Action full title:

Universal, mobile-centric and opportunistic communications architecture

Action acronym:

UMOBILE

Deliverable:

D1.3 “Project Management Reports (1)”

Project Information:

Project Full Title	Universal, mobile-centric and opportunistic communications architecture
Project Acronym	UMOBILE
Grant agreement number	645124
Call identifier	H2020-ICT-2014-1
Topic	ICT-05-2014 Smart Networks and novel Internet Architectures
Programme	EU Framework Programme for Research and Innovation HORIZON 2020
Project Coordinator	Prof. Vassilis Tsaoussidis, Democritus University of Thrace

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Deliverable Information:

Deliverable Number-Title	D1.3 Project Management Reports (1)
WP Number	WP1
WP Leader	Prof. Vassilis Tsaoussidis
Task Leader (s)	Agapi Papakonstantinou
Contributing Partners	All partners
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Due date	31/7/2016
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PU	Public	
CO	Confidential, only for members of the consortium (including the Commission Services)	x
CI	Classified, as referred to in Commission Decision 2001/844/EC	

Document History:

Version	**Date**	**Description**
Version 1	30/6/16	First draft to the consortium for comments and feedback
Version 2	27/7/16	Second draft to the consortium for approval
Version 3	29/7/16	Final deliverable

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Abbreviations and Acronyms

EU	European Union
WP	Work Package
ICT	Information and communication technologies
EC	European Commission
DESCA	Development of a Simplified Consortium Agreement
PCC	Project Coordination Committee
PTC	Project Technical Committee
IPR	Intellectual Property Rights

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Executive Summary

Background: This report is written in the framework of Tasks 1.2. "Project Administration" and 1.3 "Periodic Management Reports" of UMOBILE project and summarizes the management activities that took place during the first reporting period of the project (February 2015-July 2016). It also presents the key issues addressed in the project, achievements and open issues.

Objectives: The aim of this report is to inform about UMOBILE management procedures and activities that took place from the beginning of the project till the end of the 1st reporting period, July 2016. Deviations from project plan and open issues are also presented.

Results and implications: Full report of management activities and proposed changes to the workplan. It must be noticed that this report express only the authors' views -the European Commission is not liable for any use that may be made of the information contained therein.

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Introduction

This report is divided into three sections: Section 1 describes UMOBILE management activities and Work Package 1 progress during the period February 2015 – July 2016. The second Section presents deviations from the project plan during the 1st reporting period of the project. In Section 3, the internal management reports that have been submitted to the Project Officer are presented.

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Section 1- Part A/Project management activities

"Universal, mobile-centric and opportunistic communications architecture-UMOBILE" proposal was submitted in "H2020-ICT-2014" call, under "ICT-05-2014 Smart Networks and novel Internet Architectures" topic. "H2020-ICT-2014" results were announced in September 2014; the proposal was positively evaluated and the grant agreement was signed in December 2014. UMOBILE project will be implemented in 6 work packages:

WP1 "Project Management"
WP2 "System requirements"
WP3 "System and node architecture development"
WP4 "Services enablement"
WP5 "Overall platform integration and validation"
WP6 "Dissemination, exploitation and standardisation".

Deliverable 1.3 "Project Management Reports (1)" describes WP1 progress from the beginning of the project (February 2015) till the end of the 1st reporting period (July 2016).

The following project management activities took place during the 1st reporting period of the project, February 2015 – July 2016:

- Consortium agreement signature
- Prefinancing distribution
- Project meetings
- Internal management reports preparation
- Management deliverables preparation
- Amendment signature
- Mailing lists administration
- Internal website administration
- Management tools update
- Research participant portal administration
- Periodic report preparation.

1.1. Consortium agreement signature

UMOBILE Coordinator prepared and circulated a consortium agreement draft on 03-10-2014, during the grant agreement preparation phase. After submission of comments from all beneficiaries and circulation of several other versions of the consortium agreement, the final UMOBILE consortium agreement was signed on 19/01/2015. UMOBILE consortium agreement is based on DESCA model and defines the relationships between partners: management of the project, rights and obligations of the parties concerning access rights, dispute resolution etc.

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1.2. Prefinancing distribution

UMOBILE Coordinator, DUTH, received EU prefinancing on 29/01/2015 and distributed it to UMOBILE beneficiaries in due time (bank transfers were ordered on 06/02/15). Based on the consortium agreement the prefinancing was distributed according to each beneficiary share on the project budget. UMOBILE prefinancing was distributed according to the following table:

A)	**U-MOBILE BUDGET**	3.010.742,00 €
B)	**PRE-FINANCING (33% OF TOTAL GRANT)**	993.544,00 €
C)	**GUARANTEE FUND (5% OF TOTAL GRANT)**	150.537,10 €
D)	**NET PRE-FINANCING (B-C)**	**843.006,90 €**
E)	**EACH PARNTER PROJECT SHARE TO THE BUDGET:**	
1	DUTH	12,64%
2	UCL	14,85%
3	UCAM	19,92%
4	COPELABS—COFAC	8,84%
5	TECNALIA	9,28%
6	TEKEVER AU	10,60%
7	SENCEPTION	5,56%
8	FON TECHNOLOGY	7,68%
9	AFA SYSTEMS	10,64%
F)	**NET PRE-FINANCING DISTRIBUTION**	
1	DUTH	106.539,89 €
2	UCL	125.159,87 €
3	UCAM	167.941,24 €
4	COPELABS—COFAC	74.549,92 €
5	TECNALIA	78.189,92 €
6	TEKEVER AU	89.319,91 €
7	SENCEPTION	46.899,95 €
8	FON TECHNOLOGY	64.736,28 €
9	AFA SYSTEMS	89.669,91 €

1.3. Project meetings

Project meetings are a significant management tool and took place either physically or through teleconference. Project meeting procedures are defined in the consortium agreement and also in the project handbook and are applied not only to the physical meetings but also to the meetings that took place via teleconference. The main meetings procedure is described below:

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- ❖ UMOBILE Coordinator is in charge of the agenda preparation that it is circulated by e-mail to all consortium members
- ❖ Beneficiaries can add items to the agenda
- ❖ All partners are present to each meeting with at least with one participant
- ❖ Meeting minutes are circulated via e-mail by the project Coordinator
- ❖ Both meeting agenda and minutes are uploaded to the internal website.

During the kick off meeting UMOBILE consortium decided to arrange monthly meetings via teleconference in order to handle any issue that would arise in the project. As a result 3 physical and 12 teleconference meetings were arranged within the 1st reporting period of the project. Some of them are Technical and Steering Committee meetings, whereas 2 of them are also IPR Committee meetings. The following table includes all relevant details:

Dates	**Meeting Description**	**Location**
26/2/15-27/2/15	Kick-off meeting, technical and steering committee meeting, Work Packages plan & procedures arrangement	UCL premises, London, United Kingdom
26/3/15	Monthly teleconference, technical meeting, active work packages review/coordination	-
30/4/15	Monthly teleconference, technical meeting, active work packages review/coordination	-
25/6/15	Monthly teleconference, technical meeting, wp2: deliverable comment and task 2.2 coordination, wp6: activities plan	-
30/7/15	Monthly teleconference, technical meeting, deliverables 1.2, 6.1, 6.10 comment, WP2, WP3, WP4: update, wp6: activities plan	-
24/9/15	Monthly teleconference, technical and IPR committee meeting, WP2, WP3, WP4: workplan, IPR committee meeting: exploitation findings & intentions	-
29/10/15	Monthly teleconference, technical meeting on UMOBILE architecture	-
09/12/15-10/12/15	1st intermediate meeting, technical meeting on WP3, WP4	UCL premises, London, United Kingdom
28/1/16	Monthly teleconference, technical and Steering Committee meeting, Deliverables 3.3 & 6.6 comment, WP6 activities update, next meeting organization, Coordination Committee meeting	-
25/2/16	Monthly teleconference, technical and Steering Committee meeting, Deliverable 2.2 comment, Tasks 3.1 & 4.1 coordination, dissemination activities plan, Coordination Committee meeting	-
31/3/16	Monthly teleconference, technical meeting, WP1, WP2, WP3, WP4, WP6 update, next meeting arrangements	-

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12/4/16-13/4/16	2nd intermediate meeting	DUTH premises, Xanthi, Greece
26/5/16	Monthly teleconference, technical meeting, WP1, WP2, WP3, WP4, WP6 update	-
30/6/16	Monthly teleconference, WP1, WP2, WP3, WP4, WP6 update. WP5 first steps.	-
28/7/16	Monthly teleconference, WP1, WP2, WP3, WP4, WP6 update. Deliverables final check. WP5 first steps. IPR committee meeting: exploitation findings & intentions	-

1.4. Internal management reports

UMOBILE Coordinator prepared the templates for the internal management reports:

- "beneficiary management internal report template" that each beneficiary should fill and send to the Project Coordinator
- "project internal management template" that the Coordinator fills based on the beneficiaries reports.

Procedure and deadlines were agreed on the kick off meeting and reported on the project handbook.

Prior to the end of each reporting period UMOBILE Coordinator reminded the beneficiaries of deadlines regarding internal reports, collected each beneficiary report, contacted the beneficiaries in case of deficiencies or questions and then compiled a synthesis report that includes:

- achievements per work package for the reporting period;
- work planned per work package for the next reporting period;
- problems/risks arose during the period, or risks foreseen;
- resources used during the period and;
- deviations from Annex 2 or paragraph 2.3.5.
- evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators.

The final consortium reports were forwarded to consortium members and finally submitted to the Project Officer.

5 internal management reports were prepared and submitted during UMOBILE 1st reporting period:

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Report number	Reporting period	Report submitted to the Project Officer on:
1	M1-M3 (February 2015-April 2015)	27/05/2015
2	M4-M6 (May 2015-July 2015)	11/09/2015
3	M7-M9 (August 2015-October 2015)	01/12/2015
4	M10-M12 (November-January 2016)	29/02/2016
5	M13-15 (February 2016-April 2016)	10/06/2016

Internal management reports are a significant management tool that:

1. gives the opportunity to the whole consortium to have a clear picture of the project progress and risks

2. gives the opportunity to the Coordinator to check and report deviations regarding personmonths, resources etc. Such deviations will be reported on part b.

1.5. Management Deliverables preparation

Three deliverables were prepared and submitted under WP1. UMOBILE Coordinator was responsible for the deliverables preparation. Beneficiaries provided feedback when needed and the deliverables were submitted according to workplan, as depicted below:

- Deliverable 1.1 "Project Handbook" was submitted on 29/04/2015
- Deliverable 1.2 "External Liaison Overview" was submitted on 31/07/2015
- Deliverable 1.3 "Project Management Reports (1)" (i.e. the present report) submitted on 29/7/16.

1.6. Amendment

UMOBILE consortium was informed about the 1st project amendment that was launched by the European Commission regarding grant agreement Articles 20.6, 21.2, 34.3, 38.1.1.2. UMOBILE Coordinator signed the amendment within the deadline.

UMOBILE Coordinator informed the consortium about the revised version of Horizon 2020 model grant agreement adopted by the European Commission (July 2016).

1.7. Mailing lists

UCL created UMOBILE e-mail list: Umobile@ee.ucl.ac.uk, which includes all team members; UCL is responsible for administrating the list.

UMOBILE e-mail list has been actively used by all partners as a main communication tool between them. Minor issues with temporarily blocked addresses due to some partners' mail server configurations were reported. This issue was handled successfully by UCL.

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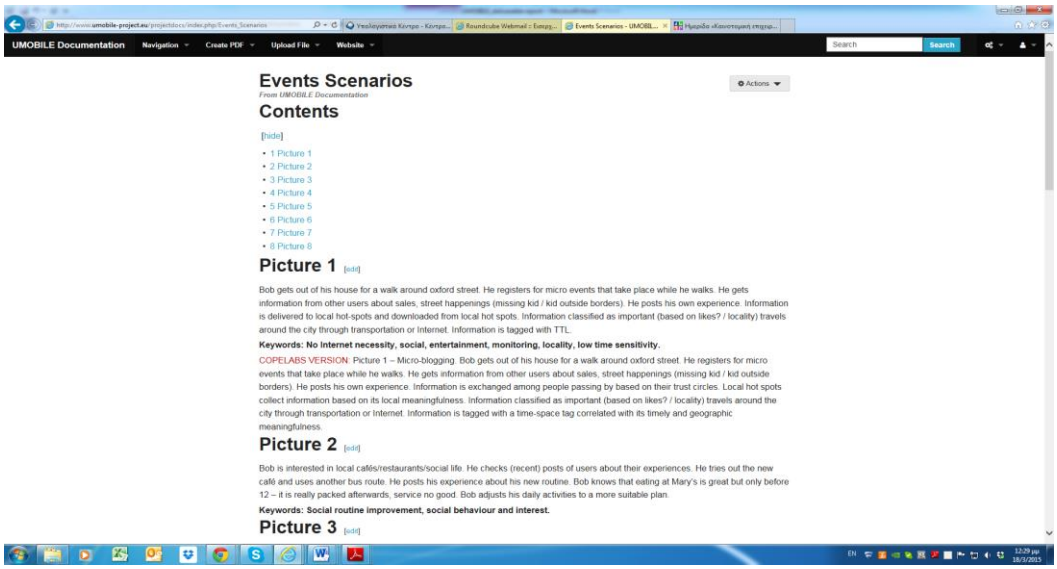
1.8. Internal website

According to UMOBILE workplan, the Leader of Work Package 6, AFA Systems, created the internal website of the project, based on an extended implementation of the popular framework "Mediawiki". Consortium members can access UMOBILE internal website through this link:

http://www.umobile-project.eu/projectdocs/index.php/Main_Page

It helps consortium members to collaborate easily on writing documents. With its embedded revision system, it provides the management of changes to documents, saving version histories of all pages. Each page is tagged in appropriate categories in order to easily search and navigate the whole document structure.

All management material along with updated technical work and dissemination activities are typically uploaded there. The internal website gives the opportunity for discussions among the consortium members and allows for preparing collaborative reports. It is also possible to draft deliverables through the internal website and convert them directly in PDF format ready to be uploaded to the EC portal. The internal website is integrated with an advanced access control list (ACL) system, in order to grant the access to consortium members and possibly a restricted access to other users.



1.9. Management tools update

- UMOBILE calendar: A UMOBILE calendar with information on upcoming meetings, deliverables, milestones and reports per month is updated on a monthly basis, included in the internal management reports and uploaded in UMOBILE internal website.

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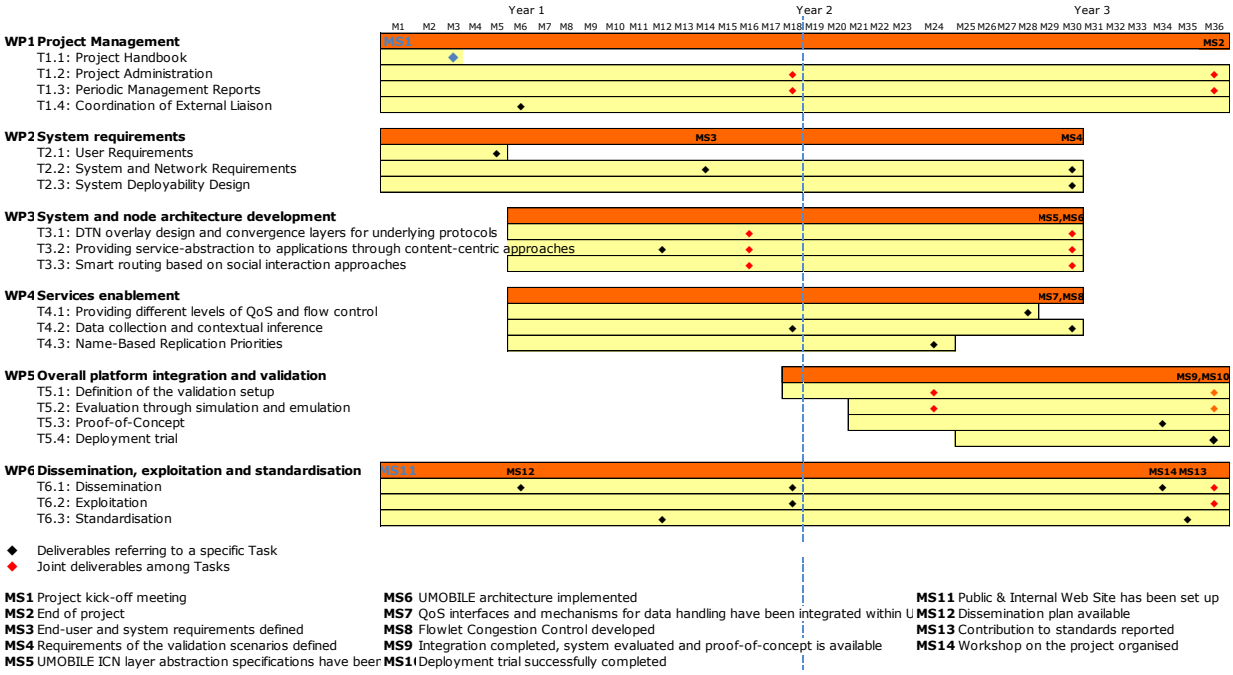
Project Month	Meeting	Deliverable	Milestone	Report	Additional events
February 2015	Kick off meeting	-	MS1 Kick off meeting MS11 Public & Internal website has been set up	-	Project presentation within SITI/Copelabs
March 2015	teleconference: 26/3/15	-	-	-	25/3/15 Future Internet Architectures Cluster
April 2015	teleconference: 30/4/15	D1.1 Project Handbook	-	-	
May 2015	teleconference: 28/5/15	-	-	3monthly report for: M1 to M3	MobiSys DIYNetworking 2015 WWIC 2015
June 2015	teleconference: 25/6/15	D2.1 End-user requirements report	-	-	COPELABS Openday event Cosener's 2015
July 2015	teleconference: 30/7/15	D1.2 External Liaison Overview D6.1 Dissemination plan D6.10 Data Management Plan	MS12 Dissemination Plan available	-	ICNRG&IRTF GAIA meeting
August 2015	-	-	-	3monthly report for: M4 to M6	
September 2015	teleconference: 24/9/15	-	-	-	
October 2015	teleconference: 29/10/15	-	-	-	ICT 2015, ICN 2015, ICNRG meeting,
November 2015	-	-	-	3monthly report for: M7 to M9	ICSNC 2015, IRTF GAIA meeting
December 2015	UMOBILE architecture meeting: 09-10/12/15	-	-	-	ACM DEV 2015
January 2016	teleconference: 28/1/16	D3.3 UMOBILE ICN layer aabstraction initial specification D6.6 Standardisation Plan	-	-	CCNC 2016, IRTF ICNRG meeting
February 2016	teleconference: 25/2/16	-	-	3monthly report for: M10 to M12	IEEE Infocom, 2016 ICTP workshop, IETF meeting
March 2016	teleconference: 31/3/16	D2.2 System and Network requirement specifications	MS3 End-user and system requirements defined	-	
April 2016	3rd physical meeting: 12/4/16-13/4/16	-	-	-	
May 2016	teleconference: 26/5/16	D3.1 UMOBILE architecture report		3monthly report for: M13 to M15	
June 2016	teleconference: 30/6/16	-	-		
July 2016	teleconference: 28/7/16	D1.3 Project Management reports D6.2 Dissemination Report D4.1 Flowlet Congestion Control-Initial Report D6.4 Exploitation Plan	-	1st periodic report	
August 2016	teleconference: 25/8/16	-	-	1st periodic report & 3monthly report for: M16 to M18	
September 2016	teleconference: 28/9/16	-	-	1st periodic report	
October 2016	1st project review teleconference: 27/10/16 4thproject meeting ?	-	-	-	
November 2016	teleconference: 24/11/16	-	-	3monthly report for: M19 to M21	
December 2016	teleconference: 29/12/16	-	-	-	
January 2017	teleconference: 26/1/17	D4.2 Flowlet Congestion Control-Final Report D4.3 Name-based Replication Priorities D5.1 Validation methodology and evaluation report D5.3 Proof of Concept	-	-	
February 2017	teleconference: 23/2/17	-	-	3monthly report for: M22 to M24	
March 2017	teleconference: 30/3/17	-	-	-	
April 2017	teleconference: 27/4/17 5th project meeting ?	-	-	-	
May 2017	teleconference: 25/5/17	algorithms	-	3monthly report for: M25 to M27	
June 2017	teleconference: 29/6/17	-	-	-	
July 2017	teleconference: 27/7/17	D2.3 System and Network requirement specifications D2.4 System and Network Deployability Design D3.2 UMOBILE architecture report D3.4 UMOBILE ICN layer abstraction final specification D4.5 Report of data collection and inference models	MS4 Requirements of the validation scenarios defined MS5 UMOBILE ICN layer abstraction specifications have been defined MS6 UMOBILE architecture implemented MS7 QoS interfaces and mechanisms for data handling have been integrated within UMOBILE platform MS8 Flowlet Congestion Control Developed	-	
August 2017	teleconference: 31/8/17	-	-	3monthly report for: M28 to M30	
September 2017	teleconference: 28/9/17	-	-	-	
October 2017	teleconference: 26/10/17	-	-	-	
November 2017	teleconference: 30/11/17 6th project meeting?	D5.4 Proof-of-Concept	MS14 Workshop on UMOBILE project organised	3monthly report for: M31 to M33	
December 2017	teleconference: 28/12/17	D6.7 Standardisation report	MS13 contribution to standards reported		
January 2018	teleconference: 25/1/18	D1.4 Project Management reports D5.2 Validation methodology and evaluation report D5.5 Report on the validation of the deployment trial D6.3 Dissemination Report D6.5 Exploitation report D6.8 Awareness and Wider Societal Implications D6.9 Final plan for the Use and Dissemination of Foreground	MS2 End of Project MS9 Integration completed, system evaluated and proof-of-concept is available MS10 Deployment trial successfully completed	3monthly report for: M34 to M36	
February 2018	teleconference: 25/2/18			Periodic & Final report	
March 2018	teleconference: 29/3/18			Periodic & Final report	

- Gantt chart: UMOBILE gantt chart is updated on a monthly basis and it is included in the internal management reports



- Communication platform details: a template of the communication details of each consortium member was drafted from the beginning of the project and is updated accordingly

- Management structure template: the management structure of the project was defined in the Kick off meeting. A new version of this structure was agreed after the end of the 1st year of the project. The current management structure is:

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UMOBILE MANAGEMENT STRUCTURE	
Project Coordinator	Prof. Vassilis Tsaoussidis
Project Coordination Committee	DUTH – Vassilis Tsaoussidis
	UCL – George Pavlou
	UCAM – Arjuna Sathiaseelan
	COPELABS—COFAC – Paulo Mendes
	TECNALIA – Susana Perez
	TEKEVER AU – Pedro Sinogas
	Senception – Rute Sofia
	Fon Technology – David Valerdi
	AFA Systems – Francesco Amorosa
Project Technical Committee	DUTH – Ioannis Komnios and Sotirios Diamantopoulos
	UCL – Ioannis Psaras
	UCAM – Arjuna Sathiaseelan and Adisorn Lertsinsrubtavee
	COPELABS—COFAC - Paulo Mendes
	TECNALIA – Susana Perez
	TEKEVER AU - Pedro Sinogas
	Senception - Rute Sofia
	Fon Technology - Alberto Pinerda and Jose Pablo Salvador
	AFA Systems – Francesco Amorosa and Gianmichele Russi
WP Leaders	
WP1 Leader	DUTH- Vassilis Tsaoussidis
WP2 Leader	UCAM- Adisorn Lertsinsrubtavee
WP3 Leader	DUTH- Ioannis Komnios and Sotirios Diamantopoulos
WP4 Leader	Senception- Rute Sofia
WP5 Leader	Fon Technology- Alberto Pinerda and Jose Pablo Salvador
WP6 Leader	AFA Systems-– Francesco Amorosa
WP/Task Leader	
Task 1.1 Leader	DUTH – Agapi Papakonstantinou
Task 1.2 Leader	DUTH – Agapi Papakonstantinou
Task 1.3 Leader	DUTH – Agapi Papakonstantinou
Task 1.4 Leader	DUTH – Vassilis Tsaoussidis
Task 2.1 Leader	UCAM - Adisorn Lertsinsrubtavee
Task 2.2 Leader	COPELABS--COFAC - Paulo Mendes
Task 2.3 Leader	TEKEVER AU - Francisco Almeida
Task 3.1 Leader	DUTH – Ioannis Komnios
Task 3.2 Leader	UCL – Ioannis Psaras
Task 3.3 Leader	TECNALIA – Susana Perez, Iñigo Sedano
Task 4.1 Leader	UCAM – Adisorn Lertsinsrubtavee
Task 4.2 Leader	Senception - Rute Sofia
Task 4.3 Leader	UCL - Ioannis Psaras
Task 5.1 Leader	Fon Technology – Alberto Pinerda
Task 5.2 Leader	DUTH – Ioannis Komnios
Task 5.3 Leader	AFA Systems – Francesco Amorosa
Task 5.4 Leader	Fon Technology – Alberto Pinerda
Task 6.1 Leader	AFA Systems - Francesco Amorosa
Task 6.2 Leader	Fon Technology - Jose Pablo Salvador
Task 6.3 Leader	UCAM - Arjuna Sathiaseelan and Adisorn Lertsinsrubtavee
Liaison Delegates	Same as technical committee
IPR Management Committee	Same as technical committee

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1.10. Research Participant Portal administration

UMOBILE Coordinator is in charge of the research participant portal administration.

1.11. Periodic report preparation

UMOBILE Coordinator presented guidelines on the periodic report in the 2nd intermediary project meeting, where UMOBILE consortium agreed also on submission deadlines. After contacting the Project Officer the review meeting was arranged for the 3rd week of October. A more detailed plan for the periodic report coordination was forwarded to the consortium on 15/07/16.

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Section 2- Deviations from workplan

During the 1st reporting period of the project the following deviations from workplan were reported:

2.1 Deviations to personmonths

Beneficiary	Deviation to personmonths	Justification	Other request
DUTH	-	-	-
UCL	-	-	-
UCAM	+ 0,8 to WP2	Minor deviation/ more effort was needed for WP2 tasks	Estimation that 12 personmonths will be needed for WP2 instead of the 9 of the grant agreement. This increase will be needed since the team was relatively junior and needed some time to familiarise with the project. WP4: Anticipation of additional 6 PMs for WP4. This is to accommodate the "extra work" UCAM is carrying out to explore how UMOBILE can provision low cost drones in crisis areas and to explore service migration aspects designed in this work package. Hence UCAM anticipates the extra PMs (there is enough budget since the staff that got recruited were junior compared to originally planned).
COPELABS:	-	-	-
TECNALIA:	-	-	-
TEKEVER:	+ 0,7 to WP2	Minor deviation/ more effort was needed for WP2 tasks	The effort was distributed incorrectly at a proposal stage, since TEKEVER is leading task 2.3, having 1 PM allocated only for activity 2. Therefore, TEKEVER proposes to reallocate 2 PMs from WP5 to WP2.
SENCEPTION:	-	-	-
FON:	-	-	-
AFA:	+ 0,5 to WP2	Minor deviation/ more effort was needed for WP2 tasks	-

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2.2 Resources not described in paragraph 2.3.5

UCAM: UCAM bought 2 PCs for the development task. This purchase was not described in paragraph 2.3.5 of the grant agreement, but it is consistent with UMOBILE workplan

COPELABS: The COPELABS research center is a non-profit private association funded by 5 members, 3 of which represent COFAC, the management entity of Univ Lusofona, where COPELABS is associated. Since the creation of the research lab the personnel from COFAC are seconded to COPELABS. COFAC hires all of the staff and then seconds/temporarily places it in COPELABS, under a certain project. The agreement signed by the COPELABS researchers stipulates COFAC as the employer, being the researcher associated to a specific project, such as UMOBILE.

The protocol between COFAC and COPELABS covers a period until 2020 (as COPELABS has been established as a unit until 2020). All the seconded personnel work in COPELABS premises (a building outside the university main campus). Based on this agreement, COPELABS have to pay COFAC for the time that the personnel dedicate to COPELABS. For this COPELABS performs monthly payments to COFAC referent to the researchers associated to running projects, such as UMOBILE.

This was not foreseen in the grant agreement but it is consistent with UMOBILE workplan and causes no deviation to it.

Tecnalia: equipment for Tecnalia in paragraph 2.3.5 would better be described as "Mobile devices for experiments (instead of "Networking equipment").

2.3 Technical deviations

FON:
FON is leading WP5 "Overall platform integration and validation" but does not participate in WP3 "System and node architecture design". This caused concerns since they are responsible for the demonstration of the UMobile platform but have no involvement in the architecture definition. However, after reviewing the deliverable D3.1 Fon considers that there exists no risk for WP5 demonstration plans.

UCL:
Deviations regarding WP3: We have witnessed a shift of the ICN research community away from proposals for new architectures and a collective effort to advance the already existing ones (with a special focus on the NDN architecture). That said, we have adjusted our proposals to this research trend. In particular, instead of proposing the “Location-Independent Routing Layer”, which builds on the addition of a C-FIB routing table (Content FIB) over an IP architecture, we have instead decided to use NDN as the baseline. NDN is the most promising ICN architecture with more participants in the ICN community, and with more active projects implementation-wise. We think NDN is a perfect candidate as a starting point for our UMOBILE architecture. However, we need to improve NDN scalability by providing a new keyword-based naming system. To provide compatibility with existing mobile user devices, we devise UMOBILE architecture as a layer working on top of IP, where IP is used as a network enabler but only hop-to-hop and linked to the wireless connectivity. Also, in order to provide connectivity between any

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opportunistic UMOBILE device and the fixed network (IP network), we devise a UMOBILE Proxy/Gateway able to translate interest packets to HTTP requests and vice versa. In addition, we plan to add a "Satisfied Interest Table" to the NDN architecture. Our proposal has indeed received wide acceptance from the community, receiving two best paper awards, one in IFIP Networking 2015 conference and one in IEEE LANMAN 2016 symposium. We plan to build on this concept and integrate it in the main NDN architecture and the related codebase."

Deviations regarding WP4: WP3 and WP4 tasks have been planned to run in parallel. UCL is involved in task 3.2 (architecture specifications) and task 4.1 (congestion control and QoS) and 4.3 (name-based priorities). However, WP4 tasks strongly depends on the architecture specification. Because of that, we initially invested more efforts in WP3 than WP4 and task 4.1 and 4.3 kick-off has been postponed from the initial M6.

However, despite these minor tasks shifting, we started doing progress on the tasks and this deviation is not critical since we don't expect to miss any deliverable deadline or milestone.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

Section 3- Internal Management Reports

3.1 Internal Management Report 1

UMOBILE QUARTERLY REPORT

Action full title: *Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M1 – M3 (February 2015-April 2015)*

A) UMOBILE achievements of the last reporting period:

WP1: WP1 achievements are described below:

- UMOBILE Coordinator received the prefinancing (early February) and distributed it to the consortium.
- The kick off meeting of the project took place in London, all partners were present. Minutes were prepared, sent and accepted by the consortium.
- Two meetings via teleconference also took place: 26/3/15 & 30/04/15. Minutes were also prepared and accepted.
- Deliverable 1.1 "Project Handbook" was prepared and distributed to the consortium. Comments were applied and the final deliverable was submitted on 29/4.
- UCL has initiated and setup the project's mailing lists.

WP2: UMOBILE consortium defined the project events and use cases. The 8 scenarios initially proposed were limited to four that cover both social and emergent aspects of daily communication.

WP3: - (not started yet). UCL started preparations on Task 3.2, on the instantiation of service abstractions within the network, on the modeling of service chaining for NFV instances.

WP4: - (not started yet)

WP5: - (not started yet)

WP6: Several dissemination activities took place during the 1st reporting period:

- The creation of the project logo, the project web site, the mediawiki-based collaborative portal and the latex-based deliverable template (to be used inside the portal)
- The preparation of draft deliverables D6.1 "Dissemination plan" and D6.10 "Data management plan"

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- Project presentation in the "Future Internet Architectures Cluster/Network Technologies" (Brussels, 25/3/15) organized in the framework of Net Futures Conference 2015.
- SCANDEX paper for MobiSys DIYNetworking 2015 preparation- also submission to ICNRG and GAIARG to promote UMobile work
- Research paper preparation for WWIC 2015
- Presentation of UMOBILE within SITI/COPELABS
- Dissemination of the project in the Portuguese media
- Dissemination of UMOBILE in the context of social networks and towards partners
- Integration of the UMOBILE exploitation plan in the Senception 2015 activity planning
- Submission to ICT2015 (October 22nd 2015, Lisbon) of an exhibition event proposal, where UMOBILE results are expected to be present.

B) UMOBILE actions planned for the next 3 months:

WP1: UMOBILE Coordinator will prepare D1.2. "External liaison overview". Feedback will be asked from partners. Monthly teleconferences are planned for 28/5/15, 26/6/15 & 30/07/15.

WP2: UMOBILE consortium will derive the user requirements from the existing scenarios which have been agreed on by all participants. Designated partners will then work on System and Network Requirements. Deliverable D2.1 "End-user requirements report" will be prepared and submitted.

WP3: UMOBILE consortium will start working on system and node architecture development.

WP4: UMOBILE consortium will start working on services enablement.

WP5: - (not started yet)

WP6:

- Preparation of D6.1 Dissemination plan and D6.10 Data management plan.
- Web site and portal management. Establishing a social media presence.
- SCANDEX paper presentation in MobiSys DIYNetworking 2015 and in the NetOS group meeting in Computer Lab in Cambridge University.
- Research paper presentation in WWIC 2015.
- Leaflets & poster preparation
- Potential submission of journal paper
- Dissemination of UMOBILE on COPELABS OpenDay event on June 18th
- Potential participation on IETF ICNRG meeting in Prague
- Dissemination of UMOBILE ongoing work to partners and social networks.

C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

WP1: -

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WP2: -
WP3: -
WP4: -
WP5: -
WP6: -

D) Resources used during the period in a project level:
(Double-click on the following table to edit cells in Excel)

WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	3,5	12522,44	10658,13	0	0				
2	8,5	34591,76	0	0	4511				
3	0,5	2450	0	0	0				
4	0	0	0	0	0				
5	0	0	0	940	0	0			
6	2,6	8358,67	2015,5	0	0				
	15,1	**57922,87**	**12673,63**	**940**	**4511**	**0**	**76047,5**	**19011,88**	**95059,38**

E) Short description for other direct costs:
-Travel costs for:

1. The kick off meeting (London, 26/2/15-27/2/15)
2. Presenting the project to the Future Internet Architectures Cluster/Network Technologies organized in the framework of Net Futures Conference 2015
3. Presenting UMOBILE to MobiSys DIYNetworking 2015

-PCs for the development tasks
-2 Smartphones with Android (Samsung S5) for proof-of-concept development
-Visa fees.

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:
PCs for UCAM for the development tasks are not described in paragraph 2.3.5.

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

Period Milestones: UMOBILE "Kick off meeting" (milestone 1) took place in London on 26/2/15-27/2/15 whereas UMOBILE public and internal website was ready before the end of M1, February 2015.

Period Deliverables: D1.1 "Project Handbook" was submitted on 29/04/15 according to the plan.

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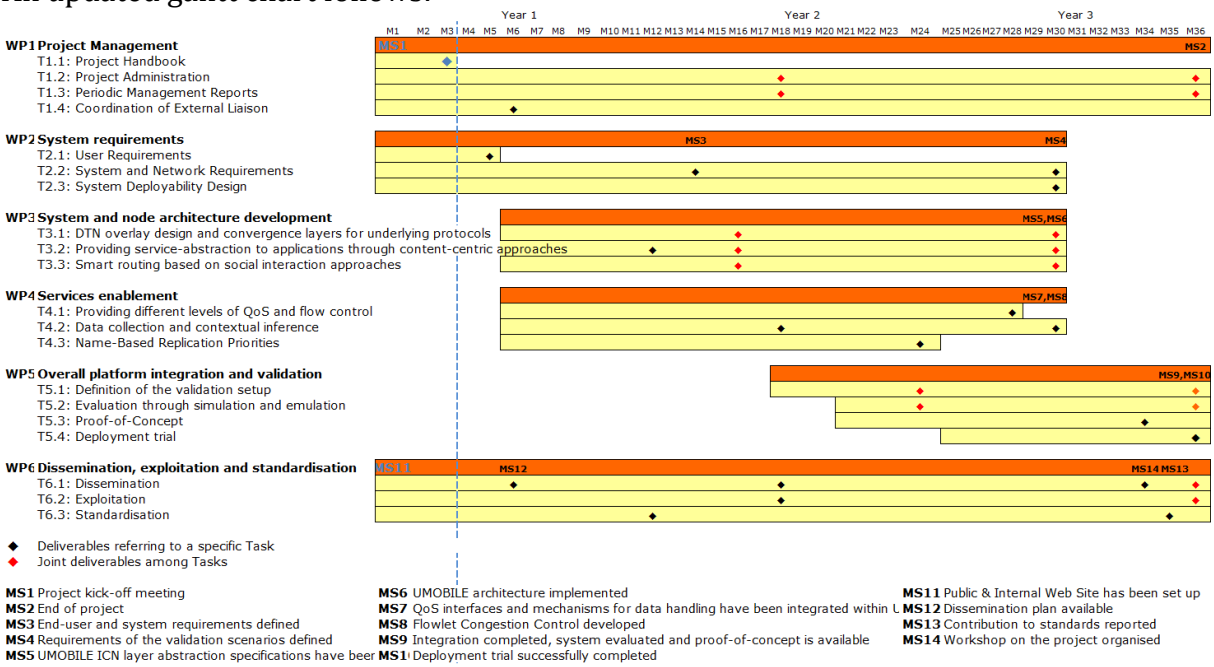
The table below summarizes the UMOBILE activities for the period February 2015-April 2015:

M..	Project Month	Meeting	Deliverable	Milestone	Report	Additional events
M1	*February 2015*	*Kick off meeting*	*-*	*MS1 Kick off meeting* *MS11 Public & Internal website has been set up*	*-*	*Presentation within SITI/COPELABS*
M2	*March 2015*	*teleconference: 26/3/15*	*-*	*-*	*-*	*25/3/15 Future Internet Architectures Cluster*
M3	*April 2015*	*teleconference: 30/4/15*	*D1.1 Project Handbook*	*-*	*-*	

An updated gantt chart follows:



3.15% of total budget has been consumed for the activities described above (2.66% of the personnel costs, 7.83% of the other direct costs, 3.16% of the indirect costs), as presented in the following graph:

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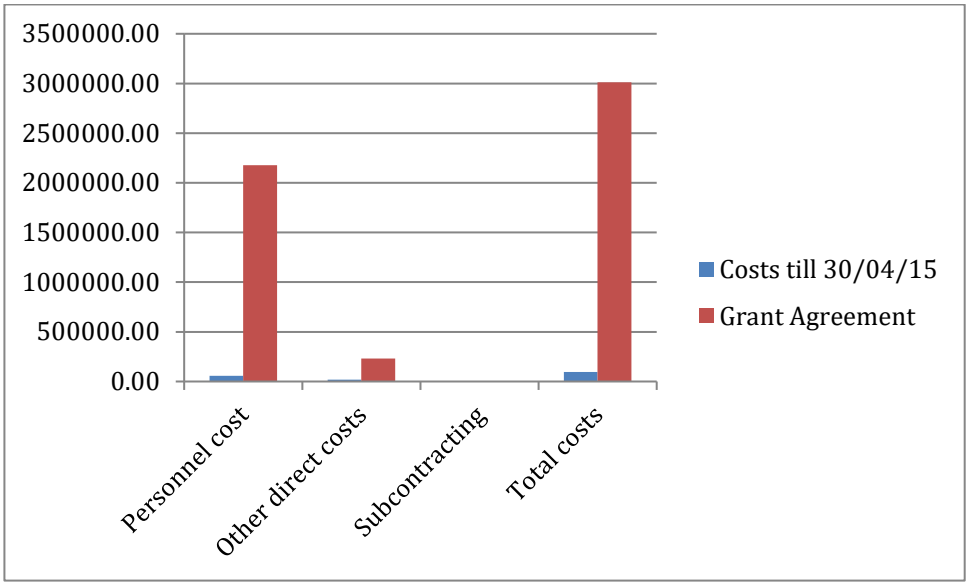
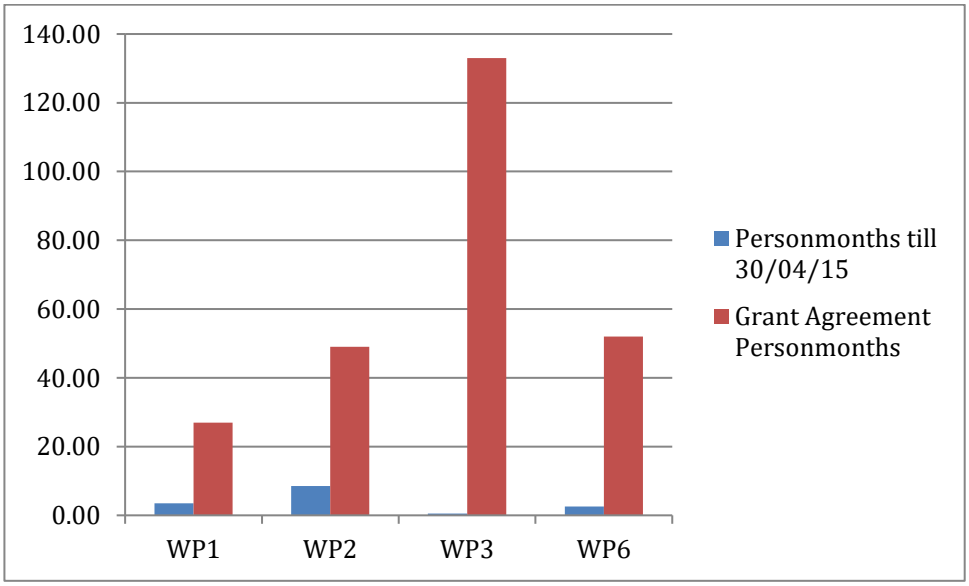


3.32 personmonths have been consumed for the activities described above:



This report was written by DUTH on the behalf of the UMOBILE consortium

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

3.2 Internal Management Report 2

UMOBILE QUARTERLY REPORT

Action full title: *Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M4 – M6 (May 2015-July 2015)*

A) UMOBILE achievements of the last reporting period:

WP1:

- UMOBILE 1st internal management report was prepared and submitted to the Project Officer
- Three consortium meetings took place via teleconference (28/5/15, 25/6/15 & 30/7/15). Minutes were prepared and accepted
- Deliverable 1.2 "External liaison overview" was submitted on 31/7/15
- Guidelines for Open access requirements were sent to the consortium
- UMOBILE calendar, team contact details and internal website were updated.

WP2:

- Deliverable D2.1 "End-user requirements report" was submitted on 30/06/15. Use cases were defined and user requirements were extracted.
- Initial work on tasks 2.2 and 2.3 (System and network requirements).

WP3:

- Initial research on tasks 3.1, 3.2 and 3.3 (BP, ICN, routing).

WP4:

- WP roadmap presentation
- Initial work on reusable platforms and interfaces for UMOBILE
- Initial work on flow and congestion control.

WP5: - (not started yet)

WP6:

- Deliverables 6.1 "Dissemination Plan" and 6.10 "Data Management Plan" were submitted according to the grant agreement
- A press release template was drafted and forwarded to local authorities & dtn list
- DUTH made preparations for the video that will be produced within wp6
- A leaflet was prepared for the project
- UMOBILE consortium participated in WWIC 2015, ICNRG, IRTF GAIA & MobiSys DIYNetworking 2015 presenting UMOBILE and project results

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- A scientific paper was submitted from COPELABS in IEEE Communications Magazine and also accepted-the open access procedure was followed. A scientific paper was also submitted by UCAM in ACM ICN 2015
- UMOBILE project was disseminated in the COPELABS Open Day event (June 18th) via a poster, abstract and video.
- The project was disseminated in the Portuguese media, in consortium websites in social networks and was also presented in greek & italian local authorities.

B) UMOBILE actions planned for the next 3 months:

WP1: Monthly teleconferences are planned for 24/9/15 & 29/10/15. The second official consortium meeting will be planned.

WP2: System and network requirements drafts preparation.

WP3: Architectural design preparation including ICN, BP.

WP4: Work on QoS and data collection.

WP5: -

WP6:

- Dissemination through social media & press releases
- Participation in Yokohama IETF
- Dissemination of UMOBILE on COPELABS commencement day and on ICT 2015
- Paper preparation
- Potential contributions to Internet drafts
- Preparation of the dissemination kit that will be available for download from the project website.

C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

-

D) Resources used <u>during the period</u> in a project level:
(Double-click on the following table to edit cells in Excel)

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WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	1,94	8457,62	0	0	0	0			
2	10,2	38403,87	0	0	0	0			
3	5,71	18537,88	0	0	0	0			
4	1,6	6700	0	0	0	0			
5	0	0	0	0	0	0			
6	7,54	26105,07	3944,79	0	0	0			
	26,99	**98204,44**	**3944,79**	**0**	**0**	**0**	**102149,23**	**25537,31**	**127686,5**

E) Short description for other direct costs:
Travel costs for WWIC 2015 plus IRTF GAIA meeting and MobiSys DIYNetworking 2015

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:

-

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

Period Milestones: UMOBILE dissemination plan (milestone 12) was submitted in the research participant portal and is also available in UMOBILE website http://www.umobile-project.eu/index.php/21-deliverable-d-6-1-submitted.

Period Deliverables: 4 deliverables were submitted during this reporting period (D1.2 "External Liaison Overview", D 6.1 "Dissemination plan", D6.10 "Data Management Plan" were submitted on 31/7/15, D2.1 "End user requirements report" was submitted on 30/6/15). All deliverables were submitted according to the grant agreement timetable.

The table below summarizes the UMOBILE activities for the period May 2015-July 2015:

M..	Project Month	Meeting	Deliverable	Milestone	Report	Additional events
M4	*May 2015*	*teleconference: 28/5/15*	*-*	*-*	*3monthly report for: M1 to M3*	*MobiSys DIYNetworking 2015 WWIC 2015*
M5	*June 2015*	*teleconference: 25/6/15*	*D2.1 End-user requirements report*	*-*	*-*	*COPELABS Openday event*
M6	*July 2015*	*teleconference: 30/7/15*	*D1.2 External Liaison Overview* *D6.1 Dissemination plan* *D6.10 Data Management Plan*	*MS12 Dissemination Plan available*	-	*ICNRG&IRTF GAIA meeting*

An updated gantt chart follows:

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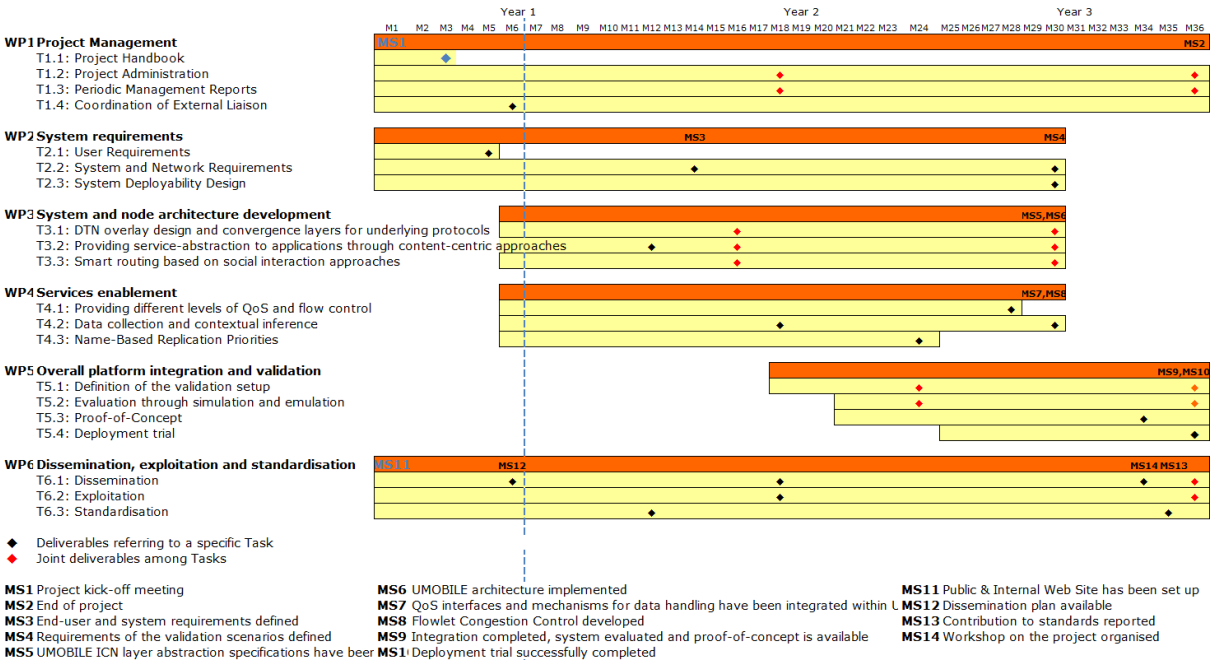
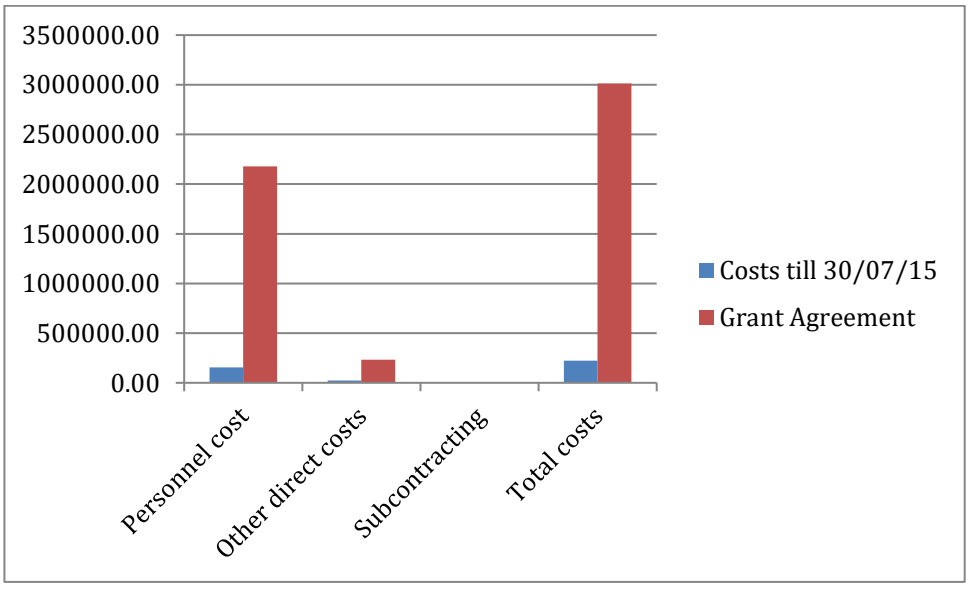


7.39% of total budget has been consumed for the activities described above (7.17% of the personnel costs, 9.54% of the other direct costs, 7.40% of the indirect costs), as presented in the following graph:



9.28% of the personmonths have been consumed for the activities described above:

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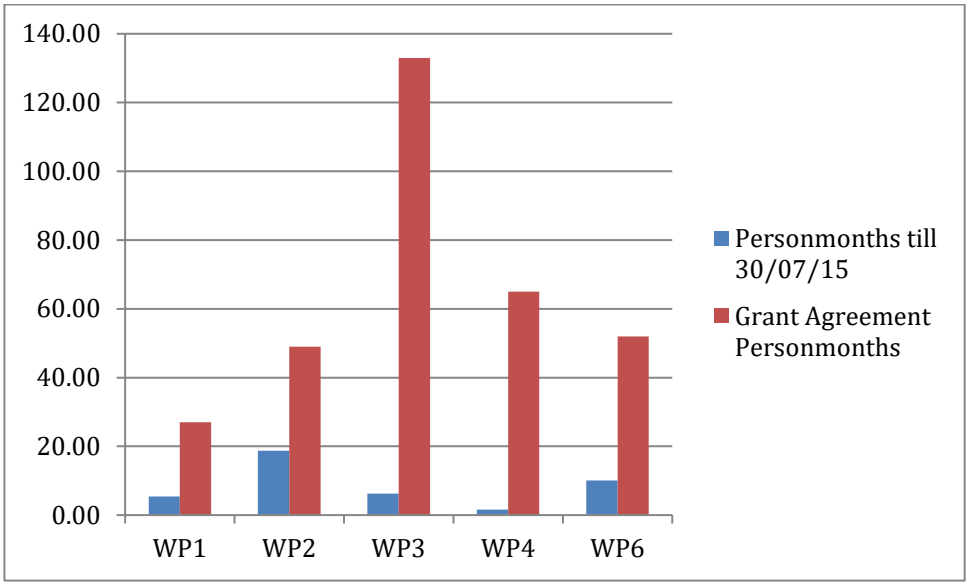

This report was written by DUTH on the behalf of the UMOBILE consortium

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

3.3 Internal Management Report 3

UMOBILE QUARTERLY REPORT

Action full title: *Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M7 – M9 (August 2015-October 2015)*

A) UMOBILE achievements of the last reporting period:

WP1:

- UMOBILE 2nd internal management report was prepared and submitted to the Project Officer.
- 24/9/15 teleconference & IPR committee meeting - agenda and minutes preparation.
- 29/10/15 teleconference - agenda and minutes preparation.
- 2nd physical meeting preparation.
- Guidelines to the consortium for interim reports, periodic reports etc.
- Mailing lists maintenance.

WP2:

- Deliverable D2.1 "End-user requirements report" was submitted on 30/06/15. Use cases were defined and user requirements were extracted.
- Initial work on tasks T2.2 and T2.3 and corresponding deliverables D2.2 and D2.4.
    - High level definition of the UMOBILE architecture.
    - Continuation of the development of the PerSense mobile application and analysis on how to consider it in terms of the UMOBILE architecture as potential example of the definition in terms of system deployability design; validation of some initial aspects of this tool.

WP3:

- Initial research on Tasks 3.1, 3.2, and 3.3:
    - Research on the available ICN architectures and relative implementations, which are candidates for basing the UMOBILE platform.
    - Initial research on the requirements (in terms of software and operating system) for the UMOBILE platform, and the DTN aspect of UMOBILE devices.
    - Initial design of an architecture for mobile networks on "Keyword-Based Mobile Computing/Networking".
    - Design of an appropriate service migration platform to migrate services.
    - Initial study on the possible services that the UMOBILE system can support.
    - Analysis of SCORP/dLife routing protocols in the context of the UMOBILE scenario.

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- Continuation of the work on the Oi application based on dLife, to exchange information opportunistically, in large-scale scenarios.
- Revision of previous initiatives in the field of opportunistic routing and possible association with the desired ICN approach.
- Preliminary simulation work on routing alternatives for the envisaged UMOBILE use cases.
- Analysis of the contextualization aspects of PerSense that can be integrated into the UMOBILE system and architecture for the specific scenario of social routine improvements.

WP4:

- Initial research on Tasks 4.1, 4.2, 4.3:
  - Study of relative works on the Quality of Service, and in particular in relation to the data routing function.
  - Research on Quality of Service requirements for the UMOBILE platform, and in particular for Information-Centric Network architectures.
  - Initial work on reusable platforms and interfaces for UMOBILE
  - Initial work on flow and congestion control.
  - Initial work on the implementation of an NFV service-chaining framework, acronymed DRENCH.
  - Work on the In-Network Resource Pooling Principle (INRRP).
  - Work on computational congestion control ideas.
  - Work on data collection and inference of affinity networks based on digital networking footprint.

WP5: - (not started yet)

WP6:

- Participation in ICNRG & ICN workshop and ACM ICN 2015 conference.
- Paper submission to IEEE Infocom.
- "Pervasive Data Sharing as Enabler for Mobile Citizen Sensing Systems (2015), Waldir Moreira and Paulo Mendes" was published in the IEEE Communications Magazine, October 2015.
- Paper submission to CCDWN workshop at CoNEXT on multi-source content delivery has been accepted for publication. The paper will be presented by Dr Vasilis Sourlas of UCL.
- Marketing of UMOBILE on ICT 2015 (October 20th-22nd, Lisbon).
- Dissemination of the project via the Senception Website and via social networks:
  - http://www.sen-ception.com/#!news-and-press/cgf7
  - https://www.facebook.com/senception2013
- Dissemination of the project via the DUTH Website and via social networks:
  - https://www.facebook.com/Space-Internetworking-Center-SPICE-462553270445059/?ref=hl
- Paper submission to ICSNC 2015 conference, presentation material preparation.
- Presentation on PerSense and how it shall be applicable in the context of UMOBILE.

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- Presentation of Senception's perspective of the different core issues of the UMOBILE architecture.
- Participation in the Interim meeting of the ICRNG in Yokohama Japan.
- Participation in an ICN workshop organized by the NICT-Japan.
- Participation in the meeting "Early warning dell'emergenza e gestione efficace del soccorso", organized by Agenzia per l'Italia Digitale.
- Facebook page update https://www.facebook.com/UMOBILEproject/?fref=ts

B) UMOBILE actions planned for the next 3 months:

WP1:

- Monthly teleconference is planned for 28/1/16. The second official consortium meeting will take place on 09-10/12/15.
- Internal management report submission.
- Guidelines.

WP2:

- Work on the Deliverables D2.2 and D2.4.
- Architecture-related discussions for the high-level system design.

WP3:

- Work on and finalization of the architectural design.
- D3.3 preparation and submission.
- Initial development of T3.2 based on the people-centric approach derived from the PerSense pervasive framework.
- Work on opportunistic routing approach.
- Work on Kebab-com/net.
- Work on the implementation of the service migration platform.
- Analysis of work on Task3.1, related to the usage of the DTN and ICN architectures on the UMOBILE abstraction layer.
- Work on Task3.3 related to the development of a first version of the UMOBILE forwarding scheme: focus on social-aware routing and a naming scheme.

WP4:

- Work on QoS and data collection.
- Implementation and performance evaluation of INRPP.
- Work on NFV service instantiation scheme.
- Work on name-base replication priorities.
- Design of the appropriate algorithms for computational congestion control.
- Validation of aspects of context derived from the PerSense tool and adjustment to UMOBILE.

WP5: -

WP6:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

- Dissemination through social media & press releases.
- Submission of a conference paper concerning the PerSense framework.
- Participation in ICSNC conference.
- Deliverable 6.6 "Standardization plan" preparation/submission.
- Potential submission of an Internet draft.
- Dissemination of UMOBILE on COPELABS Technical Retreat (Nov 12th – Nov 13th, Lisbon).

C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

FON is leading WP5 "Overall platform integration and validation" but does not participate in WP3 "System and node architecture design". This causes concerns since they are responsible for the demonstration of the UMobile platform but have no involvement in the architecture definition. To mitigate this risk, FON will be directly involved in the architecture definition, possibly drawing resources from their work effort in WP2.

D) Resources used <u>during the period</u> in a project level:
(Double-click on the following table to edit cells in Excel)

WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	1,48	4856,85	0	0	0	0			
2	6,21	25969,04	0	0	0	0			
3	12,79	37911,44	0	0	0	0			
4	6,56	20431,46	0	0	0	0			
5	0	0	0	0	0	0			
6	2,43	8887,1	3659,58	0	0	0			
	29,47	**98055,89**	**3659,58**	**0**	**0**	**0**	**101715,47**	**25428,87**	**127144,3**

E) Short description for other direct costs:
UCAM travel costs for ACM ICN and ACM Aintec.

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:

TEKEVER consumed 1.3 personmonths in WP2 instead of the planned 1 personmonth. Since TEKEVER contributes to WP2 ongoing tasks, the Coordinator estimated that the deviation will be bigger and contacted TEKEVER.

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

Period Milestones: MS1, MS11 and MS12 are accomplished. MS3 is expected on Month 14 according to the plan.

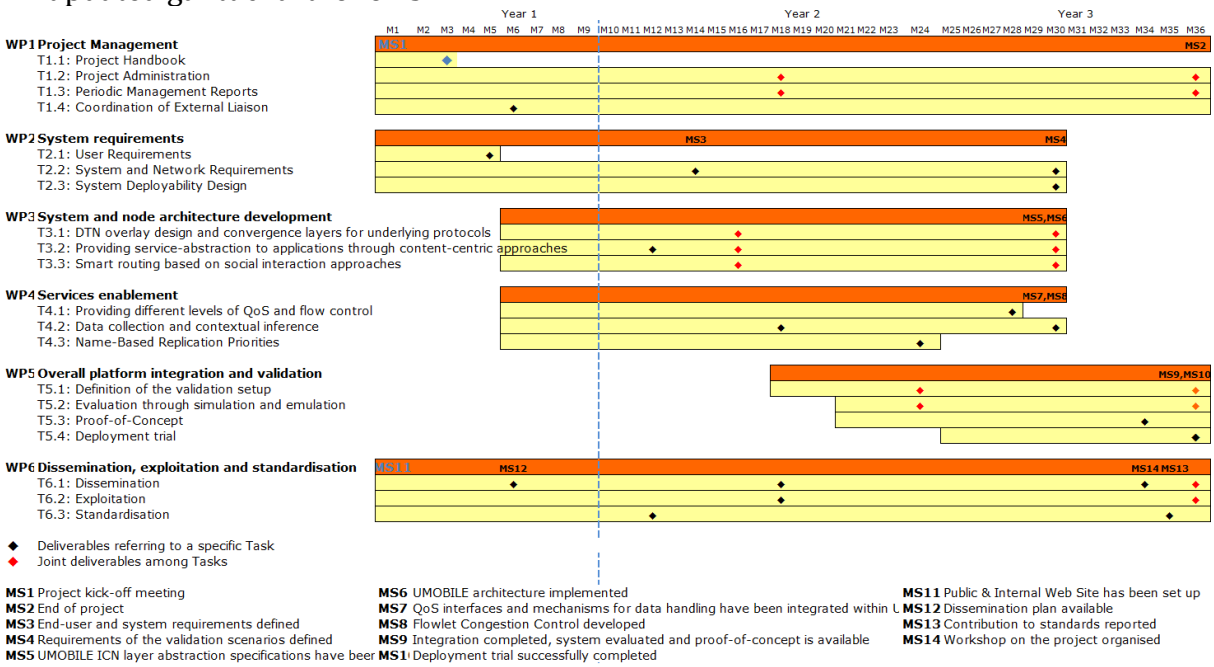
Period Deliverables: All deliverables are submitted according to the grant agreement timetable. D3.3 & D6.6 will submitted by the end of Month 12.

UMOBILE Coordinator asked permission on the behalf of the consortium to submit "D4.1 Flowlet Congestion -Initial Report" on month 18, as described in page 22 of the grant agreement instead of Month 12 included in the deliverables tables. The change was accepted.

The table below summarizes the UMOBILE activities for the period August 2015-October 2015:

M..	Project Month	Meeting	Deliverable	Milestone	Report	Additional events
M7	*August 2015*	-	-	-	*3monthly report for: M4 to M6*	
M8	*September 2015*	*teleconference: 24/9/15*	-	-	-	
M9	*October 2015*	*teleconference: 29/10/15*	-	-	-	*ICT 2015, ICN 2015, ICNRG meeting*

An updated gantt chart follows:



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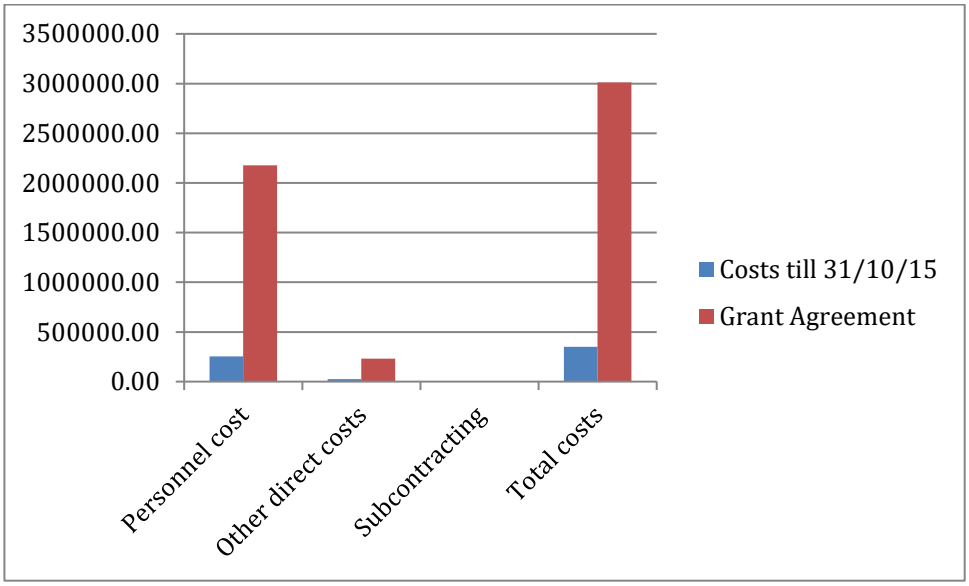
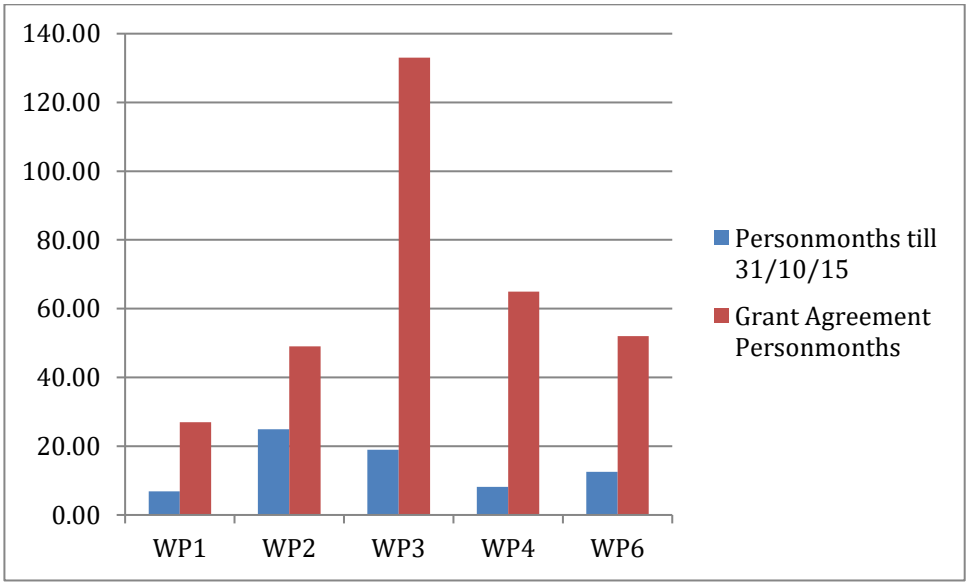
11.61% of total budget has been consumed for the activities described above (11.67% of the personnel costs, 11.12% of the other direct costs, 11.62% of the indirect costs), as presented in the following graph:



15.79% of the personmonths have been consumed for the activities described above:



This report was written by DUTH on the behalf of the UMOBILE consortium

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

3.4 Internal Management Report 4

UMOBILE QUARTERLY REPORT

Action full title: *Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M10 – M12 (November 2015-January 2016)*

A) UMOBILE achievements of the last reporting period:

WP1:

- UMOBILE 3rd internal management report was prepared and submitted to the Project Officer.
- 2nd physical meeting preparation and conduction on 09-10/12/15 – agenda and minutes are available.
- 28/01/16 Technical teleconference & Project Coordination Committee meeting - agenda and minutes preparation.
- Contact with the Project Officer regarding DUTH internal overhead issues. The consortium was also informed about this matter at the teleconference in January.
- Contact with the Project Officer in order to ask permission to submit D4.1 on Month 18.
- Guidelines to the consortium for review, equipment purchase, person month deviations etc.
- UMOBILE team update.
- Mailing lists maintenance.

WP2:

- Work on tasks T2.2 and T2.3 and preparation of deliverable D2.2:
  - Discussion on the high level design of the architecture.
  - Identification of related work and definition of UMOBILE networking requirements, paying special attention to the networking services UMOBILE should support.
  - Research on the various components that will be combined to form UMOBILE architecture in order to support the applicability scenarios that have been selected by the consortium.
  - Discussion on the implications of UAV use and interface.
  - Specification of the PerSense mobile application in the context of UMOBILE; validation of some initial aspects of this tool (scientific paper under submission); traces to be provided between M13-M15.
  - Analysis of potential deployability issues (interconnection towards NDN).

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WP3:

- Preparation and submission of D3.3 "UMOBILE ICN layer abstraction initial specification".
- Preparation of presentation slides for the UMOBILE meeting in London in December 2015.
- Research on Tasks 3.1, 3.2 and 3.3:
    - In-depth study of existing DTN implementations.
    - Definition of the various ways to incorporate DTN characteristics in the UMOBILE architecture based on the consensus reached during UMOBILE meeting in London.
    - Initial work on the PUSH API for NDN.
    - Study and initial survey on computational power and memory of available on commercial WiFi access points; study on Wi-Fi and Wi-Fi direct support based on the same AP.
    - Initial study on "docker" software component, in the UMOBILE usage perspective.
    - Preparation and submission of a joint research paper between DUTH and UCL to the IEEE Communications Magazine on data naming (submitted to IEEE Communications Magazine).
    - Preparation and submission of a research paper from UCL to the IEEE Communications Magazine on an Information-Centric Connectivity solution.
    - Study of data forwarding methods in ICN and definition of the data forwarding strategies that will be supported by UMOBILE architecture.
    - Proposal for the integration of social aspects in the UMOBILE architecture - sociability software module.
    - Work on routing in UMOBILE.
    - Preparation of an Internet draft (ICNRG) descripting SCORP routing protocol.
    - Development of the Oi! Application (short-messaging app) based on dLife, to exchange information opportunistically, in large-scale scenarios.
    - Beginning of the development of the News@ application (local news app) based on SCORP, to disseminate local news opportunistically.

WP4:

- D4.1 has been moved to month 18.
- Research on Tasks 4.1, 4.2, 4.3:
    - Study of related work on QoS and flow control.
    - Work on an NFV service-chaining framework, acronymed DRENCH.
    - In-Network Resource Pooling Principle (INRRP) has been implemented.
    - Continuation of the work started in the prior period for data collection and inference of affinity networks based on digital networking footprint.
    - Scientific paper "A Characterization Study of Human Wireless Footprints based on non-intrusive Pervasive Sensing", submitted in December 2015 to Elsevier Pervasive and Mobile Computing, special issue on Social Mobile Networks.

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- Traces collected for the period of 1 month, in Lisbon, 7 users / traces to be available via CRAWDAD on the next reporting period.
- Definition of a light application to assist in collecting traces concerning roaming patterns and affinity networks to be used in the context of the project with the purpose of providing a better understanding of human-centric mobility.
- Discussion on the integration of contextual data in the different planes (content, context, routing) of the UMOBILE system.

WP5: - (not started yet)

WP6:

- D6.6 "Standardisation plan" has been prepared and submitted to the EC.
- Educational material preparation.
- Participation and presentation of a research paper to ICSNC 2015 (The Tenth International Conference on Systems and Networks Communications).
- Presentation of a research paper at CCNC.
- Participation in the ACM DEV conference.
- Participation in the IRTF GAIA meeting.
- UCL has participated in the Interim meeting of the 23rd ICNRG in Paris, France, last January. Dr Vassilis Sourlas participated in the meeting and presented the work related with the UMOBILE project about Information-Centric Connectivity.
- COPELABS submitted the following four papers:
  - Waldir Moreira, Rute Sofia, Paulo Mendes, Luis Lopes "Oi!: An Opportunistic Data Transmission Tool Based on Social-Aware Routing", IEEE Communications Magazine, Feature Topic ON Wireless Technologies for Development.
  - Rute Sofia, Paulo Mendes "Characterization of Human Wireless Footprints based on non-intrusive Pervasive Sensing", Elsevier Pervasive and Mobile Computing, Special Issue on Pervasive Social Computing.
  - Rute Sofia, Saeik Firdose , Luis Lopes , Waldir Moreira , Pallavali Reddy, Paulo Mendes, "USense: A People-centric, non-intrusive Opportunistic Sensing Tool for Contextualizing Social Interaction", Elsevier -Pervasive and Mobile Computing, Special Issue on Pervasive Social Computing
  - Luis Lopes, Rute Sofia, Paulo Mendes, Waldir Moreira, "Oi! - Opportunistic Data Transmission based on Wi-Fi Direct", IEEE INFOCOM 2016 (demo paper)
  - Luis Lopes, Saeik Firdose, Rute Sofia, Paulo Mendes, "USense: A People-Centric Opportunistic Sensing Tool", IEEE INFOCOM 2016 (demo paper)
- Continuous dissemination of the project via webinars and the partners' websites and via social networks.
- The project's Facebook account and the UMOBILE website have been updated with news of interest.

B) UMOBILE actions planned for the next 3 months:

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WP1:

- Organisation of regular teleconferences on February, March and April.
- Arrangement of the 3d physical meeting (coordination & participation).
- Consortium coordination.
- Maintenance of the project's mailing list.
- Setup of an SVN for the project documents.

WP2:

- Preparation and submission of the Deliverable D2.2.
- Initial work on D2.3 to highlight the system and network deployability design issues.
- Preparation of a new version of the D2.4 concerning the results of task 2.3.
- Continue gathering data for the system deployability design.
- Work on the demonstration plans.
- Collection of traces in different locations worldwide, with the purpose of characterizing affinity networks and human mobility (based on Wi-Fi direct and Bluetooth).

WP3:

- Work on the incorporation of DTN characteristics in the UMOBILE architecture.
- Detailed definition of UMOBILE architecture.
- Preparation of D3.1.
- Focus on the push implementation in NDN.
- Implementation of the keyword-based mobile application sharing solution (KEBAB-COM/NET).
- Technical design and implementation of UMOBILE architecture aspects, such as the UMOBILE naming scheme and the data packet format, and the metadata definition.
- Research and study on the access point implementation.
- Analysis of work on Task3.1, related to the usage of the DTN and ICN architectures on the UMOBILE abstraction layer.
- Work on Task 3.3 related to the specification of the first version of the UMOBILE smart routing proposal.
- Continuation of the development of the Oi! And News@ applications aiming to support short messages and dissemination of local news in an opportunistic networking scenario.
- Collaborative implementation, in order to develop a mid-term version of the required forwarding engine for the services and topologies envisaged within UMOBILE.
- Work on the UAV integration.
- Development of a light API capable of tracking affinity networks and correlating such networks with a social routine behavior (integration of user context and usage context).
- Networking definition and integration of the social routine module (UMOBILE context plane).

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WP4:

- Work on QoS and flow control.
- Design of service placement algorithms.
- Evaluation of INRPP, based on the detailed implementation and collection of results for the related deliverables.
- Initial results on the NFV Service Chaining framework, DRENCH.
- Work on Task 4.3, focused on name-based replication priorities.
- Validation of some aspects of context derived from the PerSense tool; adjust it as required by UMOBILE.

WP5: -

WP6:

- Project results dissemination. Several talks are already planned for the coming period including a presentation at the Berlin IETF in July 2016.
- Work on D6.4.
- Potential submission of an Internet draft about SCORP to ICNRG.
- Potential submission of five scientific papers to international conferences and journals by COPELABS.
- Dissemination of UMOBILE on COPELABS Scientific Advisory Board meeting (planned to middle March, Lisbon).
- Submission of a scientific paper concerning trust circles and affinity networks by SENCEPTION.
- Potential contributions to Internet drafts: GAIA, ANIMA.
- Dissemination of the project via the website and social networks.
- Dissemination of the project via the national Italian journal “La Protezione Civile Italiana”.

C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

DUTH team faces currently and temporarily internal administrative issues, regarding the lack of supportive funding for the Laboratory which runs the project due to high overhead withheld, and extraordinary procedure for granting travel permissions. The decision of the Research Committee which is responsible for the matter is favorable for the Lab – however, this decision has not yet been implemented. Ministry will also be involved immediately in order to resolve the travel permission issue. In particular, the current instruction to grant travel permission requires whole faculty physical meetings to decide for the matter – practically this cannot be easily implemented. The consortium was informed on this potential risk and decided to await for the decision of the University since all indications are positive. Otherwise, an amendment request will follow. The project officer was also informed.

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D) Resources used during the period in a project level:
(Double-click on the following table to edit cells in Excel)

WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	1,53	5913,54	2592,4	0	0	0			
2	7,61	32090,71	0	0	0	0			
3	17,62	56755,77	1372,78	0	0	0			
4	3,22	17527,03	0	0	0	0			
5	0	0	0	0	0	0			
6	3,01	11239,85	3276,42	0	0	0			
	32,99	**123526,9**	**7241,6**	**0**	**0**	**0**	**130768,5**	**32692,13**	**163460,6**

E) Short description for other direct costs:
Travel costs for the 2nd consortium physical meeting.
DUTH Participation to ICSNC 2015.
UCAM travel costs for ACM DEV, ACM AINTEC and CCNC workshop.

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:

Minor deviations in project months (1-2 personmonths).

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

Period Milestones: MS1, MS11 and MS12 are accomplished according to the plan. MS3 is expected on Month 14 according to the plan.

Period Deliverables: All deliverables are submitted according to the grant agreement timetable. D4.1 will be submitted on M18 (UMOBILE Coordinator asked permission on the behalf of the consortium to submit "D4.1 Flowlet Congestion -Initial Report" on month 18, as described in page 22 of the grant agreement instead of Month 12 included in the deliverables tables. The change has been accepted).

The table below summarizes the UMOBILE activities for the period November 2015-Janyary 2016:

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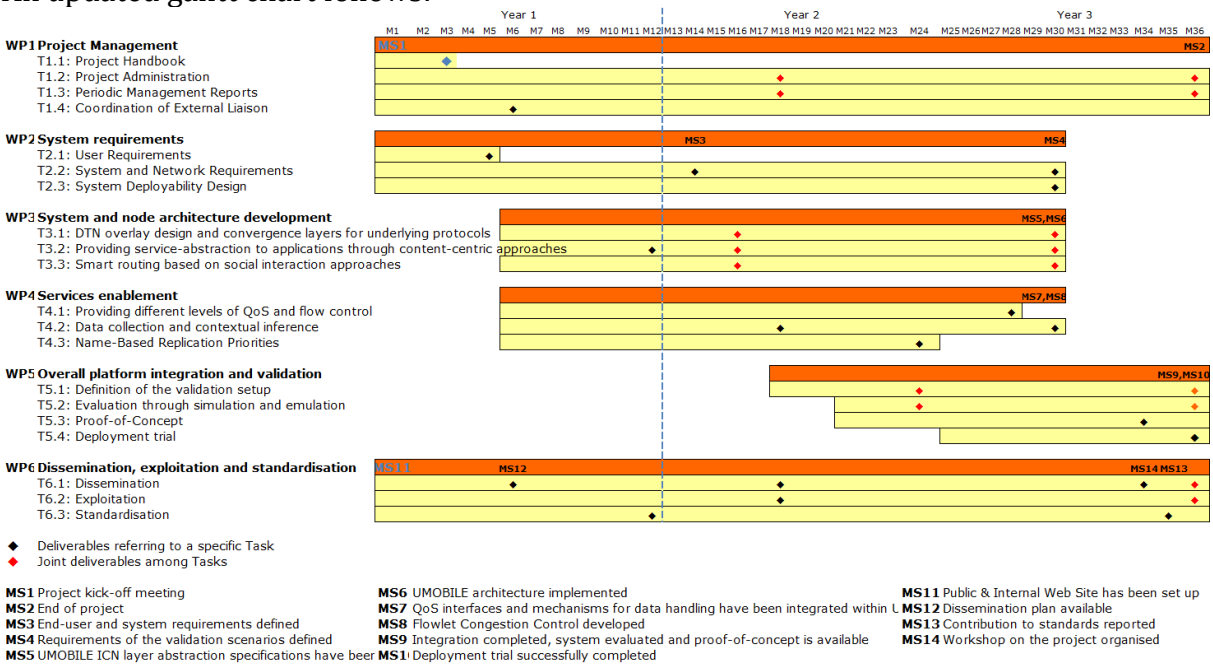
M..	Project Month	Meeting	Deliverable	Milestone	Report	Additional events
M10	*November 2015*	*-*	*-*	*-*	*3monthly report for: M7 to M9*	*ICSNC 2015, IRTF GAIA meeting*
M11	*December 2015*	*UMOBILE architecture meeting: 09-10/12/15*	*-*	*-*	*-*	*ACM DEV 2015*
M12	*January 2016*	*Teleconference: 28/01/16*	*D3.3 D6.6*	*-*	*-*	*CCNC 2016, IRTF ICNRG meeting*

An updated gantt chart follows:



17.04% of total budget has been consumed for the activities described above (17.34% of the personnel costs, 14.25% of the other direct costs, 17.04% of the indirect costs), as presented in the following graph:

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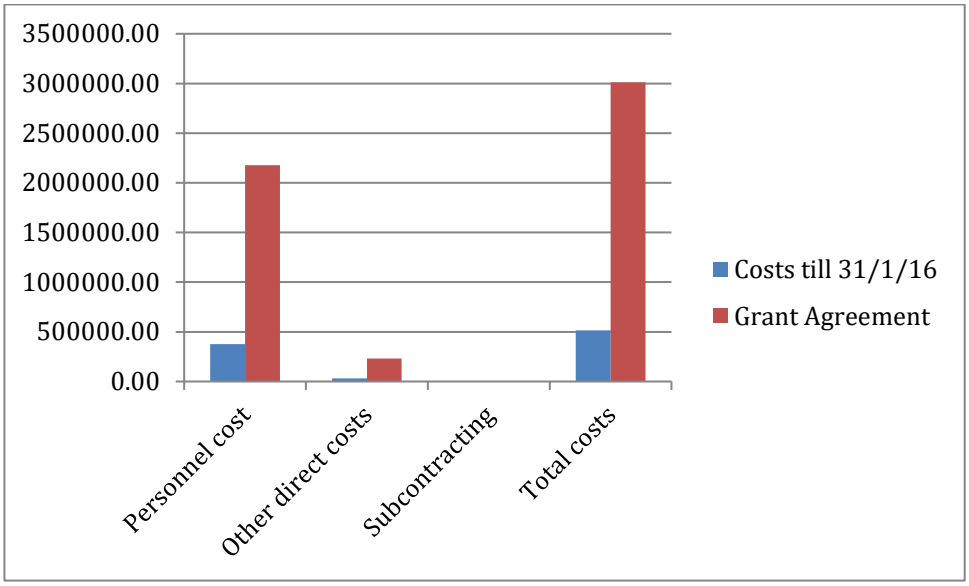
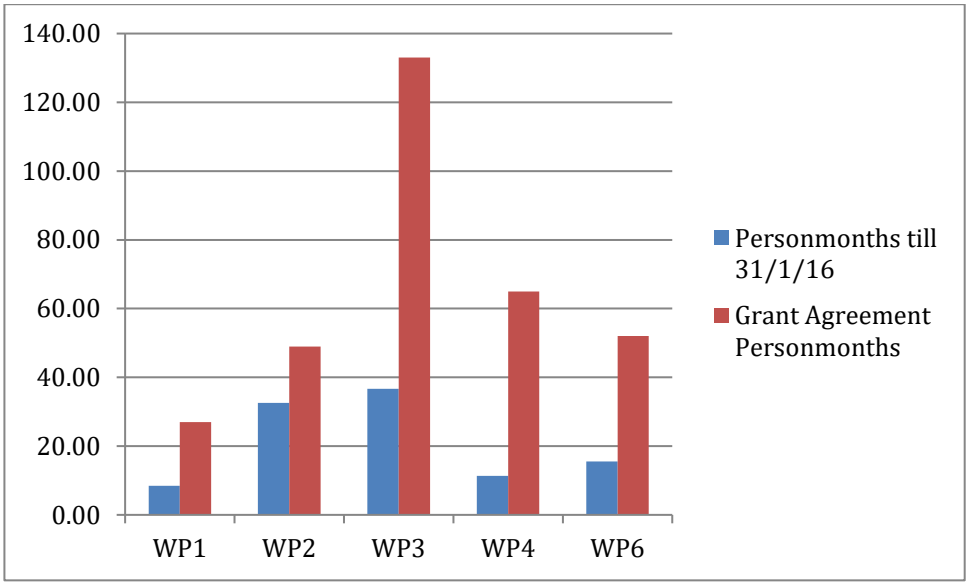


23.07% of the personmonths have been consumed for the activities described above:



This report was written by DUTH on the behalf of the UMOBILE consortium

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

3.5 Internal Management Report 5

UMOBILE QUARTERLY REPORT

Action full title: *Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M13 – M15 (February 2016-April 2016)*

A) UMOBILE achievements of the last reporting period:

WP1:

- 4rth internal management report preparation and submission
- 3rd physical meeting preparation and conduction (Xanthi 12/04/16-13/4/16) – agenda and minutes are available.
- 25/2/16 Technical teleconference & Project Coordination Committee meeting - agenda and minutes preparation.
- 31/3/16 Technical teleconference & Project Coordination Committee meeting - agenda and minutes preparation
- Guidelines to the consortium for review, equipment purchase, person month deviations etc.
- Update to the consortium about project amendment (articles 20.6, 21.2, 34.3, 38.1.2)
- Project amendment signature
- UMOBILE management structure update
- Mailing lists maintenance.

WP2:

- Submission of D2.2 on M14
- Identification of system requirements for the UMOBILE platform
- Work on the system deployability of the UMOBILE platform

WP3:

- Work on the integration of DTN characteristics in the UMOBILE platform
- Development of necessary modules for the NDN-DTN integration
- Work on service migration
- Work on naming
- Work on the integration of opportunistic, social-aware, communications in the UMOBILE platform
- Early specification of the sociability software module
- Work on in-network content discovery
- Initial work on smart routing

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- Design of UMOBILE testbed

WP4:

- Work on QoS mechanisms to be integrated in the UMOBILE platform
- Work on service placement algorithms
- Work on data collection and inference of affinity networks
- Development of the wireless tracking application PerSense Mobile Light

WP5: - (not started yet)

WP6:

- Participation in IETF meeting
- Participation in ICTP workshop
- Participation in the 23rd ICT conference
- Submission and publication of papers
- Release of open-source software
- Participation in the EU ITN CleanSky project workshop
- Updates on the Facebook profile and on the project website

B) UMOBILE actions planned for the next 3 months:

WP1:

- Organisation of regular teleconferences on May, June and July.
- Arrangement of the 4rth physical meeting
- Consortium coordination
- Maintenance of the project's mailing list
- Periodic report preparation

WP2:

WP2:

- Work on D2.3
- Collection of traces in different locations worldwide, with the purpose of characterizing affinity networks and human mobility (based on Wi-Fi direct, with tool PerSense Mobile Light)
- First analysis of the validation scenarios to match the system and network requirement specifications, as they emerged from the WP

WP3:

- Development of the service migration module
- Setup of the UMOBILE testbed
- Analysis of work on Task3.1, related to the usage of the DTN and ICN architectures on the UMOBILE abstraction layer.

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- Work on Task3.3 related to the specification of the first version of the UMOBILE smart routing proposal.
- Migration of the Oi! app and SOCIO framework to the NDN platform.
- Development of the Now@ application based on a new version of the SOCIO framework, incorporating the SCORP forwarding protocol, able to disseminate data in an opportunistic network based on users' social behaviour and data interests.
- Work on affinity networks tracking
- Implementation of the keyword-based mobile application sharing solution (KEBAB-COM/NET)
- Work on smart routing

WP4:

- Work on QoS and flow control.
- Work on service placement algorithms.
- Complete evaluation of INRPP, based on the detailed implementation and collection of results for the related deliverables.
- Initial results on the NFV Service Chaining framework, DRENCH.
- Work on Task 4.3, focused on name-based replication priorities.
- Validation of some aspects of context derived from the PerSense tool; adjust it as required by UMOBILE
- Analysis on prioritization rules to consider in naming

WP5:

- Initial preparation of tasks

WP6:

- Project results dissemination. Several talks are already planned for the coming period including a presentation at the Berlin IETF in July 2016.
- Work on D6.4.
- Potential submission of one scientific paper about the new concept of smart routing.
- Dissemination of UMOBILE on COPELABS Scientific Advisory Board meeting (May 5th and 6th in Lisbon)
- Steering of the common vision of WP4, by assisting convergence between the three different tasks towards the proposed goals.
- Validating some aspects of context derived from the PerSense tool; adjust it as required by UMOBILE.

C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

-

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D) Resources used <u>during the period</u> in a project level:
(Double-click on the following table to edit cells in Excel)

WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	1,86	8169,39	8739,19	0	0	0			
2	4,3	20277,16	0	0	0	0			
3	20,59	73939,53	4587,67	1848	1166,5	0			
4	7,1	19766,54	0	0	0	0			
5	0	0	0	0	0	0			
6	3,82	17517,47	3455,87	0	80	0			
	37,67	**139670,09**	**16782,73**	**1848**	**1246,5**	**0**	**159547,29**	**39886,82**	**199434,1**

E) Short description for other direct costs:
Travel costs for the 3rd consortium physical meeting
Project leaflets
DTN nodes purchase
Travel costs for ICTP Workshop on New Frontiers in Internet of Things, IEEE Infocom 2016 conference, IETF Meeting

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:

Minor deviations in project months (1-2 personmonths).

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

Period Milestones: MS1, MS3, MS11 and MS12 are accomplished according to the plan. The next milestones are scheduled for Month 30.

Period Deliverables: All deliverables are submitted according to the grant agreement timetable. D4.1 will be submitted on M18 (UMOBILE Coordinator asked permission on the behalf of the consortium to submit "D4.1 Flowlet Congestion -Initial Report" on month 18, as described in page 22 of the grant agreement instead of Month 12 included in the deliverables tables. The change has been accepted).

The table below summarizes the UMOBILE activities for the period February 2016-April 2016:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645124

Project Month	Meeting	Deliverable	Milestone	Report	Additional events
February 2016	*teleconference: 25/2/16*	*-*	*-*	*3monthly report for: M10 to M12*	*IEEE Infocom 2016 ICTP workshop IETF meeting*
March 2016	*teleconference: 31/3/16*	*D2.2 System and Network requirement specifications*	*MS3 End-user and system requirements defined*	*-*	
April 2016	*3rd physical meeting: 12/4/16-13/4/16*	*-*	*-*	*-*	

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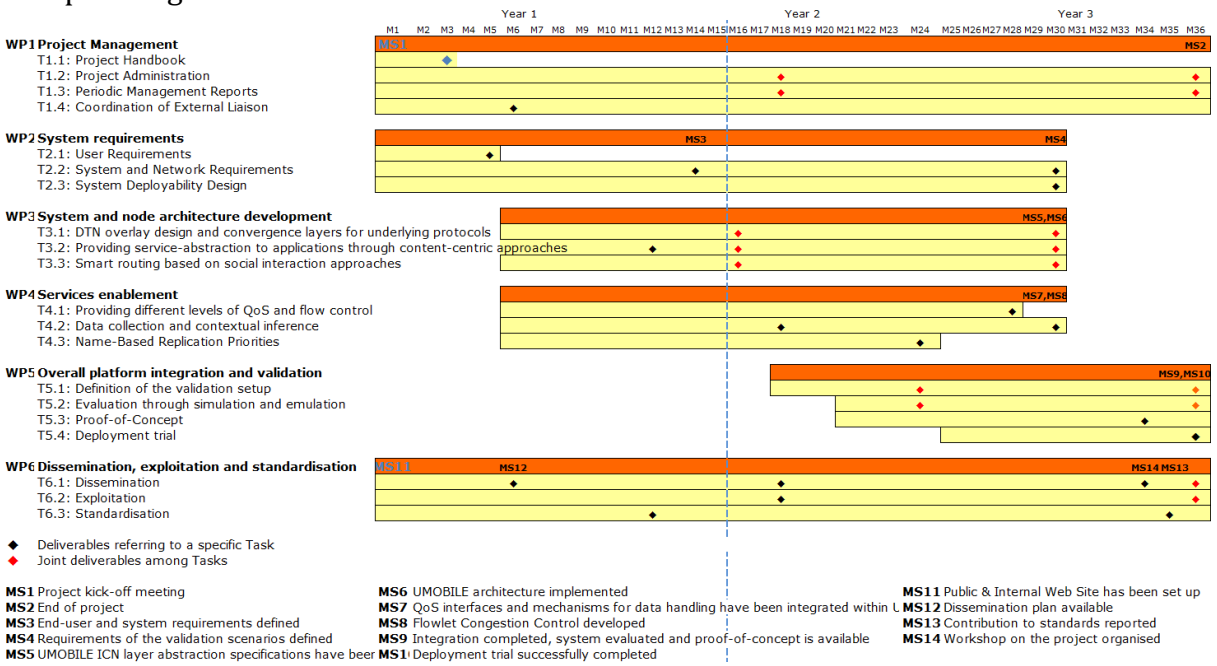
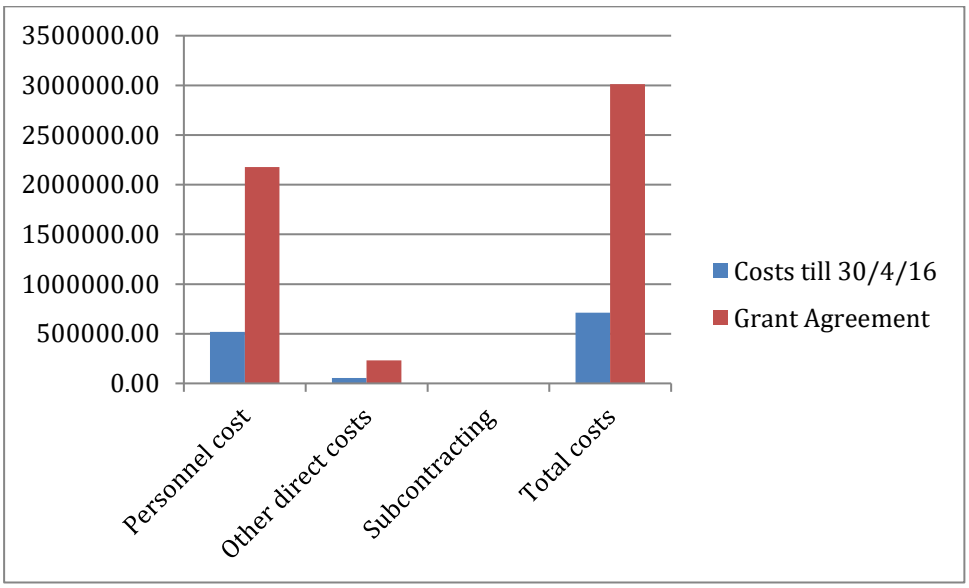
An updated gantt chart follows:



23.66% of total budget has been consumed for the activities described above (23.75% of the personnel costs, 22.87% of the other direct costs, 23.66% of the indirect costs), as presented in the following graph:



30.06% of the personmonths have been consumed for the activities described above:

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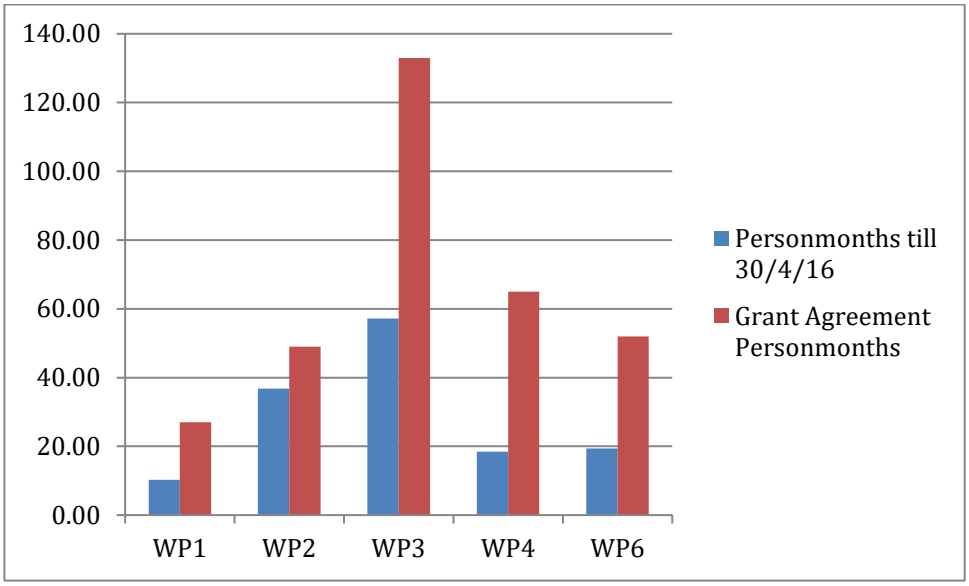

This report was written by DUTH on the behalf of the UMOBILE consortium

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