at month 18 will demonstrate progress against these plans.

2.4 Work Package SA1 – Repository

This activity will:

- Make available software components to the requirements of the quality assurance process;
- Make available the various tests that are used to review the quality of a particular software; project to be included in the project's repository;
- Provide the framework and tools used to manage and deliver the test reports and the expected software packaging;
- inform end users of the software in the OMII-Europe repository, its performance, its compliance with established standards to ensure interoperability, and its portability across a set of defined platforms and environments;

D:SA1.1 – First Annual report on the Repository activity references the design document for the repository described in the first activity deliverable (D:SA1.0) and the milestone documents (M:SA1.1, M:SA1.2, M:SA1.3) which describe the implementation of the basic repository functionality (M:SA1.1), the implementation of the basic search functionality within the OMII-UK repository (M:SA1.2) and the completion of the integrated OMII-Europe repository. All these documents are available on the OMII-Europe web site. Together they provide detailed information on the work performed by the activity.

By April 2007 the activity has deployed the official OMII-Europe repository implementing the basic and integrated functionalities as described in the official documentation detailed above. Work is going on to improve existing functionalities, add more features and fix bug reports.

Initial support tools to the contributors and end users are being finalized and will be part of a more comprehensive support procedure to be established in the following months.

2.5 Work Package SA2 – Quality Assurance

The SA2 quality assurance activity has five interacting tasks: QA Processes, Test and Review, Packaging, Compliance Testing, Build and Test Facility.

The first three tasks produce documents and procedures that determine the required testing process and packaging criteria for software components contributed to the OMII-Europe repository. The second task also produces feedback to software developers, requests for corrections, and improved test cases.

The third task produces suites of compliance tests which check that software components comply with the emerging international standards applicable to OMII-Europe. Currently the effort in this task is targeting OGSA-BES, HPCP. Later on it will address security and data access standards. The fourth task will deliver a functioning automated build and test service for use by project partners and future contributors to the repository. This will be a supported production service. In the first year of the project, SA2 has achieved the following:

- Installation of an automated ETICS /Metronome build and test facility at partner sites
- Demonstration of the build and test facility and the compliance test suite at conferences
- Implementation of Compliance Tests to verify the behaviour of Job Submission services
- Publication of a series of policies, procedures, and packaging guidelines for use by service implementers
- Use of the policies to aid in the review cycle of the compliance tests

In the second year, SA2's objectives are:

- Improve and extend the QA policies to cover interaction between other tasks.
- Integrate engineering and benchmarking (code and test suites) into the ETICS repository

- Run regular build and test cycles on submitted components. Review test suite effectiveness.
- Improve and extend the Compliance Test suites and create new tests as standards mature

The four main tasks are all proceeding to plan. However the packaging task has slipped slightly in that the milestone M:SA2.5 is not fully complete. This will only affect the first build and test cycles of software components that are contributed to the repository. We now plan to complete the document by PM15 (July 2007).

2.6 Work Package SA3 – Support

The Evaluation Infrastructure (EI) consists of six clusters that have been set up to run the main Grid middleware stacks identified by the OMII-Europe project with the corresponding OMII-Europe developed components for these platforms. The intent is that users external to the project may try these components out and adopt them within their line of work. The EI is also intended to be used for OMII-Europe training events.

The EI is distributed over five sites across Europe and one in China. The EI sites are managed by the seven activity partners: the University of Edinburgh, the Forschungszentrum Juelich, the Poznan Supercomputing and Networking Centre, the Istituto Nazionale di Fisica Nucleare, the University of Southampton and Beihang and Tsinghua Universities. Each site hosts at least one of the following middleware stacks: Globus, gLite, UNICORE, the OMII-UK Platform and CROWN Grid. As OMII-Europe software components become publicly available in the OMII-Europe repository these will be deployed to the corresponding EI sites. At project month twelve no OMII-Europe developed components are publicly available.

The first year of the project has been used to acquire and set up the corresponding EIs. These are now up and open to the public. The second year will concentrate on supporting users on the EIs. The EI resource may be used by the Joint Research Activities, JRA1, JRA2 and JRA3 for development of OMII-Europe components, and JRA4 for benchmarking however priority will be given to users who want to evaluate OMII-Europe produced components.

Support of the EI is being handled by this activity. Currently each site manages the user accounts for their corresponding site, but migration to a more centralised system is anticipated.

2.7 Work Package JRA1 – Re-engineering

2.7.1 JRA1 Overview

The six sub-tasks of this activity are coordinated from Southampton. Much of the technical coordination has taken place through the Technical Committee meetings and at the face-to-face meetings. In addition irregular telephone and physical meetings have taken place amongst the sub-tasks themselves. All of the deliverables have been produced and all but 2 of the milestones have been reached. The two late milestones are expected by the end of June. The activity as a whole is developing a strong identity which is being supported by progress in the other activities especially the Quality Assurance activity SA2 and the Infrastructure integration task of JRA3.

2.7.2 JRA1 Database Access

The JRA1 Database Access activity can report the following achievements:

- Working with partners to identify the need to amend milestones due to the fluid nature of external and internal activity dependencies; that is emerging gLite, UNICORE and OGSA-DAI products.
- The success of releasing a UNICORE OGSA-DAI 2.2 integration at project month 8.
- Continued work towards integrating UNICORE, EGEE/gLite and OGSA-DAI 3.0.
- A summary of the partner effort for the first project year.
- A statement of interactions with unfunded partners at Tsinghau University

The document D:JRA1.3 The first yearly report on the Database Access task describes the current status of the OMII-Europe developed software, the status of OGSA-DAI 3.0 and finally the plans for project year two.

The report concludes that the activity has had challenges with resources, but has managed to produce software as per the amended milestones; and that the projected goals of project year 2 remain valid and achievable.

2.7.3 JRA1 - VOMS

The document D:JRA1.5, The first yearly report on the Virtual Organisation Management task describes the status of the Virtual Organization Management task of the JRA1 activity. The JRA1 activity aims to re-engineer existing grid and web services interface to improve quality, robustness and documentation and to integrate these services into other grid distributions. The Virtual Organization Management task aims to ensure that there are common interfaces for Virtual Organization Management, or more generally for Attribute Authority, services across grid software distributions. VOMS, the Virtual Organization Membership Service, is being extended to support authorization specifications emerging from OGF standardization work. VOMS, already available under EGEE and GLOBUS, is being integrated into UNICORE.

This document describes the status of the task at April 2007 (PM12) and the work done in the first year of the project. A similar document will be produced at PM23. By April 2007 the task has reached most of the expected outcomes. The task has identified the interface for the Attribute Authority service and has started discussing this interface within the relevant OGF working group. The task has completed a full feature prototype of a VOMS service implementing the interface and has identified how UNICORE may benefit of VOMS based authorization and the changes needed to the UNICORE protocol in order to transport the needed security tokens. A prototype for the integration of VOMS in UNICORE will be available by mid May 2007.

2.7.4 JRA1 – Accounting

The document, D:JRA1.7, The first yearly report on the Accounting Task, contains the description of the work done during the first 12 month by the Accounting task of the JRA1 re-engineering of services activity of the OMII-Europe project. 7 partners (KTG, INFN, FZJ, FLE, BU and CNIC) contribute to the task. The task is coordinated by KTH. A half time report of the whole task is given and a plan for the second year is presented. The report presents a summary of the accomplished milestones, more detailed descriptions of the achievements can be found in the milestone documents M:JRA1.4 and M:JRA1.5 written by the activity. The report is mostly intended as an overview for management and reviewers. The overall goal of the accounting task is to augment the accounting systems of the three Grid middleware stacks gLite, Globus toolkit and UNICORE with a Resource Usage Service (RUS) compliant standard interface to allow the exchange of accounting information.

During the first year of the task, an analysis of the existing systems was undertaken and a preliminary design for realizing the task goal was created and published as milestone M:JRA1.4 in September 2007 (M5). The task then progressed with the implementation of RUS interfaces for the Globus and UNICORE stack according to original plans. For the gLite stack, the task plan was altered to adjust to staff changes in coordination with project management and the commission. The work planned on the information providers (usage record generators) for gLite during year 2 was conducted in the first year to take advantage of existing prototypes and knowledge while the work on the interface was postponed to year 2. This also allowed the activity to demonstrate interoperability between gLite and Globus components at the M12 project meeting. The alpha release milestone M:JRA1.5 was completed in time during April 2007 (M12). The RUS interface

for UNICORE was successfully demonstrated with the LLView resource usage monitoring application at the M12 all hands meeting in Jülich. This work was published as a paper and presented at the German e-Science Conference 2007.

The first milestone (M:JRA1.4) was completed with a slight delay (M5 instead of M3) due to ramp up effects during the task start-up. This was also brought to the attention of the commission and the new delivery date September 2006 was set and met by the task. The alpha release milestone goal had to be slightly altered by redistribution work between first and second project year, with the benefit of demonstrating early interoperability. The modified M:JRA1.5 milestone was completed on time in April 2007 (M12). Overall task progress is according to the project plan.

2.7.5 JRA1 – Job Submit and Job Monitoring

The document D:JRA1.9 The first yearly report on the Job Submission and Job Monitoring Task describes the activity carried out in the task during the first 12 months of the project; in particular, the report describes the work done from the start of the project (May 2006) to the end of month 12 (April 2007). The aim of the Job Submission and Monitoring Task is to analyze and implement two OGF specifications of standard interfaces for Job Submission and Monitoring services. Specifically, the OGSA - Basic Execution Service (BES) and Job Submission Description Language (JSDL) are emerging as standard interfaces for describing and managing computational jobs in Grid systems. The JRA1 - Job Submission task within the OMII-Europe project will analyze these specifications, identify and propose possible extensions which can be useful for OMII-Europe infrastructures, and implement them in the different Grid middleware platforms, namely gLite, UNICORE, and Globus. In particular, the task will consider the current JSDL and OGSA - BES specifications, checking whether the specifications are mature enough, and whether they provide enough functionality in order to be adopted in the middlewares of OMII-Europe. For JSDL, the final adopted specification v1.0 is available; while some features which are available in the job description notations used in the OMII-Europe grids are missing, JSDL provides a common core of basic functionalities which are surely enough for basic job submission and management; additional features can be implemented using a set of simple extensions which have been identified and defined.

The OGSA - BES specification, on the other hand, is still a working draft, so it is not possible to draw definitive conclusions. However, we believe that the OGSA - BES specification is mature enough to be taken into consideration: it provides a reasonable set of features, and some working prototype implementations have already been produced within OMII-Europe. The activity performed so far in the JRA1 - Job Submission and Monitoring Task has resulted in two analysis documents being prepared; moreover, the implementation of the OGSA - BES and JSDL specifications in gLite, UNICORE and Globus have begun. These implementations are expected as Milestones MJRA1.9 and MJRA1.10, which are due at months 18 and 20 of the project, respectively. Nevertheless, the task decided to start the implementations well in advance because (1) experience gained by actually implementing these specifications helped to clearly identify their strengths and weaknesses, and (2) in order to have more time to cope with limitations and bugs on the tools which are used to handle Web services-related automated code generation. All in all, the JRA1 - Job Submission and Monitoring Task is on track with respect to the planning contained in the project Technical Annex. No reason for deviation from the planning is foreseen at the moment.

2.7.6 JRA1 – Portal Interface

The primary goal of the JRA1 Portal Interface Task is to provide an open-source, Java-based software framework for developing web portals to utilize the grid middleware, standards and services supported by or developed within the scope of the OMII-Europe Project. To that extent, the JRA1 Portal Interface Task is directly dependent on all the other JRA1 re-engineering activities, as well as solutions developed in JRA3 (Infrastructure and Integration).

The framework that task aims to build must support the most relevant standards, technologies and best practices in web portal development. A relevant web portal standard, for example, is the Java Portlet 1.0 API (Java Specification Request 168) and one of the key technologies that the task aims to support is GridSphere. The task must offer robust, easy-to-use, high-quality user interface components that meet the basic functional needs of grid portals. These user interface components should be “Web 2.0”. That is, they should be interactive and provide a professional look and feel. Ideally, these user interface components should allow developers to reuse or combine them to develop more sophisticated user interfaces. Finally, the framework developed by the task should provide reusable business-logic components that offer developers a high-level, easy-to-use, extensible API for developing custom portal solutions. JRA1 Portal Interface has taken up an effort to re-engineer and enhance a framework, called the “Vine Toolkit”, scheduled for release in month 15 of the project. Vine itself was a re-engineering effort at PSNC for GridSphere’s GridPortlets project, begun in 2006, to satisfy requirements in HPC-Europa (<http://www.hpc-europa.org>).

A secondary goal that has emerged since the inception of the OMII-Europe Project is to develop a portal that allows users outside the OMII-Europe Project to test and evaluate both the portal software JRA1 Portal Interface task is developing and the middleware OMII-Europe is promoting in its Evaluation Infrastructure. This portal will be referred to from here on as the OMII-Europe Gateway. Service Activity 3 (Support) and JRA1 Portal Interface are working closely on this effort, facilitated in part by PSNC’s role in both activities.

A tertiary goal that has emerged, through talks with SA3 and Networking Activity 3 (Training), is that it should be possible to use the Vine Toolkit to setup portals to train users and developers how to develop custom portal solutions as well as provide an introduction to the kinds of services OMII Europe offers in general. The OMII-Europe Gateway might also be used for this purpose.

Both the Vine Toolkit the JRA1 Portals Activity is now developing and the OMII-Europe Gateway effort are described in the next sections of this deliverable.

2.7.7 JRA1 – Component Exchange

The goal of the Components Exchange activity under JRA1 is to promote the exchange of software components amongst the European and the Chinese Grid middleware providers. By doing so we expect to:

- Increase the cooperation between Chinese and European Grid middleware developing Communities
- Increase the interoperability of the Grid Middleware platforms globally
- Promote the use of emerging Grid standards that can be accepted and adopted globally

It is a two year project and OMII-China is not funded. This report is an interim report describing the first 12 months activities up to the end of the April 2007. All the activities are led and coordinated by OMII-UK Southampton.

In the past 12 months we have achieved:

- Analysis of the platforms to identify the suitable components for exchange
- Define different exchange and integration plans and carry out the integration work
- Built demonstrators to prove the concept and feasibility of our integration plan
- Participate in UK AHM, Super Computing and OGF meetings and demonstrate our systems
- Host OMII-China working visits.

The progress report is organised in the following sections:

1. Introduces the JRA1 Component Exchange activity
2. Summarises the analysis work which identifies the suitable components for the exchange

3. Describes the works needed for CROWN Grid Scheduler to work on the OMII-UK stack
4. Describes the system has been built to prove the concept and feasibility of meta-level job scheduling
5. Describes the work that takes the meta-level scheduler a step further into a OGSA-BES-enabled scheduler and to achieve an interoperability among different Grid platforms in relation to job submission and monitoring
6. Finally provides conclusions regarding the activity

We have not only achieved what we set out to achieve but also brought us even more exciting and interesting work for the next 12 months. We are confident that in the end of the project, it will benefit not only the participants but also the Grid users' communities in both Europe and China.

2.8 Work Package JRA2 – New Services

The JRA2 activity is targeted at the identification of appropriate emerging middleware services from the global Grid initiative that are not already considered by the OMII-Europe. The purpose is the definition of priorities for the placement of such services in the OMII-Europe repository. The first deliverable of this activity published at month 6 presented an analysis and comparison of different Grid middlewares based on a decomposition of the individual capabilities following the OGSA conceptual architecture. Given this comparison, we have identified a number of capabilities that could be added to the current ones already envisioned by the OMII-Europe project. A prioritization based on cost-risk-value was proposed in order to support the decision for the allocation of an extra-budget to be invested during the second year of the project.

In this deliverable (D:JRA2.1 First update report on the identification of new services activity), we present an update of the activity by giving the proposed work-plans for the top three capabilities emerged from the former analysis and by stating the choice made by the project itself. Such a choice implies that the extra-budget will be allocated for the information modelling activity of computing resources to be performed by INFN in the context of JRA2. This decision is mainly motivated by the fact that OMII-Europe is already porting OGF standards such OGSA-BES and JSDL to a number of implementations that will be part of the repository. Such standards lack a common information model for describing Grid resources that enables resource awareness, discovery and selection. The filling of this gap is an essential and urgent step in order increase the value of the foreseen results by the end of the project.

2.9 Work Package JRA3 Infrastructure Integration

2.9.1 JRA3 Overview

The overall objective of this combined work package is to initiate tighter integration of Grid infrastructures than would be achieved merely through the adoption of common services. The second quarter of the project has been characterized by a significant effort by KTH and FZJ to bring their contributions back on track.

This document (D:JRA3.1 First yearly report on Infrastructure Integration) gives an overview of the achievements of the JRA3 Infrastructure Integration Activity in the first year of the OMII–Europe project (May 2006 - April 2007) and an update of the plans for the following year. Overall, the JRA3 activity is coordinated by KTH. The objective of the JRA3 Infrastructure Integration Activity is to initiate tighter integration of Grid infrastructures than would be achieved merely through the adoption of common services supporting inter-working of different Grid infrastructures; for example, increasing the respective middlewares usability by enabling a much more flexible approach to Virtual Organizations (VOs).

The work of the JRA3 activity is structured as two tasks:

- Common Security Infrastructure (Task1)
- Infrastructure Integration (Task2)

This deliverable gives the overall report of JRA3; the combination of the in Task1 and Task2. The details of work done in Task1 of JRA3 are reported in D:JRA3.3. For Task2 the details are given in the deliverable D:JRA3.5.

The Common Security Infrastructure activity (Task1), lead by KTH, strives to harmonise and define a core set of security features that will enable users to make use of multiple middlewares with a single underlying security infrastructure. Special focus is on a closer integration of UNICORE and gLite—to facilitate job execution on UNICORE of gLite submitted jobs—although efforts are also directed to address GLOBUS and CROWNGrid interoperability. The purpose of Infrastructure Integration activity (Task2), lead by FZJ, is to establish and test interoperability among the different Grid middleware platforms within OMII–Europe.

2.9.2 JRA3 – Security Integration

This document (D:JRA3.3 First report on on all the sub-tasks of the Common Security task) gives an overview of the achievements of the JRA3 Common Security Infrastructure activity in the first year of the OMII–Europe project (May 2006 - April 2007) and an update of the plans for the following year. The Common Security Infrastructure activity (Task1), lead by KTH, is one of the two tasks in JRA3—the other, lead by FZJ, is Infrastructure Integration (Task2). Overall, the JRA3 activity is coordinated by KTH. Task1 strives to harmonise and define a core set of security features that will enable users to make use of multiple middlewares with a single underlying security infrastructure. Special focus is on a closer integration of UNICORE and gLite—to facilitate job execution on UNICORE o gLite submitted jobs—although efforts are also directed to address GLOBUS and CROWNGrid interoperability. During the first year we have defined a common security technology base starting with an initial set of standards that are widely adopted, together with an emerging specification from OGF. We have also implemented a solution for credential provisioning for UNICORE based on proxy certificates. For the coming 12 months we plan to update the common security technology base using the experiences gained from the joint efforts of Task1 and Task2 in evolving our initial profile with the second iteration of the multi-platform Grid infrastructure of Task2. The work on a prototype credential management system, that will support both legacy and emerging middleware, is under way and will be completed at the end of M18. To adequately report on the further developments of the common security technology activities we suggest adding one milestone in M22.

2.9.3 JRA3 – Infrastructure Integration

This document (D:JR3.5 First report on all of the sub-tasks of the infrastructure Integration task) represents an overview of the achievements of the JRA3 Infrastructure Integration Activity with special focus on the Task 2–Infrastructure Integration Task. It covers the time period since the project start (May 2006) until Month 12 (April 2007): the first year of the OMII–Europe project. In short, the nature of Task 2–Infrastructure Integration is to establish and test interoperability among the different Grid middleware platforms within OMII–Europe. A more comprehensive description about Task 2 in the context of the OMII–Europe project can be found in the Introduction. The work described in this deliverable is based on the outcome of the JRA1–Reengineering of Services activities and therefore it might be beneficial for readers to consult the deliverables of these activities beforehand. Furthermore, some aspects of is also related to the common security profile developed within JRA3–Task 1–Common Security Infrastructure. Therefore, readers that are not familiar with security challenges during Grid interoperability are referred to the Task 1 deliverables. The fundamental idea of JRA3-Task 2 is to bring all the software components (reengineered within OMII–Europe) together into one multi-platform Grid infrastructure (Milestone M:JRA3.4) to establish and test interoperability between all of them. After an initial requirement analysis of what is necessary to initially enable Grid interoperability, we identified several phases for integration that

basically cover all the functional components developed within JRA1. Therefore, JRA3-Task 2 has developed a roadmap for the integration of these components along different integration phases (aka sub-tasks), including an addition of an information foundation phase that was revealed as necessary functionality during the requirement analysis. In order to address this additional requirement, the demand was given as an input into the JRA2–New Services activity to include also information modeling/services components into the multi-platform Grid infrastructure in the year 2 of the project. Since several months, all integration phases according to the roadmap have been started and therefore the infrastructure already has a lot of components running for interoperability tests even if most JRA1 components are still in an alpha implementation. To conclude, initial interoperability among the components has been reached in typical deployments.

2.10 Work Package JRA4 – Benchmarking

The JRA4 activity is targeted at performance evaluation of Grid middlewares. The goals of the activity are to provide tools for assessing the performance of Grid components, to provide comparative performance data across different middlewares and to develop tutorial material for the tools to extract such data. This document is the first deliverable for JRA4 and the only one for month twelve. It describes what has been performed during the first year as well as the plans for the coming year.

During the first year the initial version of a set of tools for extracting performance data for different middlewares has been developed. An extensive literature survey has been performed in order to create a good overview of the current status in the field of Grid benchmarking. An evaluation infrastructure has been acquired and set up and middlewares installed in order to meet the comparability requirement. The performance assessment tools have been used on this testbed to produce initial comparative performance data across gLite, Globus and UNICORE, mainly focused on job submission. A first version of tutorial material for the tools has also been developed. The plans for the second year of JRA4 includes the development of software libraries for instrumenting Grid components in order to extract performance data with higher level of detail as well as the infrastructure for storing such data and making it available to users, developers and administrators in suitable formats. The tools produced during the first year will also be improved and extended to cover more use cases.

Section 3 – Consortium management

3.1 Work package NA1 – Management

First quarter: May – July 2006

The primary objective for the first quarter was to initiate the project, establish procedures within the project and to coordinate the different activities so that each partner knew their responsibilities to the project and the roles of other partners working on the same activity. In terms of initiating the project, a project kick-off meeting was held within 2 working days of the project start and was well attended (May 3rd and 4th). This had a significant effect on marking the start of the project for all partners and provided a common level of understanding of the projects goals and objectives to all participants. By including talks from each activity coordinator, this also served the purpose of conveying a level of ownership for different activities to the partners. Further, as there were activity meetings for each separate activity, this further ensured that many partners were able to meet face-to-face, in many cases for the first time, with other activity participants. The project management procedures, processes and reporting were also entrenched during this initial quarter and these were soon well understood by all project participants.

From an operational perspective, all partners rapidly engaged with the project during the first quarter, although the majority of partners were still operating with lower staffing numbers than initially anticipated. This was primarily due to the very quick start of the project (2 months prior to

receiving a signed contract from the commission) and the difficulty of recruiting personnel over the holiday period. Technically, the project plan identifies three milestones and five deliverables in this quarter. All but two of these are Networking Activities, with the main focus being on project outreach. From an activity perspective the primary focus this quarter was therefore on ensuring that the message and concept of OMII-Europe was communicated to the grid community. This was achieved through the production of an informative website, flyers, talks at community events, and even through explicit letters of support from major grid infrastructure providers.

The deliverable due at project month 3 was:

- D:NA1.4a: First Quarterly Activity Report

Second Quarter: August – October 2006

Throughout the second quarter project management were involved in the usual on-going activities such as supporting, convening and minute taking for the PMC and TC monthly meetings, maintenance of the project Intranet, and the production of the regular monthly management report. In addition, the project management team at Southampton continued with the standing arrangement to meet every Monday when possible.

In August project management produced the first quarterly activity report for the commission in addition to the usual recurring activities. Although some difficulties were noted with approving the first technical deliverable, D:SA1.0, project management facilitated this process and the deliverable was submitted to the commission within the allowed timeframe. Project management began an engagement process with the other partners to discuss a follow on project in FP7. The initial pre-payment for the project was received in early September and project management ensured that this rapidly reached all project partners.

In September project management were involved in a number of conferences at which OMII-Europe had a presence. These were OGF in Washington, EU Grid days in Brussels, UK e-science all hands meeting and the EGEE conference. At all of these meetings, OMII-Europe management were involved in discussions regarding a successor project in framework 7. In addition, project management started preparations for the face-to-face meeting in November; produced a forward looking questionnaire for all activities to complete; and made advance payments to all EU project partners with the exception of INFN.

In October project management were involved in discussions with commission officials on the submitted first quarter report. Management were involved in finalising arrangements for the face-to-face meeting on the 9th and 10th November and were also involved in collecting the results of the forward looking questionnaire for analysis. Following discussions with existing project members and the commission it was decided that the consortium would put in a follow-on bid for OMII-Europe in FP7.

The deliverable due at project month 6 was:

- D:NA1.4b: Second Quarterly Activity Report

Third Quarter: November 2006 – January 2007

Three major events occurred during the month of November for the NA1 project management activity. The first of these was the convening of the first face to face project meeting on the 9th and 10th November corresponding to the end of project month 6. The second major activity in November was the production of deliverable D:NA1.4b. This is the second quarterly activity report submitted to the commission following the same format as the 3 month report. Finally Stephen

Brewer started employment within NA1 as deputy project manager. It is expected that Stephen will assume responsibility for general management of the project over the forthcoming months.

The main activity for January was planning for the M9 face to face meeting in Bologna in February. This will be an important meeting as it will be the last time that all hands are together before they commence work on the substantial number of deliverables and milestones that are due at the half way stage. The M12 meeting will be an opportunity to resolve final issues for these items and revise plans for the second year of the project. Stephen Brewer attended OGF19 in Chapel Hill where he distributed promotional material for OMII-Europe and initiated discussions about the project's presence at OGF20 in Manchester. Alistair Dunlop developed a number of discussion documents for OMII-Europe II which he followed up with an on-going series of face to face meetings with existing partners and other key contacts.

The deliverable due at project month 9 was:

- D:NA1.4c: Third Quarterly Activity Report

Fourth Quarter: February – April 2007

The major achievement for February was the M9 face to face meeting in Bologna. In addition to the main activity meetings at Bologna, Management also took the opportunity to discuss planning for the OMII-Europe presence at OGF20 in Manchester as well as potential demonstrations for the review and OGF20. Work also began on planning for the M12 face to face in Juelich, Germany. Management also decided to take up an offer from colleagues at UEDIN to redesign the Web site on the condition that SOTON retain ownership and control of the content and the hosting of the site. Work continued on planning for OMII-Europe II.

The major achievement for March was organizing a strong presence for the project at OGF20 in Manchester in May. Planning took place for a booth and a project overview presentation at OGF20 in Manchester. Management contributed to the discussions between NA2 and UEDIN on design and implementation of the new Web Site. Planning continued for the next all hands meeting at Juelich in Germany. Work continued on planning for OMII-Europe II. All of the other ongoing management activities continued such as attending and reporting on meetings, chasing deliverables and milestones and supporting the activities.

In April planning continued for a booth and a project overview presentation at OGF20 in Manchester. Management contributed to the discussions between NA2 and UEDIN on design and implementation of the new Web Site. The month 12 All Hands Meeting took place at Juelich in Germany. Work continued on planning for OMII-Europe II. All of the other ongoing management activities continued such as attending and reporting on meetings, chasing deliverables and milestones and supporting the activities.

The deliverables due at project month 12 were:

- D:NA1.1 – Project Management Report 1
- D:NA1.3a – OMII-Europe Sustainability
- D:NA1.5a – Plan for using and disseminating knowledge

3.2 Financial statements

In this section we will show that project management has managed the project finances appropriately and that the project is both financially secure and that all partners are contributing to the project and working towards meeting their effort commitments.

3.2.1 Overall project financial summary

The OMII-Europe project has been granted a budget of up to € 2,366,457 for the first 12 months of the project. During this period, the audited reports show that the project has spent a total of € 1,784,809. This leaves a net surplus for the first year of € 581,648 implying that the project has spent 75% of the available year 1 budget in the first year.

A summary table providing a breakdown of each partners audited costs and the related budget available to them is shown in table 2.1 below. The actual Form C's completed by each partner have been submitted separately to the commission and not included in this document. There are a few points worth noting from this table:

1. No partner has overspent on their year one budget
2. Four partners have significantly under-spent their budget allocations in the first year. Each one of these partners has had issues either with regard to staffing the project initially. These issues were tackled by project management at PM6 and have all been resolved.
3. Almost all partners have submitted cost claims that are marginally lower than the estimated costs based on the funded person months and their average cost per person month.

Reconciled Budget/Cost table for first 12 months					
Contract No: RI031844		Acronym: OMII-Europe		Date: May6-Apr7	
Short Partner Name	Audited Costs	Agreed 12 month budget	Underspend	% Underspent	deviation of estimated and actual costs
SOTON	€ 593,417	€ 598,040	€ 4,623	1%	-5%
FLE	€ 39,942	€ 78,000	€ 38,058	49%	-15%
FZJ	€ 160,306	€ 180,734	€ 20,428	11%	1%
KTH	€ 165,080	€ 363,000	€ 197,920	55%	-25%
INFN	€ 385,165	€ 405,000	€ 19,835	5%	-3%
PSNC	€ 107,461	€ 182,800	€ 75,339	41%	-2%
UEDIN	€ 284,674	€ 493,884	€ 209,209	42%	-11%
CERN	€ 48,763	€ 65,000	€ 16,237	25%	-25%
Totals	€ 1,784,809	€ 2,366,457	€ 581,648	25%	-8%

Table 2.1: First 12 month project costs

Given the above financial statement, the project has a total budget available to it in the second project year of € 3,048,105. Although this is substantially more than spent in the first year, partners have adjusted their rate of spending to account for this. Details of this are shown in the following sub-section.

3.2.2 Funded Effort by Partner and Quarter

In the first 12 months of the project, despite the slow start, 89% of the expected funded person months were used. What is particularly significant though is the ramp-up in funded effort used by each partner on a quarter by quarter basis. Consider the quarterly totals given at the bottom of Table 2.2 - If we assume that for the remainder of the project that the spending rate is the same as that in the fourth quarter, the project would come very close to spending the available budget for year 2.

Forecast Budget Table (Funded partners)							EC funding only		
Contract No: RI031844		Acronym: OMII-Europe		Date: May6-Apr7		Budget months: 12			
PARTICIPANTS	TYPE of EXPENDITURE (as defined by participants)	AGREED BUDGET	ACTUAL EFFORT (MONTHS) and ESTIMATED EC FUNDING REQUESTED (EUR)					Pct. spent	Remaining Budget (EUR)
			Q1	Q2	Q3	Q4	Total		
			e	a1	b1	c1	d1		
SOTON	Total Person-month	55.2	7.8	13.85	15.85	16.5	54	98%	1.2
	Approx Personnel costs	€ 521,640	€ 73,710	€ 130,882	€ 149,782	€ 155,925	€ 510,300	98%	€ 11,340
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 76,400	€ 16,400	€ 10,000	€ 45,000	€ 45,000	€ 116,400	152%	-€ 40,000
	Approx Total Costs	€ 598,040	€ 90,110	€ 140,882	€ 194,782	€ 200,925	€ 626,700	105%	-€ 28,660
FLE	Total Person-month	12	0.85	1.9	2.2	3.11	8.06	67%	3.94
	Approx Personnel costs	€ 70,000	€ 4,958	€ 11,083	€ 12,833	€ 18,142	€ 47,017	67%	€ 22,983
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 8,000	€ 0	€ 0	€ 0	€ 0	€ 0	0%	€ 8,000
	Approx Total Costs	€ 78,000	€ 4,958	€ 11,083	€ 12,833	€ 18,142	€ 47,017	60%	€ 30,983
FZJ	Total Person-month	36	6.94	9.198	11.158	10.617	37.913	105%	-1.913
	Approx Personnel costs	€ 150,734	€ 29,058	€ 38,513	€ 46,719	€ 44,454	€ 158,744	105%	-€ 8,010
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 30,000	€ 0	€ 0	€ 0	€ 0	€ 0	0%	€ 30,000
	Approx Total Costs	€ 180,734	€ 29,058	€ 38,513	€ 46,719	€ 44,454	€ 158,744	88%	€ 21,990
KTH	Total Person-month	42	0.125	6.075	9.075	11.795	27.07	64%	14.93
	Approx Personnel costs	€ 337,350	€ 1,004	€ 48,795	€ 72,892	€ 94,739	€ 217,430	64%	€ 119,920
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 25,650	€ 0	€ 0	€ 1,500	€ 0	€ 1,500	6%	€ 24,150
	Approx Total Costs	€ 363,000	€ 1,004	€ 48,795	€ 74,392	€ 94,739	€ 218,930	60%	€ 144,070
INFN	Total Person-month	81	21.05	21.95	20.15	25.51	88.66	109%	-7.66
	Approx Personnel costs	€ 361,000	€ 93,815	€ 97,827	€ 89,804	€ 113,693	€ 395,139	109%	-€ 34,139
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 44,000	€ 0	€ 0	€ 0	€ 0	€ 0	0%	€ 44,000
	Approx Total Costs	€ 405,000	€ 93,815	€ 97,827	€ 89,804	€ 113,693	€ 395,139	98%	€ 9,861
PSNC	Total Person-month	36	0	0	4	21.8	25.8	72%	10.2
	Approx Personnel costs	€ 152,800	€ 0	€ 0	€ 16,978	€ 92,529	€ 109,507	72%	€ 43,293
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 30,000	€ 0	€ 0	€ 0	€ 0	€ 0	0%	€ 30,000
	Approx Total Costs	€ 182,800	€ 0	€ 0	€ 16,978	€ 92,529	€ 109,507	60%	€ 73,293
UEDIN	Total Person-month	54.9	7.97	10.635	11.585	9.175	39.365	72%	15.535
	Approx Personnel costs	€ 445,934	€ 64,738	€ 86,384	€ 94,101	€ 74,525	€ 319,748	72%	€ 126,185
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 47,950	€ 0	€ 0	€ 0	€ 800	€ 800	2%	€ 47,150
	Approx Total Costs	€ 493,884	€ 64,738	€ 86,384	€ 94,101	€ 75,325	€ 320,548	65%	€ 173,335
CERN	Total Person-month	7.8	0.15	0	0.45	7.25	7.85	101%	-0.05
	Approx Personnel costs	€ 65,000	€ 1,250	€ 0	€ 3,750	€ 60,417	€ 65,417	101%	-€ 417
	Major cost item 'x'						€ 0	0%	€ 0
	Other costs ('the rest')	€ 0	€ 0				€ 0	0%	€ 0
	Approx Total Costs	€ 65,000	€ 1,250	€ 0	€ 3,750	€ 60,417	€ 65,417	101%	-€ 417
BU	Total Travel Costs	€ 25,000	€ 12,500	€ 0	€ 0	€ 1	€ 12,501	50%	€ 12,499
TOTALS	Total Person-month	324.9	44.885	63.608	74.468	105.757	288.718	89%	36.182
	Approx Total Costs	€ 2,366,457	€ 284,933	€ 423,484	€ 533,360	€ 700,223	€ 1,942,001	82%	€ 424,456

Table 2.2: Funded person months per partner per quarter for the first 12 months

3.2.3 Total Project effort by Partner and Activity

Table 2.3 shows the amount of both funded and unfunded person months used by each partner as applied to each activity. The headline figure is that a total of 46 person years of effort (funded and unfunded) has been used in the first 12 months of the project which represents 82% of the planned effort for the period.

Person-Months Status Table																			
Acronym: OMII-Europe		Partner - Person-months per Workpackage (funded + unfunded)																	
Period: May 2006 - April 2007																			
Number months:	12	Totals	SOTON	FLE	FZJ	KTH	INFN	PSNC	UEDIN	UCHIC	UILL	USC	UWM	BU	ICT	CNIC	TU	CERN	
NA1 - Management	Actual WP total	19	19																
	Planned WP total	17	17																
NA2 - Outreach	Actual WP total	15	12						3.2					0.5					
	Planned WP total	17	8.1						6					3					
NA3 - Training	Actual WP total	12							11					0		0.4			
	Planned WP total	24							18					3		3			
SA1 - Repository	Actual WP total	49	17				22							3		3		5	
	Planned WP total	36	12				15							3		0		6	
SA2 - QA	Actual WP total	68	40							0			3	16		1.5		8.1	
	Planned WP total	72	51							6			3	6		0		6	
SA3 - Support	Actual WP total	47	2.6	12		4	9	12						1				5.8	
	Planned WP total	57	6	12		6	12	15						3				3	
JRA1 - Re-engineering	Database	Actual WP total	47	3.9	1.7		0.8		35									6	
		Planned WP total	58	3	1.8		4.8		42									6	
	VOMS	Actual WP total	26	1.7	1.2		23												
		Planned WP total	28	3.6	1.2		23												
	Accounting	Actual WP total	39	0.9	1.2	10	16		8.8						0.7		1.1		
		Planned WP total	74	3.6	1.2	23	20		14						6		6		
	Job Submit	Actual WP total	41	6	1.6	0.6	14		11	5.5			0	2.8					
		Planned WP total	47	6	1.8	0.6	14		12	6			3.6	3					
	Portal	Actual WP total	34		1.2		1.1	32											
		Planned WP total	66		1.2		4.8	60											
	Chinese Services	Actual WP total	37	7											17	7.2			5
		Planned WP total	36	6											0	24			6
	JRA2 - New Services	Actual WP total	16			1.1	9.6		1.4						1.2	1.2			1.2
		Planned WP total	8			1.5	3		1.5						0.7	0.7			0.7
JRA3 - Infrastructure	Security Integration	Actual WP total	48		9.8	15	15				3.5							5	
	Planned WP total	59			9	21	18				4.8							6	
	Infrastructure Integration	Actual WP total	44		10	4.4	21							1.5		0.7		6.5	
Planned WP total	51			9	9	21							6		0		6		
JRA4 - Benchmarking	Actual WP total	16				11	5							0		0			
	Planned WP total	32				17	12							3		0			
Total project person months	Actual Total	557	102	8.1	38	42	130	41	83	5.5	3.5	0	5.8	41	8.4	6.7	29	13	
	Planned Total	681	106	12	36	72	141	72	109	12	4.8	3.6	6	34	25	9	28	12	

Table 2.3: Total funded and unfunded person months per partner and per activity

3.2.4 An explanation of activity effort deviations from the initial budget plan

Five of the sixteen activities have deviated from the planned effort by a considerable margin. In particular, NA3 – Training, JRA1 – Accounting, JRA1 – Portal, JRA4 – Benchmarking and JRA2 – New Services. The first four of these have under-spent the planned effort due entirely to a slow start for these activities¹. Although the Training activity was slow to start due to the delayed appointment of staff, project management at the training activity participants decided that it would be more beneficial to offer the bulk of the training courses towards the end of the project following the availability of many of the components. As such the lower spend in effort on the training activity is intended. The remaining three activities that have used less person months than intended this year is due to the difficulties experienced in staffing the project initially by the partners KTH and PSNC². These difficulties were resolved mid way through the year and these activities are now fully staffed. There have been some subtle benefits for all these activities in having a slow start. This is particularly true for the JRA1 – Accounting activity which enabled the staff working on this

¹ This was highlighted in the first 2 management quarterly reports D:NA1.4a and D:NA1.4b.

² This is documented in previous quarterly management deliverables D:NA1.4a and D:NA1.4b.

activity to effectively restart the working group standardisation effort at OGF during the start-up phase.

The only activity that has used more effort than originally planned is the JRA2 – New Services activity. This effort deviation was presented in previous quarterly management reports. As discussed in these previous reports, soon after starting this activity it became apparent that the scope of work required additional effort. The actual amount of additional person months required is very small in relation to the entire project and has meant that it has unaffected both the individual partner budget and the overall project budget.

In summary, it is worth noting that the under-spent activities have had a marginally detrimental effect on the amount of progress made in the first year. However, these delays will be made up in the second year and it is not foreseen that these initial delays will have any adverse affect on other project activities.

3.2.5 An explanation of partner effort deviations from the original project plan

The summary line on the Person-Months Status table provides overall information on the amount of effort contributed on an individual partner basis. What can immediately be seen is that KTH and PSNC have the largest discrepancies in planned effort, which is in line with their difficulties in staffing the project initially. An explanation is now given on the contributions made by the unfunded American and Chinese partners.

We have found the relationship with the American partners to be particularly useful in this initial phase of the project. It is interesting to note the type of contributions they have made is primarily in the area of supporting or modifying work that is funded under their own national programme that is used by the OMII-Europe project. In this sense, OMII-Europe is benefiting from, and promoting, the use of a number of technology contributions made by our partners from the USA. The methods used to engage with the project are largely directly through other European partners involved in the same activities. The exception here is UCHIC which additionally attends many of the face-to-face project meetings in Europe and participates in the project management structures.

Although the contribution from UCHIC looks less than originally planned this is more a reflection that the UCHIC has become involved in a number of other activities in the project that have not reported direct effort for their involvement. Most recently, they have worked extensively with the JRA4 – Benchmarking activity, to the extent of modifying parts of the Globus distribution. This is not reflected in this table yet they continue to perform a substantial and valuable contribution to the project.

It is also worth commenting on the apparent lack of effort contributed by USC. USC is involved directly with the JRA1 – Job Submit activity, and in particular with providing this capability within Globus, however, as they have not filled out specific time sheets noting the amount of effort contributed here, this is not reflected in the spreadsheet.

Working with the Chinese partners has proved to be mutually beneficial and an interesting exercise. During the course of the first year we have had some changes in involvement within the project. In particular, CNIC which had initially opted to contribute to 6 activities decided to retract and concentrate their efforts in 2 activities (shown in the table with a planned contribution of zero). In contrast, BU expanded their involvement from 9 to 10 activities. As described in a letter to the commission following CNIC's changed position, the effect of this change is minimal in that none of the activities were dependent on CNIC's contribution. In contrast, BU became heavily involved in the JRA1 – Component exchange activity (contributing approximately 1.5 person years so far) and worked extensively to make the Chinese scheduler work with European grid distributions and subsequently to make this BES compliant. This is a substantial achievement that would be regarded

as a great success if this was achieved at the end of the second year of the project. The fact that it has been achieved already is solely due to the fact that BU made such a substantial and unaccounted for commitment to do this work. The majority of this work was actually performed by visiting Chinese researchers from BU in the UK.

In summary, the project has seen substantial benefits to contributing with our partners from the USA and China. From what we have seen the collaborative relationship works best when there are very specific outcomes for the different partners that can largely be worked on independently. Our particular experience has been very positive where one partner is a producer and one is a consumer within these joint activities. All European partners have worked exceptionally well together and this is considered to be attributable to the shared common project vision.

3.2.6 Draft planning for the next reporting period

Detailed plans for the next 12 months are contained within each of the activity reports. In general these follow the goals laid down in the Technical Annex – Description of Work. In particular Deliverables and Milestones described within the Technical Annex remain valid.

Annex – Use and dissemination

A cumulative record of project outputs is summarized below:

Press releases

- The University of Southampton gave a press release following the award of the project. Full details of the press release can be found on the OMII-Europe website.

Presentations

- Achim Streit, "Topic 3 'Grid Computing' - An Overview", Presentation to the Perspective Committee of the Research Program "Scientific Computing", Jülich, 6 June 2006
- Achim Streit, "Competence in e-Science and Grid at FZJ", Visit of Jack Dongarra (University of Tennessee & Oak Ridge National Lab) at Research Centre Jülich, Jülich, 23 June 2006
- Alistair Dunlop, OMII-Europe project overview at Viola Workshop, and OMII-Europe first European training event. This overview talk can be downloaded from the OMII-Europe website. 6 August 2006
- Achim Streit, "Competence in e-Science and Grid at FZJ", Visit at Philips Research, Eindhoven, 16 August 2006
- Alistair Dunlop, "Interoperability and Usability of Grid Infrastructures in OMII-Europe", EuroPar 2006 Conference, 28 August 2006, Invited talk.
- Mike Mineter, OMII-Europe project overview in presentation for gLite applications developers course, "A Glance Towards the Future" at The GridKa School, Karlsruhe, September 2006; CERN, 23 September; IPP-BAS, Sophia, 30 November 2006.
- Steven Newhouse, "OMII-Europe: Status, Plans and Interactions with ETICS", EGEE '06, 25-29 September 2006, CICG, Geneva, Switzerland
- Attended the UK all-hands meeting, EGEE conference and the EU Grid Days. September 2006
- Steven Newhouse, "OMII-Europe: Grid Standards Activity", Background and context of OMII-Europe, from BeGrid Seminar 27 Oct 2006, Brussels
- Mike Mineter, OMII-Europe project overview in presentation "NGS in the future: Emerging middleware" at EUCS, Edinburgh, 5 October 2006; eSI, Edinburgh, 10 November 2006; Reading, 21 November 2006.

Other dissemination material

- Initial flyers distributed at GGF 16 in Athens (13-16 February 2006). An updated version of this flyer can be downloaded from the website.
- Initial flyers distributed to members of Viola workshop in Bonn (22 March 2006)
- Initial flyers distributed at OGF 19 (Chapel Hill, North Carolina, Jan 29th – Feb 2nd 2007)
- Brand new set of flyers distributed at OGF 20 (7-11th May 2007)

Events coming up in 2007

Some events confirmed for the rest of 2007 are:

- 25-30th June 2007, Budapest, Hungary: Introduction to the Grid and EGEE/gLite at the Joint EGEE and SEE-GRID Summer School on Grid Application Support
- 15-19th October 2007, Seattle, USA: OGF21
- 10-16th November, 2007, Reno: International conference for High Performance Computing, Networking, Storage and Analysis (SC07)
- 10-13th December 2007, Bangalore, India: Grid interoperability workshop at the 3rd IEEE International Conference on e-Science and Grid Computing