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Contents

1. Introduction

The Cooperation Platform for Research and Standards (COPRAS) is an FP6 Specific Support Action (SSA) project addressing projects in calls 1 and 2. It addresses Thematic Priority Area number 2: 'Information Society Technologies' and aims to serve as a platform for IST research projects seeking to upgrade their results through interfacing with standards bodies.

The project started 1 February 2004 and will run until 31 January 2007. It will bring together the research and standardization aspects of the eEurope activity and optimise the interface between FP6 IST projects and standardization. In doing so, it will speed up adoption of research results and generate feedback on their acceptance and usage.

For the purpose of identifying and selecting those projects that may benefit from cooperating through the COPRAS platform and from developing 'Standardization Action Plans', several methodological steps have been defined and bundled together in Work Packages (WPs). The first set of these methodological steps established WP2 and encompassed the information gathering process (i.e. the surveying of projects for standards related output). The second set establishes WP 3 and covers the analysis of the information gathering report, the definition and application of project selection criteria and the organization of the kick off meeting. Also, for call 2, WP3 encompasses a report on the 'reverse mapping' of standards bodies and IST research project, indicating to what extend the currently most relevant standardization issues in ICT are being addressed by the IST projects in call 2.

The present document establishes the report of the information analysis process, describing the process objectives, the methodological steps followed, and the results, when addressing IST research projects in FP6 call 2. It covers the following 8 Strategic Objectives:

2.3.2.3	Open development platforms for software and services
2.3.2.4	Cognitive systems
2.3.2.5	Embedded systems
2.3.2.6	Applications and services for the mobile user and worker
2.3.2.7	Cross-media content for leisure and entertainment
2.3.2.8	GRID-based systems for solving complex problems
2.3.2.9	Improving risk management
2.3.2.10	eInclusion

The purpose of the information analysis report is to establish the basis for implementing the next methodological steps that are encompassed by WP4, i.e. the development of appropriate standardization paths. It does this by analysing the results of the information gathering process, both in a qualitative and quantitative way, taking into account as well the additional contributions received after the finalization of the Information gathering report. Also, this report – to the extent possible – reviews the procedures implemented to obtain the results, taking into account lessons learned from the call 1 and call 2 information gathering processes.

2. Objectives & recommendations

As previous experiences have shown, the interface between standardization and research can be crucial to the success of both activities. Moreover, specifically where ICT development is concerned it is important to ensure standardization and research proceeding in parallel, enabling cross-fertilization and allowing standards bodies to receive contributions from the research community rapidly while at the same time updating research projects on those developments in standardization that could be relevant to their projects.

2.1 Project & work package objectives

In view of the hundreds of organizations and industry groups active in ICT standardization worldwide, COPRAS' objective is to act as a platform for FP6 IST projects that wish to upgrade their deliverables or otherwise touch upon standardization issues during the course of their research by providing a catalytic focal point for standardization activities. Consequently, it intends to provide

research projects with a cost-effective way of meeting their contractual obligation of setting up an interface with the standards world while giving them a high control over the output of these processes as well as a means to validate their work with a wider audience. For this purpose, the project established the COPRAS 'Programme' (encompassing those projects that seek to cooperate with standards bodies through the development of a 'Standardization Action Plan' tailored to the needs of their project).

The objective of the present report is to present the results of the analysis of information gathered during the execution of the information gathering process for Call 2 projects. The report aims to describe the methods applied and to provide a summary of the results achieved during the process, ultimately focusing to organize a kick off meeting, aiming to jump-start cooperation between (groups of) research projects and standardization working groups. The report, together with the actual information gathered during the process, aims to serve as a basis for further activity in COPRAS and establishes the starting point for the development of appropriate standardization paths for projects in call 2, starting end of June 2005.

2.2 Recommendations 1st project review

The first project review held 17 March 2005 generated 2 recommendations for the activities in WP3:

- The project should perform a 'reverse mapping', showing how topics relevant to different standards bodies were covered by research projects, identifying possible gaps and standardization issues that were not sufficiently addressed
- The project should identify what the reasons are for projects' non-response to the COPRAS questionnaire.

With respect to the first recommendation from the project reviewers, it was decided that a reverse mapping could be performed although it should not go outside the scope of the project. It should therefore stay within the boundaries of tier 2 projects and concentrate on what are currently identified as the most important standardization topics among the ICTSB partners. Widening the scope for a reverse analysis and including the complete spectrum of standards bodies worldwide would require a new COPRAS-type project. The reverse mapping analysis will be contained in a separate COPRAS deliverable (D18).

With respect to the second recommendation it was decided that an analysis of non response could be carried out at a generic level, identifying a set of generic reasons why projects do not respond, rather than trying to identify the reasons on a per-project basis (which incidentally would turn non-response into response as well). This is contained in section 3.7 of this report.

3. Process description

The information analysis and project selection processes targeting FP6 IST projects in call 2 took place over a period between March 2005 and beginning of May 2005. The process followed the methodological steps as described in section 4.1.2 of the COPRAS Quality Plan. Taking the information gathering reports as a basis, the tasks in WP3 encompass the definition of the COPRAS Programme, i.e. the selection of FP6 IST research projects with whom Standardization Action Plans will be developed. In this respect section 4.1.2 of the COPRAS Quality Plan describes the following steps:

1) Following its approval by the COPRAS Steering Group (CSG) the information gathering report will be analyzed by the team responsible for WP3, in order to identify communalities, trends, key issues and inter-project relationships from a standardization perspective. Projects' expected output will be logically grouped taking into account the elements relevant to standardization. This may lead to combining projects addressing different Strategic Objective areas. In addition, it will be determined which ongoing or planned standardization activities (either undertaken by the consortium partners, ICTSB members or other relevant standards bodies or industry groups) match projects' requirements in terms of information input emerging from the information gathering report. The results of this analysis, which will en-

compass a period of 6 weeks for each of the first two calls, will be contained in a report that will be submitted to the CSG.

2) As a second step, a set of criteria will be developed to short list those projects that will be invited to contribute standardization related output to COPRAS and develop Standardization Action Plans.

3) Based on the selection criteria, the team responsible for WP3 will propose a short list of projects to the CSG, thus establishing the 'COPRAS Programme'. Target will be to include at least 8% of the number of projects originally contacted in the information gathering process.

4) Upon approval of the short list by the CSG, for each call, selected projects as well as relevant representatives from the standards community will be invited to take part in a kick off meeting, aiming to jump-start cooperation between (groups of) research projects and standardization working groups. The kick off meeting will focus on the following issues:

   i) To present the results of the analysis of the information gathering report and the rationale behind the selection of projects for participation in the COPRAS Programme;
   ii) To present the actual ongoing standardization work selected projects can benefit from by receiving input as well as the work they could contribute to;
   iii) To demonstrate the concrete benefits per individual project or group of projects resulting from participation in the COPRAS Programme;
   iv) To agree with selected projects on concrete follow-up steps aiming to start the process of defining in detail contributions from research projects to standardization as well as vice versa.

During the information analysis process, the following categories of data have been analyzed to establish a basis for selecting projects benefiting from interfacing with standardization:

1) A list of generic data (e.g. contact details, projects' web sites, start & finish dates, etc.); most of this information was gathered at the beginning of the process as it served as a basis for subsequent steps in the process.

2) Public information describing projects' objectives & goals (mostly from individual projects' web sites and project descriptions on www.cordis.lu/ist); in view of its dynamic character, this type of information was gathered as 'hyperlink only'.

3) Generic information on research projects' planned standardization resources and deliverables, as well as on their plans for cooperating (e.g. with other projects, standards bodies or COPRAS); the first section of the questionnaire send to all projects in call 2 was aimed at this type of information.

4) Information related to specific standardization areas and deliverables projects were planning to address or produce during their lifespan; this information was gathered via the second and third sections of the questionnaire.

The following sections describe in more details the methodology and steps followed during the information analysis and project selection processes (in section 3.1), as well as the results achieved (in sections 3.2, 3.3 and 3.4). Also, in sections 3.5, 3.6, 3.7, 3.8 and 4, assessments of the results achieved as well as of the processes applied are contained.

3.1 Methodology and process steps

During the information analysis and project selection processes, the methodological steps described in the COPRAS Quality Plan were followed most of the time, although at some points these had to be adjusted according to circumstances (e.g. many projects' partners involvement in projects' evaluation by the Commission and their involvement in preparation of new projects for FP6 call 4). A chronological-methodological description of the process is provided in the following section.

The information gathering report has been analyzed in order to identify communalities, trends, key issues and inter-project relationships from a standardization perspective.

i) During the 1st COPRAS Project Team Meeting, held 24 June 2004 at ETSI, Sophia-Antipolis, the Project Team recognized it could only include those projects that responded to the ques-

tionnaire in its analysis. This approach was also taken for call 2. In his or her Strategic Objectives, each of the members of the project team:

a) Analyzed the information and defined groups or clusters of projects having a similar focus with respect to standardization issues;
b) Took a first shot at defining a set of 'first tier' projects and a set of 'second tier' projects for the COPRAS Programme (taking into account there has to be an interest among standardization bodies concerned, to work on the topics addressed by the research projects).

ii) The results of the first analysis of responses received across the different Strategic Objectives were discussed during a conference call held on 28 April 2005. Although a definitive selection of projects could not be made at that point in time, several projects already indicated in the questionnaire whether or not they were interested in support from COPRAS.
iii) Based on the discussion within the COPRAS Project Team and upon approval by the CSG, the Project Team decided to apply the same set of criteria for call 2 projects that has been defined for call 1, and on 6 May 2005 prepared a list of tier 1 and tier 2 projects that were most likely to benefit from cooperation with COPRAS.
iv) The Project Team agreed to ask the CSG to decide on the list of proposed tier 1 and tier 2 projects no later than Wednesday 11 May 2005 and all project team members to approach and invite selected projects in their respective Strategic Objectives no later than 13 May 2005 and – if considered necessary – arrange pre-meetings with the selected projects. The final results of the selection process are provided in the Deliverable D13 - List of selected projects call 2.

3.2 Results information gathering process

As documented in the project's implementation plan, COPRAS focuses on 8 out of 10 Strategic Objectives in call 2. In these areas, a total of 111 projects were selected by the Commission, out of which COPRAS was able to address 107 during the course of the information gathering process.

Although not all of these projects were expected to generate standards related output (e.g. SSA or CA projects in general have different focuses), it was decide to target all projects as experience in call 1 showed that several projects that may not produce standards themselves may have valuable input to COPRAS' activities and results, as they still may be concerned with (the dissemination of) standards related material in the Strategic Objectives. This has resulted in 107 projects in call 2 receiving the information package and questionnaire from COPRAS.

During the information gathering process for call 2, between 25 November 2005 and 18 February 2005, sufficient data on projects and their standardization objectives could be found although the distribution of the information over the 4 categories differs considerably from the results achieved for call 1. Overall, 52 responses were received, out of which 47 were actually filled-out questionnaires, while e-mails or phone conversations with 5 projects indicated they either didn't expect to touch upon standards related issues at all, were not able to judge whether their project would generate standards related output, or for other reasons expected not to be needing COPRAS' support.

Although the amount of public information that could be gathered on the projects is significantly larger when compared to call 1, 48,6% of the projects addressed did actually responded to the questionnaire by the time the information gathering process had to be concluded. This is lower than in call 1, but still within the target range of 40-50%. Also, as the table below indicates, there are (very) large differences between the response rates across Strategic Objectives.

Strategic Objective	**Projects targeted**	**Responses received**	**Response rate**
Open development platforms for software and services	14	10	71,43
Cognitive systems	8	1	12,50
Embedded systems	16	5	31,25
Applications for the mobile user and worker	19	8	42,11
Cross-media content for leisure and entertainment	16	9	56,25
GRID-based systems for solving complex problems	12	8	66,67
Improving risk management	9	2	22,22
eInclusion	13	9	69,23
Total	**107**	**52**	**48,60**

3.2.1 Responses to questionnaire & updated list of projects

After finishing the Information gathering process, three additional responses were received from the projects in Strategic objective 2.3.2.6 (Applications and services for the mobile user and worker) and 2.3.2.8 (GRID-based systems for solving complex problems). This has increased the response rate for those two Strategic Objectives as well as the overall response rate. The updated results are given in the table below:

Strategic Objective	**Projects targeted**	**Responses received**	**Response rate**
Open development platforms for software and services	14	10	71,43
Cognitive systems	8	1	12,50
Embedded systems	16	5	31,25
Applications for the mobile user and worker	20	9	45,00
Cross-media content for leisure and entertainment	16	9	56,25
GRID-based systems for solving complex problems	12	10	83,33
Improving risk management	9	2	22,22
eInclusion	13	9	69,23
Total	**107**	**55**	**51,40**

3.2.2. Additional contributions received

The Project Team has decided not to exclude any response from projects until the organization of the kick-off meeting, to provide an opportunity to projects that might decide to contribute to the standardization-related work in later stage. Nevertheless, despite the extension of the deadline, no additional contributions were received.

3.3 Project information analysis

The following sections provide the information analysis per Strategic Objective.

3.3.1 Open development platforms for software and services

The following projects from the Open development platforms for software and services strategic objective have responded to the COPRAS partners with input concerning technologies and standardization objectives within their projects:

AMIGO	CALIBRE	GORDA	MODELWARE	SODIUM
ASG	DeDiSys	MADAM	RODIN	WS2

The response from the Open development platforms for software and services area was very positive with a total of 10 projects providing input from amongst the 14 projects contacted, which is a response rate of 71%. In fact the response rate within this strategic objective was the one of the highest amongst all of the Strategic Objectives in IST Call 2. This might be partially explained by the fact that many of the projects are addressing platform technologies where it is widely understood that standardization is essential for research technologies to be widely taken-up in the market. The projects from within this area that did not respond to COPRAS were a Network of Excellence project, an Integrated Project, and two Specific Targeted Research projects.

Amongst the 10 projects that provided inputs to COPRAS, 5 of them (AMIGO, ASG, GORDA MODELWARE and SODIUM) indicated they had specific project objectives that involve their research results influencing existing or emerging standards. A further 2 projects (DeDiSys and MADAM) indicated their results might potentially influence existing or emerging standards, but that it was not yet decided within the project whether to proceed down the standardization path, and if so, to what extent. There were 3 projects (CALIBRE, RODIN and WS2) that specifically noted that it was not within the scope of their project to address standardization. Amongst these 3 projects, there were 2 projects (CALIBRE and WS2) that were either a Specific Support Action or Coordination Action, which would normally not be undertaking research and development work.

Amongst the 5 projects that indicated they intended to influence standards, a total of 11 standards bodies were specifically identified as being relevant to the research work within the projects. In-

cluded in those 11 standards bodies are 2 COPRAS partners, and also a further member of the ICTSB. While the other standards bodies noted were not members of the ICTSB, most have relationships with one of more COPRAS partners. All 5 of the projects identified specific technology development objectives related to new standards that are expected from their projects. There were two standards bodies that were common amongst two or more of the projects as shown in the following:

Standards bodies	**Projects**
OMG	MODELWARE; SODIUM
OASIS	AMIGO; ASG; SODIUM

However, the specific areas or working groups targeted within OASIS and OMG were different for each of the projects.

The standards issues and standardization bodies identified by the projects are summarized in the following table:

Project	**Issues**	**May be addressed by**
AMIGO	Personalization and security Push mechanisms and MMS Extensions for component backplane, distributed service provisioning and service/device network bootstrap. General networking discoverability and audio/video streaming.	OMA 3GPP OSGi UPnP WS-I OASIS DLNA
ASG	Service-oriented computing based on Grid Technologies Business Process and Workflow Technologies based on a Service Grid and Semantic Web Ontologies Definition of Domain Ontologies	Global Grid Forum W3C OASIS
GORDA	Standard architecture and a set of APIs to enable advanced database replication	Not identified
MODELWARE	Standardization in the domain of Model-Driven Development	OMG
SODIUM	Visual Service Composition language Unified Service Composition language Unified Service Query language Generic Service Models	OMG OASIS

All but one of the projects indicated they already have project partners that participate in some of the relevant standards bodies identified for their project, or had at least made initial contacts. Each of the projects have specific deliverables intended to address the issues identified above, and each indicated the resulting project technologies or specifications are intended to become industry standards.

The 5 projects in the Open development platforms for software and services area with specific objectives of influencing existing or emerging standards were not very precise in describing the resources allocated for standardization activities. All 5 projects indicated they had resources available to address standardization. However, only 3 of the projects (AMIGO, GORDA and SODIUM) indicated they had resources budgeted within their project plans for standardization tasks, and only 1 of these (AMIGO) was able to indicate a specific budget amount. The other 4 projects either indicated it was included as an activity within various work packages, but without a specific budget amount, or provided no further details concerning resources for standardization.

The resources available and the schedules for initial project results that would be taken forward through the process of standardization are summarized in the following table:

Project	**Duration**	**Resources allocated for standardization**	**First project results available for standardization**
AMIGO	42 months	13.5 person months	Q405
ASG	24 months	Not specified	Q406

GORDA	36 months	Not specified	Q206
MODELWARE	24 months	Not specified	Noted as “confidential”
SODIUM	30 months	Not specified	Q205

The above indicates that 4 of the projects will potentially have initial results for standardization within the timeframe of the COPRAS project. The MODELWARE project must also have results within the timeframe of the COPRAS project as the entire MODELWARE project will be completed in Q3, 2006. However, it is likely that COPRAS support for ASG and GORDA and possibly MODELWARE, would be limited to the planning and coordination of standardization actions as their initial results will arrive towards the end of the COPRAS project.

3.3.2 Cognitive systems

Only one Project (Mind RACES) responded to the questionnaire. The response - rate was 12,5% (one out of eight), but the response was overall negative. Despite considerable effort in getting projects on board, there was neither a culture of cooperation nor a thinking about standardization.

Mind RACES		

The project that responded indicated not to expect to be touching upon standardization issues in any way.

Project	**Issues**	**May be addressed by**
None	None	None

There are no resources needed because no standardization activity is required. The overall issue in the area of cognitive systems seems to be that more information is needed to establish a better understanding of standardization, its cost and benefits, and the positive impact it might have on the project. Standardization requires a spirit of cooperation an insight about the need for interoperability to be able to exchange relevant data. In the absence of a desire to exchange data, interoperability does not look compelling enough to justify the burden that comes with standardization.

3.3.3 Embedded systems

The following projects form the Embedded Systems strategic objective have responded to the requests from the COPRAS partners for input concerning technologies and standardization objectives within their projects:

COMPARE	EMTECH	ICODES
DECOS	HIJA	

The response from the Embedded Systems area was lower than average and less than would be expected given the topics identified in the project descriptions. A total of 16 *Embedded Systems* projects were contacted and the COPRAS partners received input from 5 projects, which is a response rate to date of 31%.

The Embedded Systems area has 3 Integrated Projects where new technologies for standardization would typically be expected to result from research and development within the project. However, only 1 of the 3 Integrated Projects responded to COPRAS requests and individual contacts. Given the overall lower than expected response rate, remedial actions were taken to obtain inputs from further Embedded Systems projects.

Amongst the 5 projects that provided inputs to COPRAS, 3 of the projects (DECOS, HIJA and ICODES) indicated they expected their project results would influence existing or emerging standards for embedded systems. A further 4th project (COMPARE) did not identify any specific standards that they intended to influence, but indicated they were interacting with a specific standards organization (OMG) to monitor the evolution of standards relevant to their project. One of the 5 projects (EMTECH) specifically noted that it was not within the scope of their project to address standardization.

Amongst the 3 projects that indicated they intended to influence standards, a total of 10 standards bodies were specifically identified as being relevant to the research work within the projects. Included in those 10 standards bodies are 3 COPRAS partners, and a 4th standards body that is a

member of the ICTSB. All 3 projects identified specific technology development objectives related to new standards that are expected to result from their projects. However, there was only one standardization target, ARINC safety-critical standard, which was common to two of the projects (HIJA and DECOS).

The standards issues and standardization bodies identified by the projects are summarized in the following table:

Project	Issues	May be addressed by
DECOS	Functional Safety Model based development, Validation and Certification, Dependability Issues System Integrity, configurability, maintainability, diagnosis Time-triggered technology, dependable, composable system architecture, incremental development and evaluation, and deployment issues	IEC 61508 IEC SC65A CEN CENELEC ARINC AUTOSAR FlexRay OMG SAE
HIJA	Real-time Java profiles for safety-critical, business critical and ambient intelligence application domains Annotation language for Functional Correctness Analysis and Worst Case Execution Time Analysis Annotations to aid in resource usage and schedulability analysis Java Virtual Machine Extensions	Real-time and Embedded Systems Forum ARINC 653 POSIX
ICODES	System description language with automated translation into embedded systems implementation	Open SystemC Initiative

Each of the projects has project partners that participate in many of the relevant standards bodies identified for their project. The projects also have specific deliverables intended to address the issues identified, and that the resulting project technologies or specifications are intended to become industry standards.

The three Embedded Systems projects with specific objectives of influencing existing or emerging standards have varying time schedules and resources allocated for their standardization work. Two of the projects (HIJA and DECOS) have specific resources budgeted within their project plans for standardization activities, while the third project (ICODES) has resources available for standardization as part of the project activities of dissemination, but without a specific budget amount indicated.

The resources available and the schedules for project results that would be taken forward through the process of standardization are summarized in the following table:

Project	Duration	Resources allocated for standardization	First project results available for standardization
DECOS	36 months	6 person months	Q207
HIJA	27 months	12 person months	Q205
ICODES	36 months	Not specified	Q305

The above indicates that the HIJA and ICODES projects will have initial results for standardization within the timeframe of the COPRAS project. The DECOS project has indicated it will not deliver results for standardization until after the COPRAS project is actually completed. Further investigation is needed with DECOS to determine if some intermediate results might be appropriate for initiating the standardization activities. Without any intermediate results, the support COPRAS is able to provide DECOS would be limited to the planning and coordination of standardization actions.

3.3.4 Applications and services for the mobile user and worker

In Strategic objective 2.3.2.6 (Applications and services for the mobile user and worker), 9 out of 20 projects addressed (45%) responded to the questionnaire. The projects are listed in the table below.

EC-BRIDGE	MOSQUITO	SIMS
eLOGMAR-M	MULIMOB	SNOW
EPRI KNOWLEDGE	MYCAREVENT	wearIT@work

Out of these 9 projects, 5 indicated not to be delivering output that could be relevant for standards bodies. Out of remaining 4 projects, SNOW indicated it will rather reuse existing standards than invent new ones from scratch (a contribution to standardization is planned, however, the details depend on resources available and cost assignment) and MYCAREVENT has envisaged no help from COPRAS, since the German DIN was invited as full partner to the project to support in the envisaged standardization efforts. The main targets of the remaining 2 projects with respect to projects' focus areas are very different. While MOSQUITO's focus is on mobile security, mobile collaborative applications and business processes and workflow, wearIT@work intends to use User Centred design according to ISO 13407 for applications that might be used for education.

Two projects (MOSQUITO and MYCAREVENT) from 9 that have responded to the questionnaire have a clear vision of a nature of issues to be standardized as well as of a nature of deliverables to be produced. MOSQUITO focuses on context-aware security mechanisms, security policy specification and enforcement mechanisms and trust management mechanisms in multiple administrative domains. MYCAREVENT's focus is on general ontology (PAS Draft) of vendor independent information access / representation of Schematic Diagrams. Only those two projects have envisaged the specific budget for activities required to interface with standards bodies.

The table below indicates all aspects identified as potential standardization targets for the four projects that have identified the potential outputs towards standardization process.

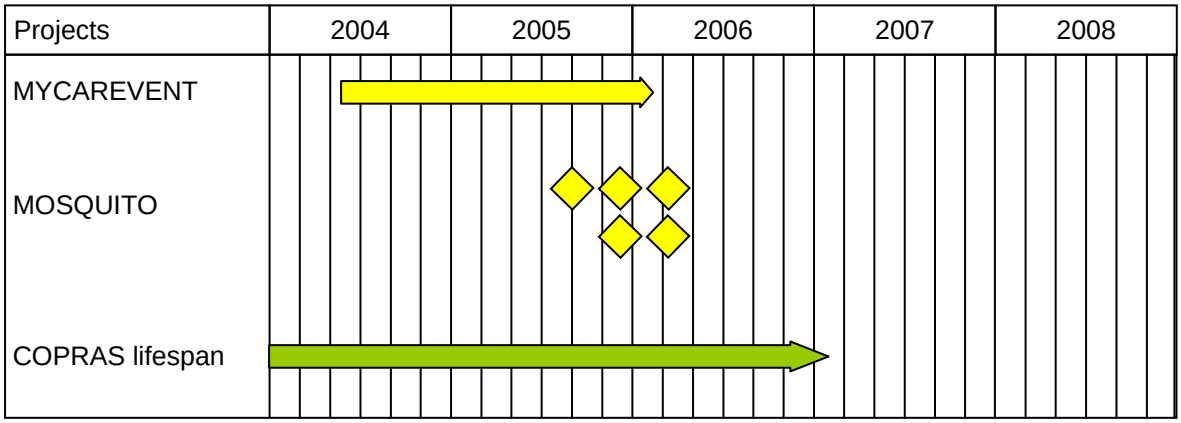
Project	**Issues**	**May be addressed by**
MOSQUITO	Mobile security (Context-aware security mechanisms)	3 GPP; CEN
	Mobile collaborative applications (Distributed workflow management and service mediation mechanisms)	
	Business processes and workflow (Trust management mechanisms in multiple administrative domains)	
	Security policy specification and enforcement mechanisms	
	Secure transport protocol for user authentication over the SMS in GSM/UMTS networks utilizing WPKI and SIM/USIM	
MYCAREVENT	Building upon OASIS initiative with focus on automotive repair and diagnose information (Draft specification for general ontology (PAS Draft) of vendor independent information access/ representation of Schematic Diagrams)	OASIS
SNOW	Multimodal interactions	W3C
	Device independence	
	Voice XML, semantic interpretation, SRGS, SSML	
	Compound document formats (CDF), HTML (especially modularisation), Semantic web	
wearIT@work	User Centred design (ISO 13407); hardware platform and software framework for applications like education	Open Group; ISO

In addition to the issues mentioned above, the following should be taken into account as well that the MYCAREVENT project intends to develop an ontology related to repair and diagnostic information for cars. In the due course of these developments, standards are envisaged. However, the area and the extent have to be clarified. Since the German DIN is involved as full partner to the project to support in the envisaged standardization efforts, the project has currently envisaged no help from COPRAS.

Four of the projects that expect to deliver output that could be relevant to standards bodies are willing to cooperate with standards bodies. One of them (MYCAREVENT), as mentioned above, does not require COPRAS' support in this process as it has already arranged this interfacing through the German DIN, while three others (MOSQUITO, SNOW and wearIT@work) welcome COPRAS' support.

In terms of resources, only one of the projects (MYCAREVENT) has specifically dedicated resources or work packages to standardization activities. One of the projects (SNOW) does however have resources available distributed over other work packages (e.g. focusing on dissemination activities), while MOSQUITO indicated to have standardization as just one of several activities which have to be covered by the dedicated WP on dissemination and standardization. The wearIT@work project has indicated they have specific work packages addressing activities required to interface with standards bodies, however, the detailed information is missing.

As far as concerns the timing of the projects' deliverables potentially relevant to standardization, only two of projects have specified timeframes for potential contributions (MYCAREVENT and MOSQUITO). MOSQUITO has a clear vision of contributions and the timeframes. It seems clear that COPRAS would be able to actively support most contributions being presented or submitted to standards bodies. As far as concerns the two projects that indicated possible outputs to standardization (SNOW, wearIT@work), considered to obtain more information on the exact nature of these projects' standards related activities and output and it may be considered to include them in the further WP3 process steps.



3.3.5 Cross-media content for leisure and entertainment

In Strategic objective 2.3.2.7, Cross-media content for leisure and entertainment, 9 out of 16 projects addressed (56,25%) responded to the questionnaire. The projects are listed in the table below.

3DTV	INCCOM	NM2
AXMEDIS	IPerG	POLYMNIA
GameTools	M-Pipe	WalkOnWeb

Out of these 9 projects, only GameTools indicated not to be delivering output that could be relevant for standards bodies. When analyzing the main targets of the remaining 8 projects, the following can be concluded with respect to projects' focus areas:

- Most project primarily focus on content production, representation, adaptation and scalability and the improvement or enrichment of the existing MPEG-4, MPEG-7 or MPEG-21 formats (3DTV, AXMEDIS, M-PIPE, NM2 and POLYMNIA);
- In conjunction, another major focus deals with the transport and distribution aspects of multimedia content (AXMEDIS; INCCOM, M-PIPE and POLYMNIA);
- A third aspect addressed is the management of multimedia content, and specifically DRM (AXMEDIS, INCCOM).

In addition to the general aspect of multimedia content production, distribution and management, two specific areas are being addressed by a few projects:

- The further development and enrichment of pervasive games (IPerG), and;
- The development of guidelines for the use of the GIS (Geographic Information Systems) specification (WalkOnWeb).

Five projects (3DTV, AXMEDIS, NM2, POLYMNIA and M-PIPE) have a clear perspective on the contributions they may provide to standardization. Almost all of these have also identified the stan-

dards bodies they envisage interfacing with, and 2 projects (3DTV and NM2) have already contacts in place with the relevant standards bodies. However, as the table below indicates, all aspects identified as potential standardization targets for the projects, can be addressed through one or several standards bodies, either working on a European or on a global level.

Project	**Issues**	**May be addressed by**
3DTV	Digital 3DTV bit-stream structure specification	ISO/IEC JTC1/SC29 WG11 (MPEG
	Digital 3D Motion Picture Representation specification	
AXMEDIS	Development of new methods, tools and requirements for Digital Rights Management (DRM) interoperability and for monitoring and managing content distribution	ODRL; ISO/IEC JTC1/SC29 WG11 (MPEG); OMA
	Specification, demonstration and testing of a multimedia content distribution model and multimedia content tools that will reduce production and distribution cost	ISO/IEC JTC1/SC29 WG11 (MPEG)
INCCOM	Integration of existing standards for content formats, access devices, transport protocols, billing, provisioning and DRM into a single commercial frame work.	ETSI
IPerG	Interaction framework and device integration software for sensor and actuator integration related to pervasive games	IEEE; W3C
	Design of a topology-sensitive infrastructure for distributed pervasive games in a P2P network technology environment	IEEE; W3C
	Development of design and evaluation guidelines for privacy protection related to pervasive games	3GPP, ETSI
M-Pipe	Development of new concepts, specifications and technologies improving scalability of content across different (and future) types of networks and devices	ITU; ISO/IEC JTC1/SC29 WG11 (MPEG)
	Development of solutions improving transport of scalable content across different (and future) types of networks	IETF; ETSI; 3GPP
NM2	Specification of a software language for expressing and generating meaningful interactive visual non-linear narratives for new media formats tailored to the characteristics of broadband networks	ISO/IEC JTC1/SC29 WG11 (MPEG)
	MPEG-21 middleware components and delivery systems facilitating the delivery of flexible, non-linear narratives	
POLYMNIA	Improvement of digital content representation by developing new scalable visual content representation algorithms, description and organization schemes.	ISO/IEC JTC1/SC29 WG11 (MPEG)
	Enhancement of the description language for content representation and the description language allowing content adaptation based on network and terminal characteristics.	W3C
	Development of additional concepts, improving the adaptation of content delivery to device characteristics and user preferences while ensuring Quality of Service	3GPP; ISO/IEC JTC1/SC29 WG11 (MPEG); IETF
	Development of new concepts for the automatic acquisition, detection and localization of semantic content.	ISO/IEC JTC1/SC29 WG11 (MPEG)
WalkOnWeb	Guidelines on structuring GIS data for producing transnational electronic hiking guides	Open Geospatial Consortium (OGC)
	Additional features for the Scalable Vector Graphics standard	W3C

In addition to the issues mentioned above, the following should be taken into account as well:

- Although standardization potential is well-recognized, the prime goal of the 3DTV NoE project is to unite a European research community around the subject of 3 dimensional TV development;

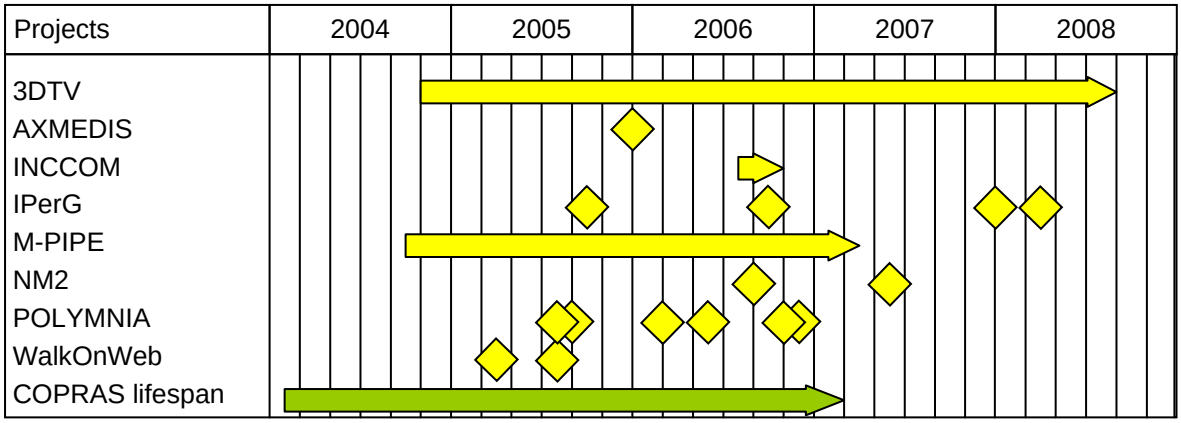
- INCCOM is a CA project focusing – among others – on stimulating the commercial exploitation of R&D results and the integration of existing standards into an easily understandable commercial framework;
- Although the activities of the IPerG project intend to deliver technology and specifications that could be submitted to standards bodies, the project's output is not explicitly intended to become standardized.

All projects that expect to deliver output that could be relevant to standards bodies are willing to cooperate with standards bodies. Two of these (AXMEDIS and M-Pipe) do not require COPRAS' support in this process as they have already arranged this interfacing through their consortium partners, while two others (POLYMNIA an IPerG) welcome COPRAS' support.

The 4 remaining projects are open to cooperation but are not yet in a position to determine this. The further course of their project, determining whether they will produce output that could be passed through standardization processes, will therefore have to reveal cooperation requirement in more detail, or in other cases, additional information from COPRAS will have to identify the benefits from cooperation in more detail.

In terms of resources, only two of the projects (NM2 and POLYMNIA) have specifically dedicated resources or work packages to standardization activities. Four additional projects (IPerG, AXMEDIS, M-PIPE and 3DTV) do however have resources available distributed over other work packages (e.g. focusing on dissemination activities), while only WalkOnWeb and INCCOM state not having these resources available.

When comparing the timing of the projects' deliverables potentially relevant to standardization (represented by the yellow arrows and diamonds in the graphic display below), it seems clear that COPRAS would be able to actively support most contributions being presented or submitted to standards bodies, but not all, as some projects have a considerably longer lifespan than COPRAS, which is indicated in the figure below.



3.3.6 GRID-based systems for solving complex problems

Feedback from the GRID-projects was very encouraging. Out of 12 Projects in the strategic objective 2.3.2.8 (GRID-based Systems for solving complex problems), 10 responded. This is a response rate of over 83%.

AKOGRIMO	CoreGrid	DataMiningGrid
HPC4U	inteliGRID	NextGRID
OntoGrid	PROVENANCE	SIMDAT
UniGridS		

All 10 Projects responding addressed standardization issues. For 3 of them, it is not their primary goal, but they imagine that some results could be very useful in the area of standardization. All 3 projects that have no actual need for standardization are interested to explore the benefits that standardization may offer. Mostly, they are not sure yet, whether their results fit into the general standardization.

Project	Allocated resource	Project lifetime
CoreGrid	Not specified	48 Month
DataMiningGrid	1 m/m	24 Month
HPC4U	1 m/m	36 Month
inteliGRID	19 m/m	30 Month
NextGRID	25,5 m/m	36 Month
SIMDAT	3,5 m/m	48 Month
UniGridS	20 m/m	24 Month

The European Commission and the projects themselves have organized a Grid Standards Coordination Group (GSCG) which aims to coordinate standardization between FP6 IST Grids Unit Projects. This explains the high response rates and the high quality of responses. Most projects have already started to think about connecting to standardization organizations. As the GRID-area has the Global-Grid-Forum (GGF) as a place for coordination, this is the prime focus. Nevertheless, the GGF is not a standards body itself and seeks coordination with W3C, OASIS and IETF. None of the latter have themselves a GRID-related activity, but GRID-Systems use technologies under development in those areas like the whole range of Web Service technologies.

Project	Standards Body
AKOGRIMO	Partners are involved in standards activity including IETF, W3C and GGF.
CoreGrid	GGF, W3C, OASIS, IETF
inteliGRID	Industry Alliance for Interoperability (IAI) www.iai-international.org/iai_international/
UniGridS	OASIS

As already said in the preceding point, most of the projects are either working with Web Service technologies (developed in W3C and OASIS) or with Semantic Web technologies (developed in W3C). Additionally, the GRID-Systems area still lacks a global compelling and agreed overall architecture specification. The GGF has started to work in this area.

The whole GRID-Systems standardization is in its infancy. On the one hand, Projects use existing but not mature specifications of Web Services, on the other hand, they need extensions to those specifications and some special specifications for GRID only. One of the examples might be DataMiningGRID that needs specific API's for the purpose of accessing data mining services in a grid-like way.

The GRID area is currently not yet mature enough to have found one and unique home for standardization. Also, GRIDs are using bits of technologies from the Web, Web Services and new specification proper to GRIDs. This explains that the efforts are spread over several standardization bodies like GGF, IETF (IP layer), W3C (WS-Layer, SW) and OASIS (business layer).

Project	Issues	May be addressed by
AKOGRIMO	Overall GRID Coordination Semantic Web and the GRID Security and the GRID	GGF W3C IETF
CoreGrid	Overall GRID coordination	GGF W3C IETF
DataMiningGrid	No existing standards	No decision yet
HPC4U	Semantic web/Web ontologies	Semantic Web Best Practice WG, Semantic Web Services RDF IG DAWG
inteliGRID	We need to standardize the way how ontology services are being used within the grid environment.	OWL DAWG RDF IG GGF OGSA-DAI

NextGRID	NextGRID Standards Committee will make a determination which of the industry specifications the NextGRID project would wish to influence and what would be the most efficient way to make that happen.	
OntoGrid	Grid Compliant Ontology Services: Extensions to WS-DAI specifications to support deployment of RDF stores.	W3C Semantic Web Services Interest Group GGF
PROVENANCE	Provenance architecture and best practice in Grid/Web Service area	W3C Web Services Description Working Group W3C Semantic Web Services Interest Group
SIMDAT	Industrial requirements for Grid technology standards.	W3C Web Services Description Working Group W3C Web Services Choreography Working Group W3C Web Services Addressing Working Group OASIS GGF
UniGridS	Work on specifications, use cases, best practice - implementation of Grid software to comply with new standards proposals.	GGF OGSA, OASIS, IETF, W3C

All projects are collaborating in the area of standards through the Grid Standards Co-ordination Group with the following projects: Akogrimo, CoreGRID, DataMiningGrid, HPC4U, inteliGrid, KW-F Grid, NextGRID, OntoGrid, Provenance, SIMDAT and UniGrids.

3.3.7 Improving risk management

In Strategic objective 2.3.2.9 (Improving Risk Management), 2 out of 9 projects addressed (something more than 22%) responded to the questionnaire. The projects are listed in the table below.

EUROPCOM	RESCUER	

Out of these 2 projects, RESCUER indicated not to be delivering output that could be relevant for standards bodies. The objective of the project is to improve the emergency risk management through secure mobile mechatronic support to bomb disposal and as such does not include any standardisation activity. The project intention is to use existing standards in this field. EUROPCOM will be producing a 'proof of principle' demonstrator system, designed to improve situational awareness and aid rescue efforts of the emergency services. Assuming that the system works well, the project wishes this to become the basis for an emergency services standard, although for the time being the only aim in this area is to produce a paper with recommendations for standardization.

The table below indicates all aspects identified as potential standardization targets for the EUROPCOM project.

Project	**Issues**	**May be addressed by**
EUROPCOM	Use of UltraWideBand (UWB) for positioning & communications for the emergency services (in particular Fire, Police, Ambulance) (The UWB waveform (Physical layer) - choice of UWB technology will be made and justified) for the demonstrator and the outcome of testing will impact on final recommendations).	ETSI TC BRAN; IEEE; Multiband OFDM Alliance SIG (MBOA-SIG); WiMedia Alliance
	Use of UltraWideBand (UWB) radar for search and rescue for the emergency services (The networking protocols (MAC, Routing))	

	Interfaces from the UWB system into other emergency services equipment, if required	

In addition to the issues mentioned above, the following should be taken into account as well:

- A 'green paper' submission on standardisation of UWB for the emergency service application has been envisaged by EUROPCOM as the first outcome for future recommendations on standardization. Other project deliverables may be relevant, though they relate mainly to the 'proof of principle' demonstrator (Requirements and Design specifications).
- The project would be willing to cooperate with standards bodies. This has not yet been planned. Help to get the timing right and put in the right level of effort would be appreciated.

In terms of resources, there is one small work package allocated to regulation and standardisation. Since these aspects are very closely linked, the split of effort between the two has not been defined (2 man months are allocated in total).

As far as concerns the timing of the projects' deliverables potentially relevant to standardization, EUROPCOM has indicated the first issue of the requirements document is already available; the 'proof of principle' design specifications are due after the first year. A 'green paper' submission on standardization of UWB for this emergency service application has been foreseen in month 32 of the project. This means it should be submitted at the end of April 2007. When comparing the timing of the projects' deliverables potentially relevant to standardization, it seems clear that COPRAS would be able to actively support some contributions being presented or submitted to standards bodies and help to prepare promotion of a 'green paper' within the relevant standardization bodies.

3.3.8 eInclusion

In Strategic objective 2.3.2.10 (eInclusion), 9 out of 13 projects addressed (something more than 69%) responded to the questionnaire. The projects are listed in the table below.

AAL	EIAO	MAPPED
ASK-IT	ENABLED	MICOLE
COGAIN	HEARCOM	Support-EAM

The following projects have allocated resources for standardization-related activities:

Project	**Allocated resource**	**Project lifetime**
ASK-IT	17.9m/m	48 months
COGAIN	1-2 m/m for direct cooperation with standards bodies	24 months
HEARCOM	2-4 m/m	54 months
Support-EAM	5 m/m	18 months

Three of the projects have already identified a standards body they would like to contribute to:

Project	**Standards Body**
ASK-IT	CEN/TC 224 WG6
EIAO	W3C
Support-EAM	CEN

It should be also noted:

Although ASK-IT only identifies CEN as a potential partner, it also indicates an interest in standards which would fall in the area of CENELEC and ETSI:

- Electrotechnical standards (e.g. assistive and domotic equipment)
- Telecommunication standards (e.g. for handset design, icons, etc.).

Although ENABLED states that it is not coordinating any standards related activity with any standards body it does indicate areas of standardization related to W3C and ETSI:

- Guidelines for web accessibility
- QoS specific to multimodal data transmission

The projects mainly relate to accessibility issues but not necessarily in the same areas. However the following all address problems related to web-based services:

Project	Standardization issue
ASK-IT	Usability standards and inclusive design guidelines (e.g. accessibility) Software and interoperability standards (e.g. intelligent agents)
EIAO	Web accessibility
ENABLED	Guidelines for web accessibility
Support-EAM	Specification of a complete European certification scheme concerning the delivery of a Quality Mark for Web Content Accessibility

Other standardization issues include:

Project	Standardization issue
COGAIN	Eye tracking: Standards for a common format for eye tracking data Protocol and API for eye tracking interfacing and interface control Standards for allowing plug and play type compatibility of eye trackers and interfaces/systems
HEARCOM	Standard diagnostic tests for hearing loss within different European countries and languages. Methods to compare outcomes of these tests; audiological profile for hearing impairment Wireless link intended to allow bi-directional wireless audio-information for hearing aids. Replacing current telecoil methods Internet sound system (control) for audiological screening tests and rehabilitation methods (sound materials and methods for training); in addition web-access guidelines for hearing impaired Specific needs of hearing impaired persons for speech codecs in transmission system (e.g. ITU) (possibly)
MAPPED	Public transport accessibility
MICOLE	Multimodal interaction with computers of blind users, user requirements and design recommendations

Only two of the projects that responded (EIAO, Support-EAM) have a clear vision of their contribution to standardization, three of them (ASK-IT, COGAIN, HEARCOM) have not yet decided and 4 (AAL, ENABLED, MAPPED, MICOLE) are not planning to contribute at all.

The table below indicates all aspects identified as potential standardization targets specified by three of the projects:

Project	Issues	May be addressed by
ASK-IT	Compendium of relevant standards	CEN TC224 WG6
EIAO	Developing a plug-in interface for an accessibility robot; developing a methodology for using WCAG; participating in the development of EARL	W3C
Support-EAM	Specification of a complete European certification scheme concerning the delivery of a Quality Mark for Web Content Accessibility	CEN/ISSS WS

Both ASK-IT and Support-EAM are in contact with the relevant CEN bodies. However the choice of TC224/WG6 may be inappropriate. ETSI/TC HF and some proposed CEN/ISSS metadata work would seem at least equally obvious (or non-obvious) as future partners. EIAO is in contact with W3C. On the other hand MAPPED has looked into the current and existing standards activity in their area and is unconvinced that “having contacts with standards bodies will be beneficial”. It is closely related to a proposed activity by WS-MMI-DC and there may be also geographic information links but this would be also ensured should the WS-MMI-DC work item come to fruition.

3.3.9 CA, SSA and PLAM projects

As it has shown from the previous sections, COPRAS expects STREP and IP projects, rather than NoEs to be the most obvious ones benefiting from cooperating through the COPRAS Programme, as these projects are most likely to deliver concrete contributions to (ongoing) standardization activity.

Despite the fact that SSA, CA and PLAM projects usually don't have concrete contributions to standardization among their core deliverables, some additional attention should be given to these, as several of them have objectives similar to COPRAS, although within the boundaries of their specific Strategic Objectives. Consequently, there may be mutual benefits for COPRAS and these projects in closer cooperation, which will be determined on a project by project basis when COPRAS moves into its next phase.

3.4 Project clustering

The clustering of projects into 'logical' groups that have a similar focus with respect to standardization is one of the objectives of the information analysis process. As explained in more detail in the Information analysis report for call 1 (D06), this can be defined in a vertical way, i.e. based on existing Strategic Objective, or in a horizontal way, i.e. grouping projects around specific standardization issues across different Strategic Objectives.

Although the information analysis already gives some indication with respect to clustering possibilities, final decisions will be made during the project selection process, and if possible in conjunction with the reverse mapping of standards bodies and IST research project activities contained in COPRAS deliverable D18.

3.5 Quality review project analysis process

Tasks in Work Package 3 cover the analysis of the information gathering report, the definition and application of project selection criteria, the organization of the kick off meeting and the reverse mapping of the main standardization issues against research projects' activities. The work is largely based on the achievements in WP2 and aimed at selecting at least 8% of the projects that were addressed in the previous Work Package. As far as concerns the quality of work it is necessary to state that during this phase of the project the input from all consortium partners into the process of analyzing the information and defining the selection criteria was sufficient and balanced.

As far the quantity of data that have been analyzed is concerned, it can be stated there is sufficient amount of data on projects and their standardization objectives. However, the distribution of the information over the 4 categories differs considerably from the results achieved for call 1. Also, there are large differences between the response rates and their quality across Strategic Objectives. For example, for Strategic Objective 2.3.2.4 (Cognitive systems) it was not possible to identify any project that could be included in the COPRAS Programme.

The potentially relevant standards bodies and industry groups have been identified and the responsibility for contacting these to the different members of the project team have been allocated. However, there is still necessary to verify the interest of the concerning standardization bodies in the project outputs identified.

Because of the extra work in Work Package 3, resulting from the reviewers' recommendations, some additional time and resources were however necessary to complete the call 2 activities and deliverables. This required rescheduling the delivery date for all WP 3 deliverables, including this report, for one month, i.e. from the end of June 2005 to the end of July 2005.

3.6 Analysis of non-response

With 55 projects responding out of the 107 projects that were originally addressed, the non-response rate is still 48,6%, or 52 projects. As there are significant deviations among the various Strategic Objectives as far as the response rates are concerned, it is however worthwhile analyzing some of the reasons for projects not responding, and to see whether this could generate implications for further steps of deliverables in the COPRAS project processes.

When going through the different Strategic Objectives and analyzing the projects that did not provide feedback to the questionnaire, the following issues can be identified as the main reasons explaining the non-response:

- Many projects simply will not produce output that can be passed through standardization processes. This is many times obvious for SSA, CA or PLAM focusing for example on dis-

semination activities supporting projects in a Strategic Objective, rather than on research. Also it may be the case for NoE projects, as these are often in the process of building a constituency around innovative developments rather than delivering technology that can be standardized.

- Several projects, or even entire constituencies, target an area of technology that is either still too far away from standardization, or – in itself – does rarely produce output that can be standardized. An example is the Cognitive systems strategic objective.
- Projects may sometimes generate technology that is difficult to standardize, or in fact would suffer rather than benefit from standardization; this for example is the case with projects working on the delivery of applications or services in the Cross-media content for leisure and entertainment and Applications for the mobile user and worker Strategic Objectives.

Conclusion from the analysis of non-response must be that although there are several projects that did not respond to the questionnaire, despite the fact that would most likely have benefited from cooperation with COPRAS, most of the non-response is caused by projects that either do not touch upon standardization issues or do not require support from COPRAS in their interfacing with standards bodies. Consequently, the vast majority of projects that could benefit from cooperation with COPRAS have actually been reached, and have been included in the analysis process.

3.7 Lessons learned from Call 1 and Call 2 analysis

The information analysis and project selection processes for call 2 have been fairly successful. The recommendations and lessons learned from the call 1 information analysis process, that were applied in the call 2 information gathering and analysis process have also appeared to be effective. Specifically the improvements to the questionnaire and the personalization of certain steps in the process have clearly supported the volume of the feedback as well as the usefulness of the results.

In addition to the recommendations that were already included in the Information gathering report for call 1, several additional recommendations for the WP3 activities were contained in the report from the first COPRAS project review:

The first recommendation indicated the information gathered by COPRAS should be used to perform a ‘reverse mapping’, demonstrating how topics relevant to different standards bodies are covered by research projects, identifying possible gaps and standards bodies that are not (or insufficiently) addressed by the research community. This recommendation is addressed in COPRAS deliverable D18, the reverse mapping report.

The second recommendation indicated that it should be identified what the reasons are for projects’ non-response to the COPRAS questionnaire. This issue was addressed in the information analysis process, and a short overview, showing the analysis of non response at a generic level, identifying a set of reasons why projects do not respond, is reflected in section 3.6 of this report.

4. Conclusions

In total, the information analysis process for call 2 has been fairly successful. When reviewing the steps in the process, the methods applied and the improvements that were introduced based upon the results in the call 1 information gathering process, appear to have been adequate to achieve the intended results, also for call 2, and to build a better basis for the selection of projects and the development of Standardization Action Plans. The results from the project information analysis can therefore be considered as a good basis for subsequent methodological steps building the COPRAS Programme.

However, interaction with call 2 projects again has shown that communication and marketing of COPRAS’ benefits for research projects prior to or during the information gathering process is necessary to generate the desired level of feedback from projects, both in a qualitative and quantitative sense.

Overall, the information analysis processes for call 1 and call 2 have proven to be a good mechanism for identifying those projects within EU funded research programmes, that may have valuable

input for standardization processes, or - on the other hand – that may need support from standards bodies in their activities.

From a quantitative point of view, both the call 1 and call 2 information analysis processes managed to identify a sufficient number of overlap between projects' objectives and ongoing standardization activities, while the analysis of non response in call 2 also indicated that the COPRAS process steps most likely also managed to identify the vast majority of this overlap, and the corresponding interfacing requirements from IST research projects. Also, from a qualitative perspective, the information provided by most projects established sufficient basis to start the process of determining the right cooperation partner(s) among standardization working groups for the projects.