

III. Project management during the period

3.1 Consortium management tasks and achievements

In September 2010 the first key management activity has been the organisation of the Kick-Off Meeting on 27th and 28th September 2010. From this meeting on, the project management has ensured a continuous control on the achievements of the project so as to warrant a full commitment of the HESMOS activities in order to be compliant with the deadlines and the RTD tasks in all the duties over the 1st reporting period, and the production of the expected Deliverables.

Key other activities achieved by the Project Coordinator are:

- Continuous monitoring of all activities in HESMOS through continuous exchange and discussions
- Telephone conferences and peer-to-peer exchange (via email and Skype) between Consortium members on weekly basis
- Constant communication at all levels in the Consortium network, from WPs to Newsletters and Deliverables
- Preparing the Project Manual, the Project Logo and all Project Templates (for presentations, technical reports, meeting minutes and memorandums)
- Creation and management of the HESMOS SharePoint collaboration portal, a platform for the exchange, versioning and sharing of documents, maintaining the project calendar, important contacts, discussions and other coordination/collaboration activities
- Preparing and management of all General Assembly and Technical Meetings, as well as issuing the meeting minutes
- Organisation of HESMOS participation at a number of public events, including:
 - ECPPM 2010, Cork, Ireland
 - CIB W78 Conference and BIM Workshop, Cairo, Egypt
 - ICT on sustainable homes, Nice, France
 - eeB Workshop, Brussels, Belgium
 - ICT4E2B Workshop, Brussels, Belgium
 - CIB W78–W102 Conf. and 2nd Workshop on eeBuilding Data Models, Sophia Antipolis, France (upcoming)
- Intermediate and final quality control of all deliverables
- Liaison with the EC
- Preparation and submission of a Contract Amendment (approved 04.11.2011)
- Financial management and advise.

Problems that occurred and were resolved, status of monitored risks, changes in the consortium, project meetings, dissemination, coordination and other management activities in the period are presented in more details in the following sections.

3.2 Problems which have occurred and how they were solved or envisaged solutions

On the basis of continuous tracking and control of the work progress by each of the partners and the Consortium as a whole, quality control of the work on the deliverables at the General Assembly Meetings held regularly every three months, and the installed risk management procedures as foreseen in the DoW, no major problem (and consequently no major deviation in the HESMOS work program and the production of deliverables) did occur in the course of the first project period.

From RTD point of view two larger problems appeared that had to be solved:

- Decision on the eeBIM development methodology
- Decision on the IFC version(s) to use as basis of eeBIM and the HESMOS IVEL.

The first of these problems caused a delay of two deliverables in WP2, namely D2.1 and D2.2. This delay was seen as necessary because of the strived close cooperation with IFC standardisation within buildingSMART as well as the focus on achieving an adequate industry focused solution. Hence a dependency on the results of Deliverable D1.1 which was not foreseen in the DoW was deemed necessary. In addition, consultation had been sought with buildingSMART, the international organization to promote open BIM use, in order to guarantee that the HESMOS energy enhanced BIM (eeBIM) specification is accepted as a candidate for an official Information Delivery Manual, IDM.

The second problem was solved in due time, again in view of an industry focused solution. It was decided to use the current, certified and well-supported IFC version 2x3 in all developments, but to apply also the upcoming IFC4 in the advanced energy solvers of TUD. IFC4 was seen as more adequate for eeBIM and hence more appropriate on the medium term.

From management point of view some problems occurred due to the lack of experience in some FP7 procedures, namely

- The submission of deliverables to the PO (causing a formal non-technical delay in WP1, which was internally finished on time)
- The preparation and submission of a Contract Amendment
- The finalization of the Periodic Report (delayed partially because of the late finalization of the Contract Amendment, which provides the contractual basis for all reported RTD, resources, contractual and management issues.

These problems are considered as starting difficulties that will not be repeated in the next phase.

Status of monitored risks identified in Annex I (DoW):

Problem/Risk	Impact	Probability	Effect	Exposure level	Status	Comment
Technological risks						
TR1. Delay or lack of quality in the development of user scenarios and the synthesis of user requirements	Insufficiently clarified technological goals and overall RTD delay	M	C	M	Resolved	Adapted IDM methodology developed together with strict monitoring at management level led to good and timely results
TR2. Development of advanced BIM methods like model mapping turns out to be more difficult than expected	Limitations in the initially planned functionality	L	C	M	Resolved	Restructuring of resources and shift of work sequence at the detail level in WP2, WP3 and WP7
TR3. Generic interoperability concepts and methods prove not sufficiently practical	Missed practical goals and limited acceptance of the approach	M	C	M	Monitored	Splitting interoperability methods in generic/specific components is done already at the s/w design phase
TR4. Interoperability methods require a specific approach for many different situations	Unforeseen extra efforts causing delays or decrease of quality	L	M	L	Monitored	
TR5. Ontology scalability is less than expected	Limitations on the envisaged practical scope of application for the planned pilots	H	C	H	Monitored	
TR6. Distributed BIM data cause serious performance problems	Limited usefulness of HESMOS in practice	M	C	M	Monitored	
TR7. Different goals of partners with regard to the overall HESMOS architecture that remained undiscovered at the outset	Interoperability problem especially with regard to the IVEL	L	C	L	Processed Current status ok	The developed SOA based architecture accounts for all related requirements
TR8. Change in the BIM standard use as baseline for eeBIM development	Developed tools are (partially) incompatible with the new standard and/or require major rework	L	C	M	Resolved, but further monitored	IFC2x3 taken for industry relevant services of IVEL, IFC4 will be tried in advanced academic solutions; Further watch by AEC, OG, NEM and TUD
TR9. Change in installation bus protocol standards	Developed interfaces to the tools in WP4 are (partially) incompatible with the new standards and/or require rework	L	M	L	Resolved, but further monitored	Narrow observation by TUD-TIS; best applicable BAS standards selected and checked for the pilot sites
TR10. Strong incompatibility of Windows and Unix-based distributed system solutions	Integration problems	L	U	M	Resolved in principal and further monitored	The developed SOA based architecture accounts for all related requirements
TR11. Dependency on third-party products	Severe delay in service development	L	C	M	Monitored	

Problem/Risk	Impact	Probability	Effect	Exposure level	Status	Comment
TR12. Problems with proprietary interfaces to existing systems	Severe delay in service development	L	C	M	Not yet relevant	
Demonstration related risks						
DR1. The test projects cannot be adequately prepared for the HESMOS platform	Partial or complete failure of the demonstrator	L	U	M	Resolved and further monitored	Preparatory actions taken, pilot sites changed for better fit to HESMOS goals
DR2. The developed methodology and work procedures are not accepted by the end users	Pilot evaluation is unsatisfactory or fails to meet its objectives; HESMOS remains not accepted in practice	L	C	M	Monitored	
DR3. Low usability of the user interfaces	As above	H	C	H	Not yet relevant	
DR4. Equipment problems	Partial or complete failure of the demonstrator	L	C	M	Not yet relevant	Initial measures have been taken nevertheless
Managerial risks						
MR1. Risks stemming from the multidisciplinary nature of the consortium	Failure to transfer knowledge b/n the partners	M	C	M	Processed Current status ok	Intensive communication via various installed comm. channels
MR2. Underestimated time for completion of Deliverables	Tasks completed with delay; deliverables miss deadlines	M	C	M	Exposed	Planned further actions: - More tight control by WP leaders; - Strengthening QA procedures & interim reporting
MR3. Underestimated efforts needed to complete activities	Resource/budget overrun or lower quality of the results	L	C	M	Exposed at certain issues	Planned further actions: - Strengthening QA procedures & interim reporting
MR4. Lack of experience / qualification of involved staff	Low quality, missed objectives	L	C	M	Processed and improving Current status ok	Measures for restructuring resources taken for critical issues at NEM, OG, TUD
MR5. Communication gaps or problems	Coordination problems	L	C	M	N/A	
MR6. Diverging technological and exploitation objectives of the partners	Unnecessary, fruitless disputes	L	M	L	Monitored	
MR7. Low commitment to exploitation, or results not exploitable as initially expected	Missing exploitation targets	L	C	M	Monitored	Initial partner commitment is strong; monitoring partners' business interests will provide early warnings
MR8. New products on the market or new standards, partially overlapping planned RTD results	Waste of resources Loss of time / competitiveness	M	C	M	Monitored, but not yet very relevant	
MR9. Partners leaving the project	Missed tasks, objectives, quality problems	L	U	M	N/A	

Key: C = Critical, H = High, L = Low, M = Medium (Marginal in 'Effect' column), N = Negligible, U = Uncontrolled

Notes:

- Resolved risks are risks that are not any more applicable and provide no further threat. However such risk will be further monitored for safety.
- Processed risks are risks that provided a threat and could not be resolved within this period due to their very nature or because that requires more time. Such risks will be of primary concern in the next period.
- Monitored risks are risks that are not exposed; the related issues are watched at as suggested in the DoW and the provided comments in the table.
- Where no comments are provided, the suggested contingency actions from the DoW are valid unchanged.

3.3 Changes in the Consortium

There have been no changes in the HESMOS Consortium.

However, with regard to accounting and financial issues the work of beneficiary #4 BAM had to be split to the two third-parties, BDE and BNL, who are independent subsidiaries of the Royal BAM Group. The teams of BDE and BNL participated already in the proposal and worked in the project from the very beginning. Therefore, this change had no consequences on the project work. It is essentially a contractual and administrative issue resolved with active support of the Project Officer as part of the Contract Amendment approved by the EC on 04.11.2011 and in effect from 01.09.2010 as already mentioned in Section II of this report.

3.4 Project meetings, dates and venues

No.	Meeting type ¹	Date, Host & Venue	Participating partners	Objectives and major decisions
1	GA	27.-28.9.2010 BDE Stuttgart, DE	All partners	Kick-Off Meeting <ul style="list-style-type: none">• Partner profiles, roles and exploitation interests• Suggested new decision on case projects – main pilot “Professional School in Pforzheim”, DE• Working groups & work plan until next meeting
2	TM	23-24.11.2010 Copenhagen, DK	OG, AEC	eeBIM Development Meeting
3	TM	24.11.2010 Bunnik, NL	BAM, BDE, BNL	<ul style="list-style-type: none">• BAM tasks in HESMOS: distribution of work focus and responsibilities (BDE – pilots, use cases, performance indicators; BNL – eeBIM, ICT tools, IT enabled processes; both – pilot evaluation)• Decision to split work and budget in two parties
4	TM / ViCon	20.12.2010	TUD-CIB, NEM, OG, BAM, OPB	<ul style="list-style-type: none">• ICT issues in the user scenarios• Spec. of the most important energy simulations• Spec. of background s/w (TUD, OG, NEM)
5	GA & TM	20.-21.1.2011 OPB Munich, DE	All partners	<ul style="list-style-type: none">• Administrative, financial & organizational issues• Results of the working groups• Final decisions on use cases and scenarios• Principal decision on eeBIM development – use of IFC and the IDM/MVD approach, multi-model framework & link model• Working groups & work plan until next meeting
6	TM	3.2.2011 BDE Stuttgart, DE	TUD-CIB, BDE, OPB, AEC,	HESMOS Information Delivery Manual (IDM) - specification according to and adapting the current buildingSMART approach

¹ GA = General Assembly Meeting, TM = Technical Meeting, ViCon = VideoConference and/or NetMeeting

No.	Meeting type ¹	Date, Host & Venue	Participating partners	Objectives and major decisions
7	TM	28.2.2011 TUD-CIB Dresden, DE	TUD, NEM, AEC, (OG via ViCon)	<ul style="list-style-type: none"> • Integration of Allplan software (NEM) • eeBIM development strategy and scope • Architecture of the IVEL: Principal concepts, components, data structure, exch. requirements
8	TM	19.3.2011 NEM Munich, DE	BAM, NEM	Fulfilling PPP business scenario requirements by AEC software applications
9	GA & TM	24.-25.3.2011 NEM Bratislava, SK	All partners	<ul style="list-style-type: none"> • Administrative, financial & organizational issues • Requirements and tech. decisions on the pilots • Decision of HESMOS components • Decision of required nD Navigator functionality • eeBIM Specification; concept of use and integration of non-BIM data in IVE • Working groups & work plan until next meeting
10	TM / ViCon	19.4.2011	TUD-CIB, AEC	Work plan / tasks for finalization of Deliverable D2.1
11	TM / ViCon	20.4.2011	TUD-CIB, NEM	Conception of the H-Connector
12	GA & TM	9.-10.6.2011 OG Helsinki, FI	All partners (NEM via ViCon)	<ul style="list-style-type: none"> • Administrative, financial & organizational issues • Decision of IFC version for the IVEL • Work progress and status of all work packages • Working groups & work plan until next meeting
13	TM / ViCon	6.7.2011	TUD-CIB, NEM	Workplan for finalization of Deliverables D3.1 and D7.1

In addition to the above activities, telephone conferences for mutual communication between and within the work groups were held on regular (monthly) basis.

3.5 Project planning and status

Project management and planning activities include overseeing and co-coordinating the work activities in the project. It includes legal, financial, administrative, project archiving, quality assurance and quality review as well as contractual matters.

This has been done especially thanks to:

- Collecting and assembling progress reports from the partners on the basis of regular TelCons with the WP leaders
- Organising internal TelCon, ViCon and face-to-face meetings, as well as General Assembly (GA) meetings and the upcoming 1st Review meeting
- Setting up all agendas for meetings (in agreement with all partners, approved and updated – if necessary – at the beginning of each meeting) and issuing the meetings' minutes
- Maintaining the HESMOS SharePoint (<https://hesmos.cib.bau.tu-dresden.de/default.aspx>) and the HESMOS Intranet, in particular:
 - Overall structuring of the intranet portal
 - Data administration and organisation between the work packages
 - Formal quality control of uploaded documents
 - Provision, updating and maintenance of project related templates (general templates from the EC regarding FP7 projects, EC FP7 Guides, Project Guide for Deliverables, Deliverable Reporting Template, Presentation Templates)

- Maintaining a project calendar (deadlines, public holidays, partner holidays)
- Supervising of team discussions
- Maintaining a continuous relationships with the EC through continuous dialogue with the HESMOS Project Officer (Mr Rogelio Segovia) and his assistants
- Maintaining constant relationships with key scientific researchers and business stakeholders in the HESMOS areas of interest
- Managing financial and administrative activities within the project, both among the partners and with respect to the relationship with the EC, including the handling and processing of the cost reports, distribution of the funding among the partners, and reporting the financial figures to the Commission
- Preparing and submitting a Contract Amendment reflecting necessary changes in financial, legal and technical issues that have occurred after project start.

With exception of the Contract Amendment, which caused a delay in consolidating the financial reports of some partners and hence the finalisation of this Periodic Report, all listed issues do not present any further problems. A new issue that will have to be tackled is the shift of technical work in WP3 and WP7 by NEM required to better achieve the set up objectives, and the related budget neutral increase of their person-months.

3.6 Changes to the legal status of beneficiaries

The indirect cost calculation of Beneficiary #6 **AEC3** has been modified in the Contract Amendment approved by the EC on 04.11.2011 and in effect from 01.012.2009 as follows:

Old indirect costs: Actual Indirect Cost Model

New indirect costs: Specific Flat Rate

This was only a technical issue with no effect on the project budget or the EC financial contribution.

3.7 Project Web Site

The website of the HESMOS project is <http://www.HESMOS.eu>. It was established in the second project month and is being continuously developed since then.

The web site is structured in several inter-linked subsections as follows:

Project Overview: Provides an overview of the target area, the objectives of the project, the expected results and the envisaged users of the HESMOS platform. Submenu items lead to a diagram of the project architecture and to the timeline and milestones of the project.

Consortium: Short presentation of the HESMOS partners and their roles in the project.

News: During the runtime of the project several newsletters are planned, the first of which was already issued in this reporting period. Each newsletter is intended to present on 2-4 pages the essential results of the covered period as well as profiles of selected Consortium partners and people.

Meetings: Short summaries of the main project meetings and their key issues.

Upload Area: The public deliverables of HESMOS are uploaded in this dedicated area and are freely available for download. Additionally, for all issued deliverables a 2-page

summary can be found in this area, providing an overview of the main objectives, the achieved results and the developers engaged in the deliverable. This area also contains abstracts, presentations or full papers presented by HESMOS partners at conferences, workshops and other public events.

Sharing: An area for joining discussions on LinkedIn, Facebook and Twitter, as well as RSS-News of the project; this area is currently still under construction.

EU FP7: Link to the EU 7th Framework Programme.

Whilst these subsection are decided in form and type of content, they are continuously extended by using a standard procedure as follows:

- All partners provide material for the Web Site in a dedicated area of the HESMOS SharePoint portal
- All WP Leaders prepare summaries of issued deliverables within 14 days after completion of the respective deliverable and upload these to the HESMOS SharePoint
- The Dissemination Manager is notified via SharePoint when new content is uploaded on the watched SharePoint folders and updates the Web Site respectively in due time.



Figure 7: Home page of the HESMOS Web Site

3.8 Dissemination activities

Intensive dissemination activities occurred during the reporting period to promote the HESMOS vision. The main events where HESMOS has been presented are summarized in the table below.

Event	Dates & Venue	Participating partners	Form of HESMOS participation
ECPPM 2010 Conference	14-16.09.2010 Cork, IE	TUD-CIB	1 presentation The envisaged HESMOS multi-model interoperability approach
buildingSMART ISG	23.09.2010 Hoofddorp, NL	OG	Technical eeBIM discussion
German Workshop „Energie-optimierung mit Regeltechnik“	30.09.2010 Chemnitz, DE	TUD-IBK	1 presentation The HESMOS integration approach with regard to BAS
1 st German Specialty Conference “IT Forschung des BMBF: Fachkonf. Bauinformatik – Baupraxis”	22.10.2010 Dresden, DE	TUD-CIB	1 presentation HESMOS Overview, Objectives and Focus
CIB W78 Conference and BIM Workshop 2010	16.-19.11.2010 Cairo, Egypt	TUD-CIB, AEC, NEM	2 presentations (incl. software demonstration) and 1 paper The HESMOS eeBIM Approach
Conference on ICT for sustainable homes	17.-19.11.2010 Nice, FR	TUD-IBK	1 presentation Overview and eeBDM issues
HESMOS Presentation at GOLDBECK GmbH	23.11.2010 Treuen, DE	TUD-CIB, TUD-IBK	HESMOS presentation and project discussion
eeB Workshop	26.11.2010 Brussels, BE	TUD-CIB, TUD-IBK	1 presentation Overview and eeBDM issues
EnOB Conference in conjunction with the BAU 2011 Tradeshow	17-19.01.2011 Munich, DE	TUD-IBK	Overall HESMOS presentation
ICT4E2B Forum	24.01.2011 Brussels, BE	TUD-CIB, TUD-IBK, TUD-TIS	Presentation of the Data Models of HESMOS
German Strategy Meeting on energy efficient housing and eeBIM	04.04.2011 Jülich, DE	TUD-CIB, TUD-IBK, BDE	3 presentations – Data models, energy solvers, performance indicators and usage scenarios
Energy Simulation Meeting	07-8.04.2011 Glasgow, UK	OG	HESMOS presentation
<i>Upcoming events prepared during the reporting period:</i>			
15 th buildingSMART forum 2011	15.09.2011 Berlin, DE	TUD-CIB, TUD-IBK, BDE	1 presentation Improved PPP process with HESMOS – data models, solvers & performance indicators
2 nd German Specialty Conference “IT Forschung des BMBF: Fachkonf. Bauinformatik – Baupraxis”	14.10.2011 Dresden, DE	TUD-CIB, TUD-IBK, NEM	1 paper and 1 presentation Requirements, use cases and modelling framework Software demonstrator
CIB W78–W102 Conf. and 2 nd Workshop on eeBuilding Data Models	27.10. 2011 Sophia Antipolis, FR	TUD-CIB, TUD-IBK., TUD-TIS, AEC	2 papers and 2 presentations - Modelling framework - Architecture & main eeB issues
eChallenges Conference 2011	26.-28.10.2011 Florence, IT	TUD-CIB	1 paper and 1 presentation Use cases, ICT challenges and platform architecture

Additionally:

- The first HESMOS Newsletter was issued presenting the elaborated PPP TO-BE process and the derived essential energy efficiency related scenarios as well as the two end-user industry partners of the Consortium, BAM and OPB
- Along with the project Web Site described in section 3.7 above, a short project Video was developed, which will be shown at the first project review; a longer, professional video is planned for the end of the project
- A project Wiki was set up for internal use only in order to consolidate terminology and concepts before going public; a public Wiki is planned for MS4.
- The developed eeBIM concept is forwarded to BuildingSMART (by AEC, OG, TUD) to be considered for standardisation, especially with regard to the prepared energy MVD as well as the overall IDM approach.

3.9 Coordination activities

Coordination activities included

- (1) Internal Project Coordination
- (2) External Contacts and Collaboration.

Internal coordination was done with the help of the set up project infrastructure, i.e. the HESMOS SharePoint portal, eMail exploders, Skype, TelCo and Video Conferencing. On SharePoint important deadlines and tasks were published and reviewed on regular basis. Via eMail important reminders were sent, and when necessary discussion of critical issues took place. Remote conferencing facilities (Skype, TelCo, ViCon) were used for regular contacts with WP leaders and developers to monitor the progress of work in the separate WPs.

External activities comprised contacts to various international and national on-going or recently finished projects, programmes and initiatives, including:

- Key European projects: InPro, IntUBE, BuildingEQ, SEED, as well as the German IP Mefisto
- The European Construction Technology Platform (ECTP), BuildingSMART and the U.S. FIATECH association
- The 5D, BIMServer and Open IFC Tools initiatives
- The Lawrence Berkley Lab, California, U.S.A.

HESMOS participates in the ICT4E2B forum as well as in the eeBDM and made project presentations in all essential events organised in 2011.

In addition, while not yet in cooperation, the EU projects REViSITE and eDIANA are being carefully watched. It is intended to approach these projects, too, in the near future.

IV. Deliverables and milestones tables

4.1 Deliverables

The deliverables due in this reporting period, as indicated in Annex I (DoW) to the Grant Agreement are uploaded to the EC in coordinated manner, with a final quality check done by the project coordinator. These deliverables are marked by **grey background** in the following Deliverables Table for easier reference. The table itself is cumulative showing all deliverables from the beginning of the project as per DoW and respective amendments.

The current status corresponds to the DoW of Contract Amendment #1 approved on by the EC. Due in the reporting period were 12 deliverables including this Periodic Report as follows: D1.1, D2.1, D2.2, D3.1, D7.1, D8.4.1, D9.1, D10.1, D10.2.1, D11.1.1, D11.2 and D11.3.

TABLE 1. DELIVERABLES

Del. no.	Deliverable name	Version	WP no.	Lead beneficiary	Nature	Dissemination level ⁵	Delivery date from Annex I (proj. month)	Actual / Forecast delivery date dd/mm/yyyy	Status No submitted/ Submitted	Contractual Yes/No	Comments
D1.1	Gap analysis, use case scenarios and requirements specification	1.4	1	4 (BAM/BDE)	O	RE	6	28/02/2011	Submitted	Yes	Document, 67 p.
D2.1	BIM enhancement specification	1.1	2	6 (AEC)	O	PU	6	30/07/2011	Submitted	Yes	Document, 54 p.
D2.2	HESMOS architecture	1.5	2	1 (TUD-CIB)	O	PU	9	30/07/2011	Submitted	Yes	Document, 45 p. Delayed due to the delayed input from D2.1
D3.1	Specification of the eeBIM functionality	1.4	3	2 (NEM)	O	CO	12	01/09/2011	Submitted	Yes	Document, 26 p.
D3.2	Full prototype of the eeBIM-CAD		3	2 (NEM)	P	PU	24	31/08/2012	No submitted	Yes	
D4.1	Ontology specification for model-based ICT system integration		4	1 (TUD-TIS)	O	PU	15	30/11/2011	No submitted	Yes	
D4.2	Full prototype of the ICT system integration and intelligent access services		4	1 (TUD-TIS)	P	PU	24	31/08/2012	No submitted	Yes	

PU = Public

PP = Restricted to other programme participants (including the Commission Services).

RE = Restricted to a group specified by the consortium (including the Commission Services).

CO = Confidential, only for members of the consortium (including the Commission Services).

D5.1	Specification of interfaces to material and climate databases		5	1 (TUD-IBK)	O	PU	15	30/11/2011	No submitted	Yes	
D5.2	HESMOS enhancements of energy simulation tools		5	1 (TUD-IBK)	P	RE	21	31/05/2012	No submitted	Yes	
D5.3	Full prototype of the energy simulation tools with interface to IVEL and CAD		5	1 (TUD-IBK)	P	PU	27	30/11/2012	No submitted	Yes	
D6.1	Enhanced energy-related tools for lifecycle use of eeBIM		6	3 (OG)	P	PU	15	30/11/2011	No submitted	Yes	
D6.2	Web service and interface client for interoperable energy management support		6	3 (OG)	P	PU	21	31/05/2012	No submitted	Yes	
D6.3	Full prototype of the energy-related tools for facilities operation and lifecycle management		6	3 (OG)	P	PU	27	30/11/2012	No submitted	Yes	
D7.1	Specification of the functionality and the technical architecture of the nD navigator	1.4	7	2 (NEM)	O	CO	12	31/08/2011	Submitted	Yes	Document, 20 p.
D7.2	Services for time/space navigation, filtering, statistical smoothing and context-related views		7	2 (NEM)	P	PU	24	30/08/2012	No submitted	Yes	
D7.3	Integrated nD Navigator prototype		7	2 (NEM)	P	PU	27	30/11/2012	No submitted	Yes	
D8.1	Deployed interoperable SOA system of the IVEL		8	3 (OG)	P	CO	18	29/02/2012	No submitted	Yes	

D8.2	Integrated interoperability methods		8	3 (OG)	P	PU	24	31/08/2012	No submitted	Yes	
D8.3	Full integrated operational prototype of the IVEL		8	3 (OG)	P	PU	30	28/02/2013	No submitted	Yes	
D8.4.1	Initial Exploitation Plan	1.0	8	2 (NEM)	O	CO	9	31/12/2011	No submitted	Yes	Delayed repeatedly. Explanation will be provided by the responsible partner, NEM
D8.4.2	Final Exploitation Plan		8	2 (NEM)	O	CO	36	31/08/2013	No submitted	Yes	
D9.1	Requirements synthesis and energy-related key performance indicators	1.2	9	4 (BAM / BDE, BNL)	O	CO	12	31/08/2011	Submitted	Yes	Document, 31 p.
D9.2.1	Recorded evidence on benefits and costs of selected public use facilities (initial specification)		9	5 (OPB)	O	CO	24	31/08/2012	No submitted	Yes	
D9.2.2	Recorded evidence on benefits and costs of selected public use facilities (final specification)		9	4 (BAM/BDE)	O	PU	33	31/05/2013	No submitted	Yes	
D9.3	System deployment and public demonstrators		9	4 (BAM)	D	PU	36	31/08/2013	No submitted	Yes	
D10.1	Project Web site, Video and Wiki	1.1	10	2 (NEM)	O	PU	3	31/10/2011	No submitted	Yes	Rolling deliverable, continuously evolved during the project
D10.2.1	Project newsletter #1	1.1	10	1 (TUD-CIB)	O	PU	9	31/05/2011	Submitted	Yes	
D10.2.2	Project newsletter #2		10	2 (NEM)	O	PU	18	29/02/2012	No submitted	Yes	

D10.2.3	Project newsletter #3		10	1 (TUD-CIB)	O	PU	24	31/08/2012	No submitted	Yes	
D10.2.4	Project newsletter #4		10	2 (NEM)	O	PU	36	31/08/2013	No submitted	Yes	
D10.3.1	Intermediate public workshop		10	5 (OPB)	O	PU	24	31/08/2012	No submitted	Yes	
D10.3.2	Final public workshop		10	4 (BAM/BNL)	O	PU	36	31/08/2013	No submitted	Yes	
D11.1.1	Periodic Report 1	1.0	11	1 (TUD-CIB)	R	PU/CO	12	08/12/2011	Submitted	Yes	Confidential, except for Chapter 1 (PU); Delayed mainly due to the delayed submission of Contract Amendment #1
D11.1.2	Periodic Report 2		11	1 (TUD-CIB)	R	PU/CO	24	31/08/2012	No submitted	Yes	See above comment
D11.1.3	Periodic Report 3		11	1 (TUD-CIB)	R	PU/CO	36	31/08/2013	No submitted	Yes	Coincides with the final report (D11.4); therefore requested to be cancelled
D11.2	Project collaboration infrastructure	1.3	11	1 (TUD-CIB)	O	CO	3	30/11/2010	Submitted	Yes	Collab. infrastructure continuously evolved during the project; available online & as tech. report on 9 pg. SharePoint: https://hesmos@cib.bau.tu-dresden.de
D11.3	Project Manual	1.4	11	1 (TUD-CIB)	O	CO	4	07/01/2011	Submitted	Yes	Document, 21 p.
D11.4	Final Report		11	1 (TUD-CIB)	R	PU	36	31/08/2013	No submitted	Yes	

4.2 Milestones

This table is cumulative. It shows all milestones from the beginning of the project. The milestones that are scheduled for this reporting period are marked by grey background for easier reference.

TABLE 2. MILESTONES							
Milestone no.	Milestone name	Work package no	Lead beneficiary	Delivery date from Annex I dd/mm/yyyy	Achieved Yes/No	Actual / Forecast achievement date dd/mm/yyyy	Comments
MS1	Impacts, Requirements and Architecture	1, 2, 10, 11	4	01/06/2011	Yes	30/07/2011	Delay of ca. 2 months due to delay in D2.1 and related to that delay in D2.2. These delays are explained in detail in the executive summaries of the deliverable documents.
MS2	Intermediate development decisions	3, 4, 7, 9, 11	2	01/09/2011	Yes	01/09/2011	The objectives of MS2 were achieved except for Deliverable D8.4.1 which is still in work. Intermediate development decisions were taken with regard to the basic BIM model, the further development of the project web site and the risk management.
MS3	Initial Software Prototypes	3, 4, 5, 6, 7, 8, 10, 11	1	01/03/2012	No	01/03/2012	No delays or other problems currently expected.
MS4	Full prototypes of the eeBIM-CAD and the intelligent access services	3, 4, 5, 6, 7, 8, 10, 11	1	01/09/2012	No	01/09/2012	
MS5	Prototype of the IVEL and fully integrated system	5, 6, 7, 8, 9, 10, 11	3	01/03/2013	No	01/03/2013	
MS6	Public demonstrators, public workshop & final report	9, 10, 11	1	01/09/2013	No	01/09/2013	

V. Explanation of the use of the resources

TABLE 5.1 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR BENEFICIARY 1 TUD FOR THE PERIOD 01/09/10 – 31/08/11

Work Package	Item description	Amount	Explanations
1,2,4,5,8,10	Personnel costs (RTD)	71,556.63 €	Salaries of 6 researchers under a variable regime 18,59 person months in total over 12 months <u>Details:</u> 1 for 12 months, variable with average of 75% 1 for 4,25 months at 62,5%, 1 for 2 months at 50%, 1 for 1,25 month at 100%, 1 for 6 months at 100%, and 1 for 2 months at 100%
9	Personnel costs (DEM)	1,157.42 €	Salary of 1 person for work done in WP 9 for 0,29 person months spread over 2 months; these costs are demonstration costs and are thereby funded by 50%.
11	Personnel costs (MGT)	9,734.84 €	Salary of 1 person in charge of administration and coordination of the project for 2,54 person months spread over 12 months; these costs are management costs and are thereby funded by 100%.
1-8, 10	Travel costs (RTD)	18,984.61 €	Travel costs for (in descending time order): <ul style="list-style-type: none"> • 6 persons to Helsinki (FI), General Assembly & Technical Meeting, 08-11.06.11 • 1 person to Florence (IT), HESMOS Presentation at the EU Conference eChallenges 2011, 25-30.10.11 (pre-payment) • 1 person to Brussels (BE), HESMOS presentation, 15-16.05.11 • 2 persons to Jülich (DE), HESMOS Presentation at the German Strategy Meeting eeBIM, 04.04.11 • 5 persons to Bratislava (SK), General Assembly & Technical Meeting, 23-26.03.11 • 1 person to Stuttgart (DE), Technical Meeting – IDM Development, 02-04.02.11 • 3 persons to Brussels (BE), Attendance at Workshop on ICT4EE Data Models, 23-25.01.11 • 5 persons to Munich (DE), General Assembly & Technical Meeting, 19-22.01.11 • 1 person to Brussels (BE), EU Workshop, HESMOS presentation, 25-27.11.10 • 1 person to Treuen (DE), HESMOS discussion and presentation at Goldbeck Weiburg regarding associated partnership, 23.11.10 • 1 person to Nice (FR), Proj. Collab. Meeting HESMOS, 17-20.11.10 • 1 person to Cairo (EG), HESMOS Presentation at the CIB-W78 Conference and BuildingSMART Workshop, 14-20.11.10 • 1 person in Dresden (DE) at the German specialty conference "IT-Forschung des BMBF: Fachkonferenz Bauinformatik – Bau-praxis", 22.10.10 • 1 person to Chemnitz (DE), Participation at the event on "Energie-optimierung mit Regeltechnik", 30.09.10 • 7 persons to Ludwigsburg + Stuttgart (DE), HESMOS Pre-Meeting at BAM-DE and HESMOS Kick-Off Meeting, 26-28.09.10 • 1 person to Cork (IE), HESMOS Presentation at the ECPPM 2010 Conference, 13-18.09.10 • 1 person to Bunnik (NL), Meeting at BAM-NL, 08.09.10
9	Travel costs (DEM)	419.07 €	Prorated costs of the above mentioned travels; these costs are demonstration costs and thereby funded by 50%
1-8, 10	Remaining direct costs (RTD)	464.40 €	Other running costs to implement the project. (depreciation printer, laptop)
TOTAL DIRECT COSTS		102,316.97 €	

**TABLE 5.2 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR
BENEFICIARY 2 NEM FOR THE PERIOD 01/09/10 – 31/08/11**

Work Package	Item description	Amount	Explanations
1	Personnel costs (RTD)	12,707.75 €	Salaries of 4 persons involved in WP1 under a variable regime (~ 3.3 PM in total)
2	Personnel costs (RTD)	18,630.41 €	Salaries of 4 persons involved in WP2 under a variable regime (~ 4.3 PM in total)
3	Personnel costs (RTD)	232,470.04 €	Salaries of 21 persons involved in WP3 under a variable regime (~ 81 PM in total). During the proposal phase of HESMOS, Nemetschek had counted mainly with highly qualified development experts for the realisation of the HESMOS tasks. However, in the course of the work the specific focus on eeBIM development appeared to require solution of a large number of technical tasks regarding CAD and overall system operability. This necessitated the involvement of a larger number of less experienced employees that could be engaged in parallel to cope with technical issues and avoid delays. Hence, a significantly increased number of person months than originally planned were used. This decision is budget neutral.
7	Personnel costs (RTD)	22,896.53 €	Salaries of 8 persons involved in WP7 under a variable regime (~ 7.4 PM in total). For WP7 similar considerations as for WP3 apply. However, the amount of less qualified technical work necessary at this stage was not so high in comparison with WP3. Therefore, the increase of person months needed is smaller. This decision is also budget neutral.
11	Personnel costs (MGT)	3.559,76 €	Salary for management tasks. These costs are management costs and are thereby funded by 100%.
1,2,3,7,10	Travel costs (RTD)	6,380.24 €	Travel costs for coordination meetings (11 persons in total at various times to Munich, DE)
TOTAL DIRECT COSTS		296.644,73 €	

**TABLE 5.3 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR
BENEFICIARY 3 OG FOR THE PERIOD 01/09/10 – 31/08/11**

Work Package	Item description	Amount	Explanations
1	Personnel costs (RTD)	23,596.40 €	Salaries of 8 persons involved in WP1 under a variable regime (~ 3.3 PM in total)
2	Personnel costs (RTD)	49,725.09 €	Salaries of 8 persons involved in WP2 under a variable regime (~ 6.2 PM in total)
3	Personnel costs (RTD)	23,735.69 €	Salaries of 4 persons involved in WP3 under a variable regime (~ 3.4 PM in total).
5	Personnel costs (RTD)	22,467.48 €	Salaries of 4 persons involved in WP5 under a variable regime (~ 4.6 PM in total)
6	Personnel costs (RTD)	49,059.09 €	Salaries of 5 persons involved in WP6 under a variable regime (~ 6.5 PM in total)
7	Personnel costs (RTD)	1,243.70 €	Salaries of 2 persons involved in WP7 under a variable regime (~ 0.12 PM in total)
9	Personnel costs (DEM)	1,790.66 €	Salaries of 6 persons involved in WP9 under a variable regime (~ 0.33 PM in total).
11	Personnel costs (MGT)	6,087.44 €	Salary of 2 persons for management tasks (~ 0.63 PM in total).

			These costs are management costs and are thereby funded by 100%.
1-8	Travel costs (RTD)	6,319.87 €	Travel costs for (in descending time order): <ul style="list-style-type: none"> • 2 persons, Energy simulation meeting 7-8.4.2011, Glasgow, UK • 2 persons, HESMOS GA & Tech. Meeting, 24.-25.3.2011, Bratislava, SK • 2 persons, HESMOS GA & Tech. Meeting, 20.-21.1.2011, Munich, DE • 1 person, Meeting with AEC3, 23-24.11.2010, Copenhagen, DK • 2 persons, HESMOS Kick-Off, 27-28.9.2010, Stuttgart, DE • 1 person, BuildingSMART ISG, 23.9.2010, Hoofddorp, NL
TOTAL DIRECT COSTS		184.025,42 €	

TABLE 5.4 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR BENEFICIARY 4 BAM FOR THE PERIOD 01/09/10 – 31/08/11

Work Package	Item description	Amount	Explanations
1-11	Personnel and other costs	0,00 €	BAM is represented in HESMOS mainly via its independent subsidiaries acting as third-parties. This is explained in detail in the updated DoW submitted for the 1st Contract Amendment of HESMOS. Hence, work of the Royal BAM Group is focused on management activities, which are provided for free, i.e. without requested EU funding.
TOTAL DIRECT COSTS		0,00 €	

TABLE 5.4A PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR THIRD-PARTY BDE LINKED TO BENEFICIARY 4 FOR THE PERIOD 01/09/10 – 31/08/11

Work Package	Item description	Amount	Explanations
1	Personnel costs	32,048.16 €	Salaries of personnel for WP1, research (~ 5.0 PM in total).
4	Personnel costs	3,914.06 €	Salaries of personnel for WP4, research (~ 0.5 PM in total).
9	Personnel costs	33,356.05 €	Salaries of personnel for WP9, demonstration (~ 4.6 PM in total).
11	Personnel costs	4,130.32 €	Salaries of personnel for management (~ 0.5 PM in total, funding 100%).
1-8; 10	Travel costs	2,952.05 €	Travel costs for (in descending time order): <ul style="list-style-type: none"> • HESMOS GA and Technical Meeting, 09-10.06.11, Helsinki, FI • HESMOS Exchange Requirements Meeting, 11-12.04.11, Essen, DE • HESMOS GA and Technical Meeting, 24-25.03.11, Bratislava, SK • HESMOS GA and Technical Meeting, 20-21.01.11, Munich, DE • BAM HESMOS Meeting, 24.11.10, Bunnik, NL
1-8; 10	Other direct costs	1,130.73 €	• Subsistence for the HESMOS Kick-Off, 27-28.09.10, Stuttgart, DE
TOTAL DIRECT COSTS		77,531.37 €	

TABLE 5.4B PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR THIRD-PARTY BNL LINKED TO BENEFICIARY 4 FOR THE PERIOD 01/09/10 – 31/08/11

Work Package	Item description	Amount	Explanations
1	Personnel costs	10,625.09 €	Salaries of personnel for WP1, research (~ 1.8 PM in total).
3	Personnel costs	1,353.32 €	Salaries of personnel for WP4, research (~ 0.25 PM in total).
7	Personnel costs	1,042.53 €	Salaries of personnel for WP7, research (~ 0.15 PM in total).
9	Personnel costs	2,334.63 €	Salaries of personnel for WP9, demonstration (~ 0.35 PM in total).
1-8;10	Travel costs	2,079.03 €	Travel costs for (in descending time order): <ul style="list-style-type: none"> • HESMOS GA and Technical Meeting, 09-10.06.11, Helsinki, FI • HESMOS GA and Technical Meeting, 20-21.01.11, Munich, DE • HESMOS Kick-Off Meeting, 27-28.09.10, Stuttgart, DE

TOTAL DIRECT COSTS	17,434.60 €
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**TABLE 5.5 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR
BENEFICIARY 5 **OPB** FOR THE PERIOD 01/09/10 – 31/08/11**

Work Package	Item description	Amount	Explanations
1	Personnel costs (RTD)	29,804.78 €	Salaries of 2 persons involved in WP1 under a variable regime (~ 3.5 PM in total)
3	Personnel costs (RTD)	6,278.34 €	Salaries of 3 persons involved in WP3 under a variable regime (~ 0.8 PM in total).
6	Personnel costs (RTD)	9,185.09 €	Salaries of 3 persons involved in WP6 under a variable regime (~ 1.1 PM in total)
7	Personnel costs (RTD)	2,462.00 €	Salaries of 2 persons involved in WP7 under a variable regime (~ 0.3 PM in total)
9	Personnel costs (DEM)	12,171.46 €	Salaries of 2 persons involved in WP9 under a variable regime (~ 1.5 PM in total).
10	Personnel costs (RTD)	5,749.02 €	Salaries of 2 persons involved in WP9 under a variable regime (~ 0.7 PM in total).
11	Personnel costs (MGT)	6,222.41 €	Salaries of 3 persons for management tasks (~ 0.7 PM in total). These costs are management costs and are thereby funded by 100%.
1-8;10	Travel costs (RTD)	3,447.88 €	Travel costs for meetings at Stuttgart, DE (9/2010), Villach, AT (11/2010), Bratislava, SK (3/2011), Helsinki, FI (5/2011).
TOTAL DIRECT COSTS		75,320.97 €	

**TABLE 5.6 PERSONNEL, SUBCONTRACTING AND OTHER MAJOR DIRECT COST ITEMS FOR
BENEFICIARY 6 **AEC** FOR THE PERIOD 01/09/10 – 31/08/11**

Work Package	Item description	Amount	Explanations
1	Personnel costs (RTD)	10,795.58 €	Salaries of employees for WP1, research (~ 2.3 PM in total)
2	Personnel costs (RTD)	13,905.00 €	Salaries of employees for WP2, research (~ 3.2 PM in total)
3	Personnel costs (RTD)	4,487.50 €	Salaries of employees for WP3, research (~ 0.8 PM in total)
11	Personnel costs (MGT)	2,275.00 €	Salaries of employees for WP11, management (~ 0.4 PM in total). These are management costs and are thereby funded by 100%.
1-3	Travel costs (RTD)	437.31 €	Travels for technical WP meetings: <ul style="list-style-type: none"> • 1 person, 28.02.2011 to Dresden, DE • 1 person, 03.02.2011 to Stuttgart, DE
11	Travel costs (MGT)	1,404.72 €	Travels for management (General Assembly Meetings): <ul style="list-style-type: none"> • 1 person, 09.06.2011 to Helsinki, DE • 1 Person, 24.03.2011 to Bratislava, SK • 1 Person, 21.01.2011 to München, DE • 1 Person, 28.09.2010 to Stuttgart, DE
TOTAL DIRECT COSTS		33.305,11 €	