

Minutes 5th Management Committee (MC) Meeting

COST Action IC0604 Telepathology Network in Europe. EURO-TELEPATH Lausanne, Switzerland, December 3rd-4th, 2009

AGENDA

Welcome to participants and consortium meeting introduction

(Dr. M. Garcia Rojo and Prof. T. Ebrahimi)

Management Committee Meeting / PART 1 (M. Garcia Rojo).

1. Adoption of agenda
2. Approval of the minutes of the 4th MC meeting (Paris)
3. Report from the COST Office
 - News from the COST Office: New vademecum (cost guidelines)
 - Status of Action, including participating countries
 - Budget status, budget planning and allocation process

4. Progress report of working groups:

WG3 – Images: Analysis, Processing, Retrieval & Management (M. Ansorge, J. Słodkowska)

Janina Słodkowska (MC)
Daniel Racoceanu (IPAL)

WG1 – Pathology Business Modelling (T. Schrader, L. Gonçalves)

Thomas Schrader (MC)

WG2 – Informatics Standards in Pathology (C. Daniel, B. Blobel)

Christel Daniel (presented by Marcial García Rojo) (MC)
Bernd Blobel (MC)
Jacques Klossa (MC)

WG4 – Technology & Automation in Pathology (M. García Rojo, B. Blobel)

Marcial García Rojo (MC)
Bernd Blobel (MC)
Guoping Qiu (Expert)

Management Committee Meeting / PART 2 (M. Garcia Rojo)

5. Action planning
 - 5.1 Annual Progress Conference (preparation and/or feedback from DC)
 - 5.2 Action Budget Planning
 - 5.3 Action Planning (including meetings)
 - 5.3.1 Location and date of next meeting
 - 5.3.2 Long-term planning (including anticipated locations and dates of future meetings)

6. STSM status, applications
7. Publications, dissemination and outreach activities
8. Request for new members
9. Promotion of gender balance and of Early Stage Researchers (ESR)
10. Non-COST country participations
11. Proposal of new COST Actions that could cooperate with COST IC0604
12. Web news
13. Coordination with national, regional and international R&D programs (Marcial García Rojo, jointly with all Members)

Closing

Participants

First name	Family name	Institution. Country	Role
Michael	Ansorge	EIA-FR / EPFL. Switzerland	MC deputy
Daniel	BADIA	Hospital Vall d'Hebron. Spain	Expert
Bernd	Blobel	University Hospital Regensburg. Germany	MC
Gloria	Bueno	Universidad de Castilla-La Mancha. Spain	Expert
Josep	Castellvi	Hospital Vall d'Hebron. Spain	Expert
Vincenzo	Della Mea	University of Udine. Italy	MC
Frederic	Dufaux	EPFL. Switzerland	Expert
Touradj	Ebrahimi	EPFL. Switzerland	MC
Marcial	Garcia Rojo	Hospital General Ciudad Real. Spain	MC Chair
Luis	Gonçalves	Hospital do Espiritu Santo. Portugal	MC Vice-Chair
Mohammad	Ilyas	University of Nottingham. UK	MC
Jacques	Klossa	Tribvn. France	MC
Arvydas	Laurinavicius	National Center of Pathology, Vilnius. Lithuania	MC
Jong-Seok	Lee	EPFL. Switzerland	Expert
Tomasz	Markiewicz	Warsaw University of Technology. Poland	Expert
George	Nikiforidis	University of Patras. Greece	MC
Vytenis	Punys	Kaunas University of Technology. Lithuania	MC
Guoping	Qiu	University of Nottingham	MC
Daniel	Racoceanu	CNRS - French National Research Center. France	Expert
George	Sakellaropoulos	University of Patras. Greece	MC
Thomas	Schrader	FH Brandenburg/Charite Berlin. Germany	MC
Janina	Slodkowska	Military Institute of the Health Service, Warsaw. Poland	MC
Ashkan	Yazdani	EPFL. Switzerland	Expert

Apologies received (not attending)

Christel Daniel. France.

Mikael Ludin. Finland.

Wil Baas The Netherlands.

Branimir Reljin. Serbia.

MC Meeting MINUTES

09:00-09:15 **Welcome to participants and consortium meeting introduction**

Prof. Touradj Ebrahimi welcomes all participants and he informs about practical issues during the meeting.

Dr. Marcial García Rojo thanks EPFL, Prof. Ebrahimi and Prof. Ansorge for the organisation of this event, and to all MC members and WG experts for attending this meeting.

09:15-10:10 **Management Committee (MC) Meeting / PART 1** (M. García Rojo).

1. Adoption of agenda

All MC members agree to work, initially, with the agenda prepared by EPFL team.

2. Approval of the minutes of the 4th MC meeting (Paris)

The minutes of the 4th COST IC0604 MC meeting that was held on 12-13 March 2009, in Centre de Recherche des Cordeliers, Paris, France, were approved unanimously. They were approved by written procedure through our mailing list by April 17th 2009.

3. Report from the COST Office

– News from the COST Office: New vademecum (cost guidelines)

COST Grant System has been adapted to meet the FP7 contractual obligations. The Grant Holder is responsible for the execution of the financial and scientific administration and coordination of the Action. In COST Action IC0604 there are three names to remember:

- Legal Representative: Blanca Parra, Director, FISCAM
- Finance Officer: Maria Ruiz, FISCAM
- Scientific Representative: Marcial García Rojo, SESCAM

A 4 eyes principle is applied: Grant Holder's Finance Officer, MC Financial Rapporteurs, COST Office, audits (ESF Finance Officer or external).

A new on-line reporting tool is available: e-COST (<https://e-services.cost.esf.org/>)

For reimbursement, in general, 30 days rules apply: < 30 days after the meeting, send reimbursement claim. Then, < 30 days you should receive payment.

REPORTS from our COST Action to COST Office

- On 15 January each year: Intermediate Financial report (until Dec 31)
- 1 month after grant period: Final financial report.
- 6 weeks before (May) the Annual Progress Conference (June): It will include
 - A detailed scientific report
 - Dissemination of Results of COST Actions

MEETINGS

Types of meetings: MC, WG meetings, Workshops/Conferences

A new type of meeting: Core Group meetings (Chair, Vice-Chairs, and Working Group Leaders)

Promote attendance of Early Stage Researchers (ESR), defined as less than PhD + 10 years

Meetings should be organised in any COST Country that has accepted the MoU of the Action.

Exceptions to this rule (for instance, our previous WGs meeting in Sarajevo) need prior approval from the COST Office.

MEETINGS DEADLINES

Too our understanding there are some confusing rules in COST vademecum.

- Small meeting requests: up to 5 delegates
 - 3 weeks before the proposed meeting
- Larger meeting requests (such as MC, workshops etc.):
 - 4 weeks before the proposed meeting
- Request for Local Organiser Support:
 - 2 months before the proposed meeting

The Grant Holder endeavours to reply to a request presented through MC Chair in accordance with the set rules within 10 working days.

The Chair has the final responsibility for approving the list of participants entitled to be reimbursed. The Chair can delegate this approval task to another MC member (MC Local Organiser or MC core group)
Travel rules: Please review 2.7. Eligible Costs - Reimbursement Rules (p. 17-22)

MEETINGS ORGANISATIONAL SUPPORT

There are significant changes in this section of COST guidelines. The main changes are outlined:

- COST support is normally only a contribution to the total budget
- Since early 2010: Fixed grant: up to EUR 30 per participant. If above, then full financial breakdown needed.
- One conference meal / day

We understand that the fixed grant is a small amount, and in our next meetings it will be necessary to look for additional funding.

Regarding one conference meal / day, in some cases the organiser will arrange a working lunch and a social dinner. In these cases, MC agrees that exceptionally, two meals can be included in organisational costs.

See workflow defined in vademecum.

Procedure for reimbursement of organisational costs.

Before the meeting:

1. Letter from Local Organiser to MC chair including draft budget for organisation costs showing also contributions from other sources (use template).
2. MC chair informs Grant Holder → e-COST
3. Grant Holder → Grant letter to Local Organiser → countersigned and return to Grant Holder

After the meeting (< 4 weeks):

1. Payment Request Form signed by Local Organiser
2. Signed attendance list
3. If > 3000 Euros 30/participant) → invoices
4. A scientific report (max 1 page) containing a summary of the event's scientific output
5. Approval from the MC Chair

STSM

At least 4 STSMs per year. STSM between different Actions

For ESR: up to 3-6 months

Up to EUR 2,500 (EUR 3,500 for ESR).

TRAINING SCHOOLS: Trainers and trainees will be requested to register on the e-COST application.

– **Status of Action, including participating countries**

This is the list of countries participating in our COST Action:

Country	Confirmed date
Croatia	17/07/2008
Cyprus	27/06/2008
Finland	02/05/2007
France	28/11/2007
Germany	02/05/2007
Greece	20/10/2008
Italy - Prof Paolo Dalla Palma	10/10/2007
Lithuania	29/10/2007
Netherlands	19/11/2008
Norway	03/10/2008
Poland	02/05/2007
Portugal	06/11/2007
Serbia	12/09/2007
Spain	08/05/2007
Switzerland	19/05/2008
United Kingdom	02/05/2007
Total	16

Although no new country has joined our consortium since our last meeting, new delegates have joined our consortium. This is the case of Italy, that now it has two delegates and we could meet Prof Paolo Dalla Palma in our meeting in Florence, September 2009.

Also, a new institution, Georgian Telemedicine Union, from a non-COST country, Georgia, in this case a neighbour country, has been approved by COST Office to participate in COST Action IC0604 activities. Eka Kldiashvili, Ph.D., Executive Director of this association (<http://georgia.telepathology.org>) will be collaborating with us.

For further details about non-COST countries see **10. Non-COST country participations.**

– **Budget status, budget planning and allocation process**

COST Action IC0604 EURO-TELEPATH “Telepathology Network in Europe”

Grant budget plan

Grant period: 1 Jul 2009 – 30 Jun 2010

Allocated budget:

A. SUMMARY BUDGET

(1) TRAVEL COSTS FOR MEETINGS	€ 39,000
(2) WORKSHOP ORGANIZATIONAL SUPPORT	€ 9,022
(3) SHORT-TERM SCIENTIFIC MISSIONS	€ 13,370
(4) TRAINING SCHOOLS	€ 8,000
(5) DISSEMINATION - PUBLICATIONS	€ 6,000
(6) OTHERS (GASG)	€ 2,000
TOTAL SCIENCE EXPENDITURE	€ 77,392
B. SECRETARIAL SUPPORT (max. of 15% of A.)	€ 11,608
C. TOTAL EXPENDITURE (A+B)	€ 89,000

This is the list our main activities during the current grant period 1 Jul 2009 – 30 Jun 2010:

MC meetings:

Past meetings:

- 5th COST Action IC0604 MC and 6th/7th WGs meeting.
Ecole Polytechnique Federale de Lausanne. Lausanne, Switzerland.
December 3rd-4th, 2009.
Number of participants to be reimbursed: 20.

Travel costs: 12,000.
Organizational support: 3,000

Next planned MC meeting:

- 6th COST Action IC0604 MC and 9th WGs meeting.
Vilnius, Lithuania.
June 29th-30th, 2010.
Number of participants to be reimbursed: 20.
Travel costs: 13,000.
Organizational support: 3,000
MC meeting: June 30th, 2010
WGs meetings: June 29th-30th, 2010

Working Group meetings:

Past meetings:

- 5th WG3 and 5th WG4 meetings. Workshop during the 22nd International Congress of the European Federation for Medical Informatics (MIE 2009). Sarajevo, Bosnia & Herzegovina. August 29 - September 2, 2009
Number of participants to be reimbursed: 7. Travel costs: 4,000. Organizational support: -
- 6th WG1 and 5th WG2 meetings. Workshop "Business Modeling & Informatics Standards" during the pre-congress meeting of the European Society of Pathology Working Group Information Technology (IT) / 22nd European Congress of Pathology. Baglioni Hotel, Florence, Italy. September 4th, 2009.
Number of participants to be reimbursed: 7.
Travel costs: 4,000.
Organizational support: 1,022
- 6th WG2 meeting. Joint DICOM WG26 and IHE AP meeting. Grand Hotel Minerva, Florence, Italy. September 5-6th, 2009.
Budget: See 6th WG1 and 5th WG2 meetings
- 7th WG1 and 7th WG2 meeting and 6th WG3 and WG4 meeting, during MC meeting. EPFL, Switzerland. December 3rd-4th, 2009. (See details above)

Next planned meetings:

- Already planned:
8th WG1 meeting and 5th Workshop of OpEN.SC. Brandenburg, University of Applied Sciences, Department of Informatics & Media, Germany, 5-6 May 2010.
(Please note: Venue and dates have been updated)
Number of participants to be reimbursed: 5.
Travel costs: 2,500 € (initially estimated 3,000 €)
Organizational support: 1,000 €
- A new proposal approved:
8th WG2/3/4 meeting. Ciudad Real, Spain, 22-23 January 2010
No organizational support is needed
We will estimate a number of participants to be reimbursed according to available budget. Those MC members that have presented a proposal for work packages for EU VIDA research project.
MC approved this new WG2/3/4 meeting in Ciudad Real to cover with important topics that arose during Lausanne meeting:
 - WG2: Response to AIC (Jpeg) call
 - WG3: Image analysis projects.
 - WG4: slide scanning technology update

- Final text of EU FP7 proposal (VIDA project)
- Already planned:
 COST IC0604 European Microscopy Scanner Contest. Brandenburg, Germany. Initially planned to be held by March 2010. It is now proposed to postpone it to June 2010. Initial estimation (may vary according to final programme and dates):
 Number of participants to be reimbursed: 4.
 Travel costs: 2,000 €. (initially estimated 2.500 €)
 Organizational support: 1,000 €
- 9th WGs meeting (For budget details see 6th MC meeting):
 Vilnius, Lithuania.
 June 29th-30th, 2010.

Short Term Scientific Missions (STSM):

Since our last MC meeting in Paris, 3 STSM were performed, corresponding to the previous budget plan (1 Jul 2008 – 30 Jun 2009). In summary, they were:

Name	From country	Institution	To country	Institution	Budget	ESR
Daniel Badia	Spain	Hospital Universitario Vall d'Hebron, Barcelona	Germany	Open European Nephrology Science Center, Charite, Berlin	1000	Y = Yes
Carlos Lopez	Spain	Hospital Verge de la Cinta, Tortosa	Poland	Institute of Biocybernetics and Biomedical Engineering, Warsaw	2480	Y = Yes
Myriam Oger	France	François Baclesse Cancer Center, Caen	The Netherlands	Utrecht University Medical Center	2140	Y = Yes

Total planned budget for this running period (1 Jul 2009 – 30 Jun 2010): 13,370 Euros.
 (For details, see **6. STSM status, applications**)

Training School:

After the success of the training schools organized by the University of Nottingham (Prof. Mohammad Ilyas) in June 2009, MC approved that a similar activity based on Nottingham experience could be organized in Vilnius, Lithuania, right before the 10th European Congress of Telepathology. This will allow an optimization of the Action budget assigned to MC and WG meeting to be held those days also in Vilnius since some faculty members may be MC members.

Dates and venue: from June 27th to June 29th, in Vilnius, Lithuania.

- Training School on **Open Source tools for Image Processing and Analysis in Pathology**
- Image J Tutorial/workshop
- Organized by: Mohammad Ilyas. University of Nottingham
- Close dates to 10 European Congress on Telepathology
- Travel costs: 6,000 Euros.
- Organizational costs. 2,000 Euros.

Dissemination activities:

(See **7. Publications, dissemination and outreach activities**)

WG3 – Images: Analysis, Processing, Retrieval & Management (M. Ansorge, J. Słodkowska)

A summary of the past activities of this group is presented, including:

- Training school in the use of Open Source Image Analysis Software in Pathology. 24-26th June, 2009. University of Nottingham. UK.
- August 30 - September 2. Sarajevo, Bosnia & Herzegovina. COST Action IC0604 5th WG3 meetings. In conjunction with 22nd International Congress of the European Federation for Medical Informatics. On Tuesday 1 September a Workshop on “Digital Pathology in Europe: Coordinating Patient Care and Research Efforts” was organized. This workshop was published in the proceedings book:

Studies in Health Technology and Informatics

Volume 150, 2009

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Edited by Klaus-Peter Adlassnig, Bernd Blobel, John Mantas, Izet Masic

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Digital Pathology in Europe: Coordinating Patient Care and Research Efforts

Marcial Garcia Rojo, Vytenis Punys, Janina Słodkowska, Thomas Schrader, Christel Daniel, Bernd Blobel

Dr. Janina Słodkowska and Dr. Tomasz Markiewicz present two lines of research that will be presented for funding in next research project calls:

- 1) Correlation of the upper gastrointestinal endoscopy images with biopsy microscopical lesions (including the quantitative evaluation of gastric neuroendocrine cells) – during proton pump inhibitors treatment of the patients with non-erosive- and erosive- gastroesophageal reflux disease [NGERD and EGERD]. Algorithm for the automated evaluation of microscopical diagnostic criteria in GERD biopsy. Department of Pathomorphology and Clinic of Gastroenterology: Military Institute of the Health Service: Warsaw, Poland.
- 2) Effects of the biological drug treatment on status of joint tissues and healing process in the postoperative wound of the patients with rheumatoid arthritis
Institute of Rheumatology in Warsaw, Poland

Daniel Racoceanu, Research Director of IPAL (Image & Pervasive Access Lab), Singaporean-French International Research Unit, presented a summary of their activities, including the multiple frameworks and grant opportunities for projects and scholarships around the IPAL collaboration. Some of the research areas covered by IAPL are Content-Based Medical Image Retrieval - CBMIR (Query by image - example), CBMIR versus PACS and DICOM. They have been participating in the following projects: MMedWeb (Multimedia Medical Conceptual Web for Intelligent Information Access) —A*STAR/SERC (Aug. 2007- Jul. 2010)
ONCO-MEDIA (ONtology and COntext related MEdical image Distributed Intelligent Access) ICT Asia project (Oct. 2006 – Dec. 2010)
An Intelligent Vision System for Quantitative Microscopy in Neural Stem Cells Progenitor Growth and Differentiation A*STAR CCO (Cross Council Office) (Dec. 2009 – Nov. 2012).
A detailed presentation of the project “Knowledge-Guided Semantic Indexing of Breast Cancer Histopathology Images for Breast Cancer Grading” is included.

WG1 – Pathology Business Modelling (presented by Prof. Dr. Thomas Schrader, MC, thomas.schrader@computer.org)

1 The results of Working Group 1, COST-Action

The following models are presented:

- 1.1 Business values in Pathology
 - Final “products” of Pathology Department
 - Diagnostic process
 - Research
 - Education
- 1.2 Business processes in Pathology
 - Overview in BPMN
 - Basic business process
 - EPC Event-Process-Chain

2 Results of STSM Cornils & Zhou

Two STSM performed during October 2009 have been dealing with Business Modelling in Pathology. These are the main conclusions of the reports:

2.1 STSM Ms Yao Zhou. Comparison different notations. Notations in business modelling (Frozen section model)

- a) Business Process Modeling Notation - BPMN
- b) Event Process Chain - EPC
- c) UML Activity Diagram
- Conclusions: Ms Yao Zhou (Charite Universitätsmedizin Berlin, Germany): BPMN is the modelling notation which is clearer and more understandable to pathologists. EPC is harder for pathologists to read and understand. It is probably because EPC is not as popular as BPMN and UML AD, so pathologists are not so familiar with the concept of event-driven process. The current two pathology processes – Frozen Study and Formalin Fixed Specimen Study – are not complete in some aspects. Further work will be needed to modify the processes according to feedbacks we have gotten from the pathologists.

2.2 STSM Malte Cornils. Simulating business processes in pathology

- a) Business modeling simulation theory and methods
- b) Applicability for the medical domain of pathology
- c) Concrete examples of business process simulation using modeling languages and tools and a process-driven design process
- Conclusions: Mr Malte Cornils (Charite Universitätsmedizin Berlin, Germany): A full pass at theoretical research, modeling, analysis, simulation implementation, scenario setup and result evaluation and to some extent, presentation was achieved in the nine working days at UCLM. While the methodology used here does not pass rigorous muster, it shows that research following these lines and using simulation of business processes is possible and can be effective. However, the lacking customizability of the simulation tools on the market evaluated here is a problem for now. There is no reason this will not change in the future. For example, an open-source discrete event simulator like ns-2 for network protocol simulation or [Rü08] might offer the needed flexibility to model the simulation accurately enough. Also, the process modeled here is bound to change in the future, and is in fact already changing. The advent of digital slides changes the workflow considerably. Simulation might give insights for where to use digitalization and especially where it does not impede, but supports the rest of the process.

Slide scanner contest in Berlin & Brandenburg

Initially planned for May, 2010 (together with the 5th OpEN.SC-Workshop 5th/6th May 2010), it is considered more convenient organizing it during an important German conference in June 2010, and then to present the results during the 10th European Congress on Telepathology

Two organizing institutions:

- Berlin, Charité, Department of Pathology
- Brandenburg, University of Applied Sciences & Department of Pathology, Brandenburg Hospital

The scanner vendor will be divided into two groups: one group will work in Berlin, the other group will work in Brandenburg. They have to scan various slides and provide these slides via Internet. They can be reviewed by experts on both locations. We establish a continuous video conference line for a close communication.

During the meeting it is discussed what kind of slides should be scanned, evaluation criteria, parameters to be measured, and information to be included in the report or presentation of results.

This scanner contest can be connected to a IHE and Cost Action (all groups especially WG1, WG2 and WG4).

3 Summary

3.1 Summary

Now Status quo

- A general business process in pathology is described.
- The process model has a close relationship to the standards (DICOM, HL7).
- BPMN is chosen as the main modeling language

Future What should be done?

- Transformation from EPC to BPMN
- Convergence to unified process description terms related to SNOMED

3.2 Sources & Literature

Sources & Literature

BPMN: www.bpmn.org , de.wikipedia.org

UML

– Kecher C. UML 2.0: Das umfassende Handbuch ; [aktuell zum UMLStandard 2.0, alle Diagramme und Notationselemente, Praxisbeispiele in C und Java]. 2., aktualisierte und erw. Aufl., 1. Nachdr. Bonn: Galileo Press; 2007.

– Zuser W, Grechenig T, Köhle M. Software Engineering mit UML und dem Unified Process. 2., überarb. Aufl. München: Pearson Studium; 2004.

– Heumann, J. Introduction to business modeling using the Unified Modeling Language (UML) IBM Developer works; 2003.

ARIS

– Klückmann, Jörg. ARIS Expert Paper: Auf dem Weg zur SOA; 2006. 2007 Jun 04 (cited 2009 Mar 8).

– Lehmann FR. Integrierte Prozessmodellierung mit ARIS. 1. Aufl. Heidelberg: dpunkt Verl.; 2008.

– Oracle. Methods - Oracle Business Process Analysis Suite 10.1.3; 30.08.2006. 2006 Aug 30 (cited 2009 Mar 8).

Reference images

- www.pathologie.uni-wuerzburg.de=geschichte
- www.verein-dominik.org=beateklein=05jan06.htm
- jkjpathology.com=doctors=reports.htm

WG2 – Informatics Standards in Pathology (C. Daniel, B. Blobel)

Presenters: Christel Daniel (presented by Marcial García Rojo) (MC), Bernd Blobel (MC), and Jacques Klossa (MC).

IHE and HL7 (Summary prepared by Bernd Blobel.)

Not having been able to attend the MC and WG Meeting in Lausanne, WG Leader Christel Daniel has prepared a report (slides are available) together presented by Marcial Garcia and by the Deputy WG Leader Bernd Blobel.

In the context of the engagement at HL7 and IHE, two change proposals have been prepared:

The CP for Anatomic Pathology Workflow (APW) and the CP for Anatomic Reporting for Public Health (ARPH). The work has been performed by different groups engaged at HL7 within the HL7 Liaisons Schemes. Here IHE activist, CDC (Center of Disease Control) experts have to be mentioned beside the COST IC 0604 representatives.

Within the Anatomic Pathology Workflow procedure step management CP, an instance availability notification services is under discussion regarding the service structure and expected outcome. Other procedure step management specifications concern the consistent management of both laboratory and imaging procedure steps. Here, an automation manager and a performed procedure step manager have been introduced.

In the context of reporting anatomic pathology to public health repositories, scope, expected outcomes, actors and transactions have been defined. The specification is based on HL7 V2.5, the reference terminologies Snomed-CT, LOINC and ICD-10 and reusing North American Association of Central Cancer Registries standards for Cancer Registries. An implementation guide for structured reports in HL7 v2.5 will be developed.

Within IHE, an IHE Integration profile Anatomic Pathology Reporting Workflow (ARW) is under development. The IHE content profile is established through HL7 CDAR2 templates. In the respective CDA implementation guide, the Body –Level 2 sections have been defined in detail.

For a better use of DICOM in anatomic pathology workflows, the DICOM modality work list, image retrieval and display as well as multimedia structured reports have to be specified. In the modality work list, all the scheduled procedure steps with selected demographic information and information about specimen have to be listed.

The report has been amended by localized Pathology Report Implementation Guides based on HL7 CDAR3 templates and provided by HL7 International Affiliates such as HL7 Germany. For supporting international reuse of that standard, the specification has been adapted to HL7 CDAR2 templates.

Finally, the IHE Survey: Anatomic pathology reporting in different contexts and countries and the IHE White Paper: Anatomic Pathology Structured Reports (APSR) have been presented.

DICOM WG26 – Whole slide imaging (by Jacques Klossa)

- Progress
- Pending topics. Harry Salomon's summary:
- Possible COST contribution
- Available documents
- Next meetings

Progress:

- Draft presented to WG6 for a 2d reading in October
- WG26 continues working on WSI IOD* suppt 145 draft
- Next web conference on 12/16/09

Harry Salomon's summary:

1. All: verify acceptability of the tiling approach.
2. DICOM experts: verify acceptability of the multi-frame functional groups approach.
3. Scanner manufacturers and pathologists: verify appropriateness/ completeness of concepts in Optical Path Module, and of the associated Context Group terms.
4. Scanner manufacturers: verify LABEL labeling approach.
5. All: verify acceptability of the localizer approach.
6. DICOM experts: verify acceptability of the Frame of Reference approach.
7. All: verify acceptability of the Modality Worklist approach
8. DICOM experts: verify acceptability of the Presentation State approach (to mitigate the limitations of tiling for annotations)

Possible COST contribution

- True tiling approach (no overlap) recommended
- Breaking the size limit (for JP2/JPIP): correction proposal has been withdrawn. Limit for one tile WSI IOD is 64kpx and 4 Gb.
- For those who would like to use JP2/JPIP: VL (Visible Light) IOD should be extended as necessary for storing any needed information
- Information on the optical path section is needed
- The modality Work List needs to be detailed
- See detailed Ralf Zwonitzer discussion on JP2/JPIP

Suggested COST IC0604 contribution:

collecting our WSI use case for clinic and research and translating these cases in needed information for VL & WSI IOD

Next DICOM WG26 meetings

- Web conference: Wed., Dec. 16, 2009, 4 p.m. for Europe
- Meeting (USACP), Sat March 20, 2010, Washington
- Meeting (Eur. telepat. Congr.), July 1-3, 2010, Vilnius
- Meeting (Pathology Vision), Sunday, Oct 24, 2010, 8-12 a.m., San Diego

Jacques Klossa has also compiled the following files that are available to the consortium:

- Sup145_08.doc: DICOM Supplement 145: Whole Slide Microscopic Image IOD and SOP Classes. Version 8. After WG26 meeting in Florence – 2009/09/07
- Harry_Salomon_note v8.doc: Harry Solomon's notes on version 8 of DICOM supplement 145.
- WG26_listservemails_nov2009.doc: Working Group 26 (Pathology) Progress Report, November 16, 2009.
- SR_intro_dicom_hermanO_v2.ppt: DICOM explained in the context of Structured Reporting. NEMA workshop, Washington DC, March 29-30, 2000. By Herman Oosterwijk, OTech Inc. herman@otechimg.com The Objective of this presentation is to get a basic understanding of DICOM services and objects in the context of Structured Reporting:
 - DICOM objects (IOD's)
 - DICOM encoding: Data elements, VR, sequences, Codes
 - DICOM exchange media

JPEG (By Prof. Dr. Touradj Ebrahimi)

Prof. Ebrahimi informed JPEG committee (April 2009 May meeting) about the concerns that were raised regarding lack of some functionalities in JPEG 2000 to efficiently support telepathology requirements. JPEG took note and worked on an action plan to resolve this issue. A brief report on the status of this action was presented. These minutes are complemented with slides presented by Prof. Ebrahimi.

JPEG200 is a project that is finished (it still has some few amendments). Advanced Image Coding (AIC) is an experimental still image compression system that combines algorithms from the H.264 and JPEG standards.

JPEG committee issued an AIC call for proposals in its Sardinia July 2009 meeting to request for requirements, data, evaluation methodologies, and eventually example technologies in the field of medical imaging. Response is expected at 15-19 March 2010 JPEG meeting in Boston. Recommendation: COST IC0604 should respond to the call.

The creation of a discussion forum within COST IC0604 to better coordinate exchange of information and liaison with JPEG committee was presented. Subscription: send an email to

cost-ic0604-jpeg-subscribe@yahoogroups.com

- All JPEG meeting documents in 2009 which are relevant to medical imaging have been uploaded to the Yahoo!Group
 - Text of the AIC call in medical imaging
 - Liaison to DICOM
 - AIC progress reports
 - AIC current Working Draft
 - Miscellaneous documents on medical imaging
- Recommendation: Register to the above group if interested, and let's use it to coordinate response to JPEG

WG4 – Technology & Automation in Pathology (M. García Rojo, B. Blobel)

WG4 Report. Use of COST Action tools: STSM

From May-June 2009 the following ESR benefited from STSMs:

- Dr Myriam Oger, GRECAN – From the François Baclesse Cancer Center, CAEN(FR) to the Department of Pathology, UTRECHT(NL)
- Carlos Lopez, From Hospital de Tortosa Verge de la Cinta, Tortosa (ES) to the Institute of Biocybernetics and Biomedical Engineering, Warsaw(PL). 2480 Euro
- Daniel Badia. From Hospital Vall d'Hebron, Barcelona, Spain to Germany. 1000 Euro

A brief report on Virtual microscopy scanning technology is presented by Marcial García.

In the last months two new slide scanners are available: Leica SCN400 and Menarini Diagnostics D Sight.

Leica SCN400 has also a 384-Slide Loading System available. This scanner has a unique dynamic focus technology that allows a fast Z scanning of the whole slide. More information at:

<http://www.leica-microsystems.com/products/light-microscopes/life-science-research/slide-scanner/>

Menarini D-SIGHT is optimized for automatic acquisition of up to 50 slides per work cycle. It has a 6-objective revolver, but it is an easy to use closed system and calibrated at the source. It has a version for fluorescence scanning: D-SIGHT fluo, that can be used in FISH, or other fluorescence scanning, regardless of the fluorochrome used (housing up to 6 filter blocks). Sample slides available at: <http://www.dsight.eu/>

In the near futures, it is expected that the speed of slide scanners increased significantly, reaching a desired figure of 1 slide 40x in 1 minute or less. Philips and GE (Omnyx) are working in this field.

A consulting and advisory company published a report in 2007 where they estimated that it may take 5 to 10 years for telepathology to reach a mainstream adoption. That forecast was even worse in their 2008 report, where the years to mainstream adoption were more than 10 years for telepathology. We think we are not that far, but we recognize that significant effort needs to be done.

Summarizing the technology and automation challenge in pathology, the role of an ontology-driven architectural framework for designing and implementing advanced European COST Action IC0604 Euro-Telepath solutions has been discussed by Bernd Blobel in some more details. The presentation has been distributed to the COST community. The approach has been meanwhile recognized by leading institutions and associations and implemented in several international standards.

Ontology driven architectures: A Generic Component Model (GCM) represented as a cube with a Domain Perspective (Domain 1 to n), a Development Process Perspective (Business Concepts, Relations Networks, Aggregations: Basic Services / Functions, Details: Basic Concepts), and a System's Architectural Perspective, may offer different views: Enterprise View, Information View, Computational View, Engineering View, and Technology View.

The different Interoperability Levels (Technical, Structural, Syntactic, Semantic, and Organizations/Service) are briefly explained.

Service Aware Enterprise Architecture Framework (SAEAF) is described, and it is proposed that HL7 and its Standardized Specifications should deliver what we really need for interoperability so that actual Implementations may be built. The HL7 Specification Stack: Specification and Conformance Patterns.

Interoperability is more than technology.

For mastering the domain business requirements, we have to represent the business domain properly. This requires the inclusion of /reference to ontologies.

The domain ontology must be represented properly following a hierarchical system of ontologies.

The resulting ontology-driven architecture must master ontology management and ontology harmonization (mapping, bridging, etc.).

We invited Prof. G. Qiu (School of Computer Science) and Prof. M. Ilyas (School of Molecular Medical Sciences, Queens Medical Centre NHS Trust) from the The University of Nottingham to present a research project proposal submitted to the UK Engineering and Physical Science Research Council (EPSRC), about "Knowledge Discovery from Pathology Images and Text". In summary, the project seeks to address the need for powerful computer analysis tools to process and exploit the fast growing electronic pathology images and clinical narratives; and to employ cutting-edge computational techniques and models to jointly mine pathology image samples and their associated clinical narratives to gain new insight into and new knowledge from large volumes of image and text based medical data. A main objective is constructing a text and image content searchable pathological image database of colorectal cancer in which each image will be tagged with medical keywords and disease codes sourced from the pathologists reports and indexed with image content features derived from the pixels.

17:30-18:30 **Management Committee Meeting / PART 2** (M. Garcia Rojo)

5. Action planning

5.1.1 Annual Progress Conference (preparation and/or feedback from DC)

From 28 to 29 June, 2010 the **COST-ICT Annual Progress Conference (APC)**. will take place in Tallinn, Estonia.

Since it seems it will take place during our activities in Vilnius, Lithuania (mainly Training School and some WG activities), we will postpone our MC meeting to the day after the APC meeting (June 30), so that MC Chair can flight from Tallinn to Vilnius on June 29.

5.1.2 Action Budget Planning

Already described in section 3. **Budget status, budget planning and allocation process.**

5.1.3 Action Planning (including meetings)

Some of these activities have meet mentioned in section 3. **Budget status, budget planning and allocation process.**

5.3.1 Location and date of next meeting

Training School on Image Analysis, organized by Mohammad Illas (as coordinator of "Nottingham training school") in collaboration with Arvydas Laurinavicius and Vytenis Punys (as local organisers), will take place from June 27th to June 29th, in Vilnius, Lithuania.

It will be a 3 days activity. According to COST vademecum "The duration of a Training School is normally between three days and two weeks long."

Working Groups activities

1) Our consortium is very interested in launching new EU research projects. After this MC meeting in Lausanne, we will have a long session to discuss in detail about a proposal (Personalised Disease Management Based on Virtual Microscopy Images and Data Analysis Tools in Pathology) that was initially presented in our previous MC meeting in Paris.

In order to complete the text for this proposal, a new meeting of COST IC0604 members that have confirmed their interest to participate in this proposal may be necessary at the beginning of next year (22-23 January 2010) in Ciudad Real. This will be a joint WG3 and WG4 meeting.

2) As suggested by Thomas Schrader, WG1/4 Scanner contest could take place during an important German conference that will take place on June 2010. Then the results can be presented during the 10th European Congress of Telepathology in Vilnius.

Dissemination activities

Prof. Vytenis Punys suggests arranging a core group (interested in SNOMED CT) meeting during the IHTSDO (International Health Terminology Standard Development Organisation) conference in Denmark (Copenhagen or Helsingor) on the 26th-30th of April, 2010.

The information about the conference is available (and will be updated in due course) at:

<http://www.ihtsdo.org/about-ihtsdo/ihtsdo-conferences/>

This is considered a very important activity, and could be a very valuable dissemination effort for our Action. Since we have a limited budget for this period, only 4 to 5 members of MC can be reimbursed to attend the IHTSDO 2010 April Conference. The list of people that expressed their interest to attend this meeting is: Bernd Blobel, Vincenzo Della Mea, Arvydas Laurinavičius, Vytenis Punys, and Thomas Schrader. MC Chair will review the available funds and will inform to MC if it is possible that all of them or some of them can be reimbursed for this meeting.

Date	Location	Meeting type
22-23 January 2010	Ciudad Real, Spain	7 th WG2/3/4 Proposal EU FP7
26-30 April 2010	Copenhagen, Denmark	Dissemination at IHTSDO
5-6 May 2010	Brandenburg, Germany	8 th WG1 joint 5th OpEN.SC
June 2010	Brandenburg, Germany	9 th WG1/8 th WG4 "Scanner contest"
28-29 June 2010	Tallinn, Estonia	COST-ICT APC
27-29 June 2010	Vilnius, Lithuania	2 nd Training School
29-30 June 2010	Vilnius, Lithuania	9 th WGs meeting
30 June 2010	Vilnius, Lithuania	6 th MC meeting

Other important dates to remember (related to COST Action IC0604 activities):

- **USCAP Annual Meeting** 20 - 26 March 2010 in Washington, DC

5.3.2 Long-term planning (including anticipated locations and dates of future meetings)

For our next grant period (July 2010-June 2011):

MC meetings:

- 23-25 Sept. 2010. 10th Symposium on Neural Network Applications in Electrical Engineering. Prof. Dr. Branimir Reljin
The **NEUREL 2010** conference.
MC and WGs meetings, probably on Sept. 22, 2010 (Wednesday), day before NEUREL - MC meeting, and Sept. 23 - WGs (in parallel with NEUREL). Also, at least one special session, devoted to activities of COST IC0604 is expected
This proposal is accepted by MC.
- Michael Ansorge proposes a MC meeting to be held in Fribourg, Switzerland, by 2011, as a joint meeting with Stem cell consortium. Tentative dates are Jan 21 to Feb 4, or Feb 14 to Feb 17.
MC agrees with this idea of having a joint meeting with the Stem cell consortium. When we have the final dates of this meeting, we will submit it to MC formal approval.

6. STSM status, applications

STSM already performed:

1. STSM Applicant: Mr Malte Cornils, Charité Universitätsmedizin zu Berlin, Berlin(DE)
STSM Topic: Simulate Business Processes in Pathology

Host: Francisco Ruiz, Department of Information Technologies and Systems, Ciudad Real (ES)
Budget: 1500 Euros

2. STSM Applicant: Ms Yao Zhou, Charité Universitätsmedizin zu Berlin, Berlin (DE)
STSM Topic: Comparing different business modeling notations in pathology
Host: Francisco Ruiz, Dep. de Tecnologías y Sistemas de Información, Escuela Superior de Informática, Universidad de Castilla-La Mancha, Ciudad Real
Budget: 1500 Euros

Next STSM planned:

- Interfacing whole slide imaging platform and image automatic analysis solutions (S: IPAL R: Tribvn). 1500 Euros
- Integration acquisition modality and order filler to evidence creator) and investigating postprocessing integration of radiology technical framework (DICOM). (S: France (Univ. Paris7) R: UCLM.). 3500 Euros
- SNOMED for Anatomic Pathology (terms of image analysis, specimen, tasks, activities, functions, processes,...) value set for cancer checklists. S: Charite, Paris. R: NHS UK, Lithuania). 2500 Euros
- Cooperative Project on Development of Novel Technique for Quantitative Immunohistochemistry (S. IBBE Poland – R. Tortosa, Spain). 1350 Euros x 2
- Cooperative Project on Development of Novel Technique for Quantitative IHC (S. Tortosa, Spain – IBBE, Poland) 850 Euros x 2

7. Publications, dissemination and outreach activities

Already performed:

Publications

Proceedings of WGs meeting in Florence, Italy

MC approved by written procedure a request to publish proceedings (Prof. Kayser): IT in Pathology pre-congress and symposium presentations during 22nd European Congress of Pathology in Florence, Italy (4-9 September 2009) in the in the open access journal Diagnostic Pathology (about 1,000 Euros)

It will be published as:

Diagnostic Pathology Vol 5 Suppl 1, 2010: Publication of 21 abstracts from the 22nd European Congress of Pathology (European Society of Pathology) ESP Working Group Information Technology (IT)/ COST Action IC0604 WG3/WG4 meeting.

Final invoice (it was received on 16. December. 2009): 925,00 GBP (about 1025 Euros).

This is approved by MC.

Chapter of books:

Sabah Mohammed and Jinan Fiaidhi (Department of Computer Science, Lakehead University, Ontario, Canada) Editors of the IGI Global Book: Ubiquitous Health and Medical Informatics: Advancements in Web 2.0, Health 2.0 and Medicine 2.0

Journals:

MC members and experts must remember to include a reference to COST Action IC0604 in the acknowledgement section of the papers published jointly by the consortium. As an example see:

Christel Daniel, MD, PhD; Marcial García Rojo, MD, PhD; Karima Bourquard, PhD; Dominique Henin, MD, PhD; Thomas Schrader, MD; Vincenzo Della Mea, PhD; John Gilbertson, MD; Bruce A. Beckwith, MD

Standards to Support Information Systems Integration in Anatomic Pathology

Archives of Pathology and Laboratory Medicine: Vol. 133, No. 11, pp. 1841–1849.

Full text available at: <http://arpa.allenpress.com/arpaonline/?request=get-document&doi=10.1043%2F1543-2165-133.11.1841>

Where it is stated "This study was supported by the following grants: FISCAM BR-CCM-2006/03, COST Action IC0604 Euro-Telepath, ADICAP."

Other dissemination activities

Virtual Hispanoamerican Congress (<http://www.conganat.org/10congreso/>).
Web site of National/International Pathology Societies (<http://www.seap.es/informacion/becas.htm>)

JISBD 2009

San Sebastian, Spain. September 9, 2009. 24th Meeting on Software and Database Engineering. "EU COST Actions seminar"

<http://www.mondragon.edu/jisbd2009/programa.shtml>

COST Action IC0604 activities were presented by Prof. Gloria Bueno. We thank Prof. Juan Garbajosa, ICT Domain Committee member, for his assistance to organize this informative session.

COST Day in Spain.

Professor Francesco Fedi, President of the CSO, participated in the COST Day organised in Madrid on 27 November 2009 by the Spanish Ministry of Research and Innovation at the 'Centro de Investigaciones Biológicas' of the National Spanish Research Council (CSIC). During this meeting a selection of three running COST Actions were presented. Dr Marcial Garcia Rojo Chair of COST Action IC0604 Anatomic Telepathology Network illustrated their experiences in participating in COST Actions.

For more information:

http://web.micinn.es/contenido.asp?dir=05_Investigacion/032CoopIntern/00-OfEuropea/001ReCoCiE/07-Eventos

<http://www.cost.esf.org/library/newsroom/COST-Day-in-Spain>

<http://www.conganat.org/eurotelepath/2009-11-27/index.asp>

Budget: This meeting was arranged by the Spanish Ministry of Research and Innovation (<http://web.micinn.es/>) and this institution took care of all expenses.

To be performed:

Publications:

Adaptation of General Business Model with practical pathology. Compare theoretical models with the way hospitals are working. A framework

Standard implementation of Business models in DICOM, HL7, IHE

Datawarehouse for translational medicine.

Important standardization body meetings:

• April 26-30, 2010 in Copenhagen. IHTSDO 2010 April Conference. IHTSDO's General Assembly will meet on April 26th, followed by the Standing Committees on April 27th and the Project and Special Interest Groups on April 28th and 29th. The Members' Forum will meet April 30th.

8. Request for new members

We are open to new participants in COST Action IC0604 if they can contribute significantly to our activities. No new COST country request to join MC has been received in this running budget period.

9. Promotion of gender balance and of Early Stage Researchers (ESR)

As stated during last APC meeting, our Action should perform additional efforts to promote the participation of female researchers and ESR. This has been accomplished in our last STSMs.

Vytenis Punys proposes the participation of PhD students in studies in digital imaging in Pathology (e.g. JPEG compression).

10. Non-COST country participations

The list of current non-COST institutions is as follows:

Institution Name

• Wipro Technologies

• Georgian Telemedicine Union

Country

• India

• Georgia

We have received a new request from a non-COST Country, Singapore. This proposal will be officially sent to COST Office in the next few days. MC approves that IPAL (Image & Pervasive Access Lab) in Singapore collaborates with COST Action IC0604.

Based in Singapore, IPAL (Image & Pervasive Access Lab) is a CNRS (French National Research Center) international French-Singaporean research unit, issued from a long term (more than 10 years) collaboration between the CNRS and the local partners (A*STAR/I2R and the National University of Singapore - NUS). As expressed by Daniel Racoceanu, Research Director of IPAL, in the motivation letter, as an overseas lab of CNRS, IPAL is directly eligible to the FP7 calls, being actively involved into European Projects consortia.

11. Proposal of new COST Actions that could cooperate with COST IC0604

Marcial García Rojo suggests beginning contacts with recently approved Actions that are focusing in nanotechnology.

Nanotechnology can be a field of utmost importance also in Pathology. As an example, see the paper: Lawrence D. True, M.D. and Xiaohu Gao, Ph.D. Quantum Dots for Molecular Pathology. Their Time Has Arrived. J Mol Diagn. 2007 February; 9(1): 7–11. Abstract:

Assessing malignant tumors for expression of multiple biomarkers provides data that are critical for patient management. Quantum dot-conjugated probes to specific biomarkers are powerful tools that can be applied in a multiplex manner to single tissue sections of biopsies to measure expression levels of multiple biomarkers.

There are about 3680 papers about quantum dots (the first one was published in 1990) in Pubmed database. From these, only 144 refer to Pathology field (the first one in 2002).

MC agrees that we can start contacts with these actions.

Possible Actions of interest:

Materials, Physical and Nanosciences (MPNS)

- *MP0603* Chemical Imaging by Means of CARS-microscopy (MicroCARS) (End date: April 2011). <http://www.microcars.portal.chalmers.se/>
Chair: Associate Prof. Annika Enejder enejder@chalmers.se Group of Molecular Imaging and Biotechnology, Department of Chemical and Biological Engineering, Chalmers University of Technology
- *MP0604* Optical Micro-Manipulation by Nonlinear Nanophotonics (End date: May 2011) <http://www.photomat.it/cost/MP0604.html>
Chair: Professor Francesco SIMONI f.simoni@univpm.it Dipart. di Fisica e Ingegneria dei Materiali e del Territorio. Facoltà di Ingegneria. Università Politecnica delle Marche
- *MP0701* Composites with Novel Functional and Structural Properties by Nanoscale Materials (Nano Composite Materials-NCM) (End date: March 2012) <http://www.nanocomposites-cost.eu/>
Chair: Dr Erich KNY erich.kny@arcs.ac.at Austrian Research Centers GmbH – ARC
- *MP0802* Self-assembled Guanosine Structures for Molecular Electronic Devices (End date: June 2012) <http://www.g4net.org>
Chair: Dr Lea SPINDLER lea.spindler@uni-mb.si Josef Stefan Institute, Ljubljana, Slovenia

12. Web news

We will continue with our activities in <http://www.conganat.org/eurotelepath/> as a main web site.

List server archives can be reached in <http://lists.conganat.org/private/cost-ic0604/>

13. European research Projects. WG-VIDA project meeting

In COST Action IC0604 MC we decided in Paris (March 2009) to support VIDA project. MC members and experts worked at VIDA project during or last meeting in Lausanne.

Recently, Jacques has proposed a new project (IM2) that MC and project leaders agreed to consider as a different project, since it seems it is not ease to merge them as a single project.

COST Action IC0604 MC decided we would like to receive information about IM2 proposal. However, each member of the consortium must make their own decision about these projects.

On December 4th, 2009, we discussed about the available text of the proposal "Personalised Disease Management Based on Virtual Microscopy Images and Data Analysis Tools in Pathology", (VIDA project) elaborated by Prof. Gloria Bueno. Main objectives (models, fields to cover) and work packages distribution were also discussed.