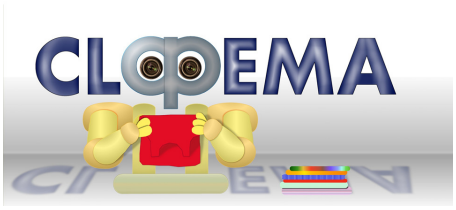

Clothes Perception and Manipulation

D9.1
Quality Management Report

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Reviewer(s)	:	Vasek Hlavac (CVUT)

Abstract

This document constitutes the prime reference point for all management and quality assurance procedures of the *CloPeMa* project. The document includes a project summary section, which provides information on the main project facts, namely the project's work breakdown, its interdependencies, and the project timetable regarding deliverables and milestones, along with responsible partners. After this, the Project Management Plan is described. This provides a concrete view of all foreseen project management procedures to be adopted by the project coordinator and the beneficiaries. The remaining part is dedicated to the description of the Quality Plan, which covers the foreseen procedures for assessing the progress of the work within the project, along with corrective actions and contingency planning in case of deviations. It is strongly emphasized that this is an ongoing document that is being evolved along with the project progress and will be regularly updated to reflect up-to-date information.

Keywords

project management, quality assurance

Revision History

Version	Description	Author(s)	Date
0.5	First draft	CERTH	23 July 2012
0.9	Final draft	CERTH	27 July 2012

Contents

1 Introduction

The purpose of this deliverable (D9.1 "Quality Management Report") is to specify all procedures required for carrying out the work in the *CloPeMa* project, including procedures for assessing the quality of the work performed, as it has been specified in "Annex I- Description of Work" (DoW) of the *CloPeMa* Grant Agreement.

In particular, the first main part of this document constitutes the Project Plan, which concerns the projects work breakdown, its interdependencies, and the timeline regarding deliverables and milestones. Also it presents:

- the roles of different actors in the project and their responsibilities,
- the project's management bodies,
- the information exchange procedures among partners and their coordination,
- the project's dissemination procedures,
- general guidelines for performing the required day-to-day project management activities.

The second main part of this document constitutes the project's Quality Plan, which describes:

- the general quality control measures and actions, including success measures and criteria, corrective and preventative actions, risk management and contingency planning,
- the quality control of deliverables and documentation, including document types, documents naming, and document templates,
- the quality control of the whole project, including the peer-reviewing evaluation of project's deliverables.

All project partners should be perfectly aware of all instructions and rules stated in this document, in order to facilitate management and coordination work.

The document also summarizes the information that all the project participants must know, at a minimum level, and have it at hand for a quick response to any specific question regarding the Project Plan, deliverables and milestones, work with documents, naming/numbering conventions, administrative and management questions of the project and so on.

Finally, it is strongly emphasized that this is an ongoing document that evolves as the project progresses and will be regularly updated to reflect up-to-date information.

2 Project Overview

CloPeMa aims at advancing the state of the art in the artificial perception and dexterous manipulation of clothes and other textiles. Tactile sensing, visual sensing and soft materials manipulation will be jointly managed by a goal driven, high level reasoning module. Inspired by the perception-action cycle of the mammalian brain, the reasoning module will also provide perception capabilities to fuse sensing and manipulation. The task calls for hierarchical representations and related perception-manipulation skills of different complexities. Some of these skills will be learned from examples using statistical pattern recognition and machine learning methods. Commercial off-the-shelf robot arms will realise these skills. Using off-the-shelf components reduces cost, accelerates development, and separates new research from already solved tasks. Finally, the project will identify commercial applications for the new capabilities developed. The robot will be able to identify and remove textiles from piles or containers in unstructured environments. Clothes of previously unknown shape and structure will be untangled and spread for some industrial process (joining, finishing, etc) or folded.

CloPeMa principal innovations with respect to the state-of-the-art in textile perception and manipulation are: (a) more ambitious scenarios; (b) simultaneous use of rich sensory information (tactile, vision, range-finder), interpreted by a high-level reasoning module; (c) decomposition of perception-manipulation skills into a hierarchy; (d) use of a cheaper, more precise, industrial quality dual-arm robot to facilitate benchmarking and validation by other researchers; (e) application outreach in the domestic robotics and textile industries.

2.1 Project Objectives

CloPeMa has the following R&D objectives:

1. *Fusing tactile, visual and range sensing with subconscious perception* to dynamically manipulate textiles. The complexity of the tasks involved requires statistical learning techniques.

2. The project aims *to achieve comparable skills* in soft material (cloth) perception and manipulation to those of the top Japanese and US teams.

3. *Manipulation and sensory methods to categorise and recognise the type of garment.* A pile of clothes lying on the floor may consist of a scarf, a pair of trousers, and a shirt; all of deformable shape. The robot should be able to hold up and explore each one, reasoning about its shape and structure from multiple views.

4. *CloPeMa* hand will use contact transducers on the fingers to palpate fabrics, *measuring compliance and roughness for textile material recognition*. Visual texture analysis will be incorporated as well. This information source will prevent damage to delicate garments, assist in textile sorting, and allow the robot to trace contours and seams.

5. One project artefact will be *a test collection and benchmark made available to the community* so others can evaluate their own statistical learning methods for recognising fabric type, properties, position, folding, etc. *CloPeMa* will provide quantitative results of its achievements with respect to this collection and benchmark.

6. *To use goal-driven dynamic manipulation as an additional information channel* to handle cloth in novel ways. Examples include finding a grasp location, untangling, and folding. *Use geometric algebra for representing and planning collaboration* between two robots in the same space and *structural approximation techniques of robot kinematics*.

7. *Establish high-level cloth handling robot world representation* for sensing, recognition, perception, manipulation, and planning. A proven cognitive architecture will be enhanced by the original CERTH concept of the Tower of Knowledge extending the scope of the system to dynamically handle cloth.

8. *Use inexpensive off-the-shelf components.* Unlike most state-of-the-art projects, *CloPeMa* aims to use relatively inexpensive, commercially available equipment (robots, stereo-head, range finder from the Microsoft Xbox Kinekt, etc.). We believe that good results achieved with affordable equipment will lead to a wider applicability of our methods.

9. The *CloPeMa hand* is the only major hardware development planned in the project. The opening for the gripper innovation is expected because its design can count on the rich complementary sensing from visual and range sensors as well as the active manipulation with the piece of cloth under scrutiny. The *CloPeMa* hand tactile sensing will be designed and built gradually on the mechatronic platform finished in the first year of the project.

10. Investigate the following *basic research problem*. The dual-arm manipulating textiles is basically in two distinct states: First, the cloth is not stretched. Consequently there is no coupling and force feedback available because the mass and inertia of the cloth and the robot arm are incomparable. The visual feedback and high-level knowledge comes into play. Second, the cloth is stretched and there is a feedback available via tactile and force sensors. The *transition between these two states will be of our research interest from the cognitive point of view*. The effects can be increased in strength by replacing the cloth, say, by a several millimetres thick rubber plate.

11. *Three demonstrators* will combine the solutions to the R&D objectives mentioned above and also serve as milestones and benchmarks. Demonstrators for each year will test three different skills: (a) sensory – how the sensory information is obtained and utilized; (b) manipulative – exhibit the degree of dexterity of the *CloPeMa* hand itself and in combination with one or two cooperating robot arms and their manipulation dynamics; and (c) cognitive – showing the ability to perceive within a given task, interpret the perception within the world model, update the model, plan within it, and perform the task.

The three demonstrators are specified in the following table:

Skills	Demonstrator 1 (M12)	Demonstrator 2 (M24)	Demonstrator 3 (M34)
Sensory	• Vision sensors (stereo-head, one camera on each arm) operational, accessible through ROS. • Design of tactile sensors for *CloPeMa* hand, laboratory experiments with it.	• Rangefinder added to vision-based sensors. • Tactile sensors on *CloPeMa* hand operational. • Sensors fully connected via ROS to the high-level control.	• All sensory information used in a complex scene understanding and manipulation. • Trimming of the sensory subsystem based on feedback from solving the Year 3 demonstrator.
Manipulative	• Two robot experimental testbeds built with core motion control and trajectory capabilities. • Interfacing the *CloPeMa* hand. • Full dexterity of the *CloPeMa* hand including manipulation skills.	• Two robot experimental testbed: advanced motion control and trajectory capabilities. • Connection to the high-level reasoning and planning. • *CloPeMa* hand manipulation uses tactile sensors.	• Experimental testbed able to perform a complicated two hand dynamic manipulation. • Both *CloPeMa* hands are able to cooperate, manipulate in a dynamic mode with clothes to provide dynamics for sensing.
Cognitive	• A very basic part of the cognitive architecture implemented. • Pragmatic scene interpretation and action planning needed to perform Year 1 demo.	• Cloth material recognition based on vision, range sensing, and tactile sensing. • Cognitive subsystem able to deal with static manipulations and observations. Basic learning.	• Cloth material recognition based on vision, range, tactile sensing, and dynamic manipulation. • Cognitive subsystem able to deal with dynamic manipulations and observations. Advanced learning.
Practical demo	Repetition of the Stanford experiment with the two-handed robot. Pick a towel from a heap and fold it.	Sorting a heap of T-shirts according to materials, fold each T-shirt and stack it.	Sorting a heap of socks and T-shirts, some inside out. Pick an item, turn it right-side out if needed, fold and stack it.

12. *Commercialization. CloPeMa* will guide its efforts by three application areas:

    - *Domestic robotics*, mainly housekeeping. Design of methods and experiments on the *CloPeMa* testbed will provide experience needed for identifying and collecting clothes and linens (even partially occluded examples) in the unstructured environment of a home.

- *Garment manufacturing.* We will build on UniGe experience gathered in the EC IP project LEAPFROG applicable for joining and finishing operations.
- *Manufacturing of goods with fabric envelope or in general limp material envelopes.* The examples include car seats and furniture upholstering.

2.2 Project Consortium

The *CloPeMa* consortium consists of five partners [1]

Partner No.	Partner Organization and Contact Details	Partner Short Name
1	Centre for Research and Technology Hellas Informatics & Telematics Institute, Contact Person: Dr. Sotiris Malassiotis	CERTH
2	University of Glasgow Department of Computing Science Contact Person: Prof. Paul Siebert	UG
3	Czech Technical University in Prague Department of Cybernetics Contact Person: Prof. Vaclav Hlavac	CVUT
4	University of Genova Department of Robotics Engineering Contact Person: Prof. Matteo Zoppi	UniGe
5	Neovision SRO Contact Person: Mr. Petr Palatka	NEO

2.3 Workpackage List and Responsibilities

The *CloPeMa* project consists of 9 Workpackages (WPs), each one consisting of various tasks. The detailed description of each WP and of each task within a WP can be found in

[1] A list of contact details of all people involved in the project may be found in the project document repository (folder: administrative/):

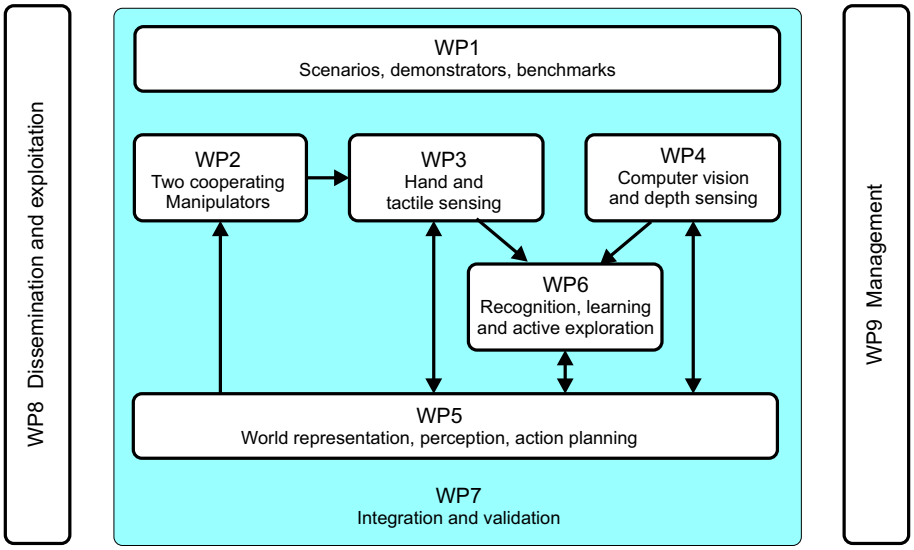
"Annex I Description of Work" of the *CloPeMa* Grant Agreement. The following table shows the list of WPs and Tasks along with the leading WP/Task partner.

1	Scenarios, demonstrators and benchmarks	UniGe
1.1	Scenarios for Project Demonstrators	UniGe
1.2	Annotated clothes perception-manipulation procedures	UniGe
1.3	Experimental Results and Corpus of Annotated Datasets	CVUT
2	Two cooperating manipulators	CVUT
2.1	Experimental testbed with collision handling	CVUT
2.2	Control of dual robotic arm chain with flexible join	CVUT
2.3	Modelling and control of kinematically redundant robot arm with robotic multifinger hand	CVUT
2.4	Control of dual robotic arm chain based on tactile feedback	CVUT
2.5	Motion planning based on advanced sensors and reasoning	UniGe
3	CloPeMa hand and tactile sensing	UniGe
3.1	Conceptual design. Detailed specifications	UniGe
3.2	Hand mechatronic design and integration	UniGe
3.3	Tactile Sensing	UniGe
3.4	Low-level control and tactile data processing	UniGe
4	Computer vision and depth sensing	UG
4.1	Binocular Sensor Head Design & implementation	UG
4.2	Accelerated range sensing	UG
4.3	Photometric stereo gripper-mounted sensor	CERTH
4.4	Accelerated feature extraction	UG
5	World representation, perception, action planning	CERTH
5.1	3D Occupancy grid and related tools	CVUT
5.2	Representation and control module	CVUT
5.3	Probabilistic part of ToK	CERTH
5.4	Dynamic actions representation	CERTH
5.5	Cooperation with other WPs	UniGe
6	Recognition, learning and active exploration	CVUT
6.1	Pattern recognition tools and infrastructure	CVUT
6.2	Identification of problems where classification methodology helps	CVUT

6.3	Tactile and grasp patterns	CVUT
6.4	Visual patterns	CVUT
6.5	Joint visual, tactile and dynamic patterns	CVUT
7	Integration and Validation	NEO
7.1	Two robots setup	CVUT
7.2	Software integration and ROS	NEO
7.3	Integration of CloPeMa hand	UniGe
7.4	Interfacing other hardware and scientific WPs methods	UG
7.5	Demonstrators	NEO
7.6	Experiments and validation	UniGe
8	Dissemination and Exploitation	UG
8.1	Project web page	UG
8.2	Dissemination towards academia and industry	UG
8.3	Exploitation of the experimental testbed including software	CVUT
8.4	Open-source licensing and management of IPR	UG
9	Management	CERTH
9.1	Financial plan	CERTH
9.2	Project planning, execution and reporting	CERTH
9.3	Quality Management	CERTH

2.4 Workpackage Inderdependencies

The following diagram shows the workpackage interdependencies.



2.5 Project Timetable

	Tasks	Year 1				Year 2				Year 3			
WP1	Scenarios, demostrators, benchmarks	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T1.1	Scenarios of project demonstrators												
T1.2	Annotated clothes perception-manipul. proced.												
T1.3	Experiment results and corpus of annot. data sets												
WP2	Two cooperating manipulators	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T2.1	Experimental testbed with collision handling												
T2.2	Control of dual robotic arm chain with flexible join												
T2.3	Modelling and control of kin. redundant robot arm												
T2.4	Control of dual robotic arm chain, tactile feedback												
T2.5	Motion planning based on adv. sensors and reas.												
WP3	CloPeMa hand and tactile sensing	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T3.1	Conceptual design. Detailed specifications												
T3.2	Hand mechatronic design and integration												
T3.3	Tactile sensing												
T3.4	Low-level control and tactile data processing												
WP4	Computer vision and depth sensing	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T4.1	Binocular Sensor Head Design & implementation												
T4.2	Accelerated Range Sensing												
T4.3	Photometric Stereo gripper-mounted sensor												
T4.4	Accelerated Feature Extraction												
WP5	World repr., percepton and action planning	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T5.1	3D Occupancy grid and related tools												
T5.2	Representation and control module												
T5.3	Probabilistic part of ToK												
T5.4	Dynamic actions representation												
T5.5	Cooperation with other WPs												
WP6	Recognition, learning and active exploration	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T6.1	Pattern recognition tools and infrastructure												
T6.2	Identification of problems where class. meth. helps												
T6.3	Tactile and grasp patterns												
T6.4	Visual patterns												
T6.5	Joint visual, tactile and dynamic patterns												
WP7	Integration and validation	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T7.1	Two robots, setup												
T7.2	Software integration and ROS												
T7.3	Interfacing CloPeMa hand												
T7.4	Interfacing other hw and scientific WPs' methods												
T7.5	Demonstrators												
T7.6	Experiments and validation												
WP8	Dissemination and exploitation	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T8.1	Project web page												
T8.2	Dissemination towards academia												
T8.3	Exploitation of the experimental testbed including sw												
T8.4	Open-source licensing and management of IPR												
WP9	Management	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
T9.1	Project initiation												
T9.2	Financial and IPR plan												
T9.3	Project planning, execution and reporting												
T9.4	Quality management												

Figure 1: Timeline of WPs, tasks - along with the whole projects duration

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2.6 Deliverables - Milestones

Table 2: List of deliverables

Del. no.	Deliverable name	Nature	Diss. Level.	Lead Ben.	Date
D1.1	Scenarios and detailed specification of M12 demonstrator	R	PU	UniGe	M3
D1.2	Demonstrator procedures, results, and description of annotated data specification	R	PU	CVUT	M35
D2.1	Experimental testbed with dual robotic arm chain and its control	P	CO	CVUT	M12
D2.2	Experimental testbed with dual multifinger hands and its control using tactile feedback	P	CO	CVUT	M24
D2.3	Motion planning based on advanced sensors and reasoning	P	CO	UniGe	M36
D4.1	Binocular head implementation, operating software, report detailing head design	R	CO	UG	M9
D4.2	Photometric Stereo gripper-mounted sensor implementation with supporting documentation	R	CO	CERTH	M21
D5.1	Report on the reasoning mechanism and the object representation	R	PU	CERTH	M12
D5.2	Report and software for the reasoning mechanism in association with learning and hardware control	P	CO	CERTH	M30
D6.1	Visual patterns	R	PU	CVUT	M24
D6.2	Grasp patterns	R	PU	CVUT	M30
D7.1	Experimental testbed, basic functionality	P	PU	NEO	M9
D7.2	First project demonstrator and its validation	P	PU	NEO	M12
D7.3	Second project demonstrator and its validation	P	PU	NEO	M24
D7.4	Third project demonstrator and its validation	P	PU	NEO	M35
D8.1	CloPeMa web page	P	PU	UG	M3
D9.1	Quality Management Report	R	PU	CERTH	M6

Table 3: List of milestones

Number	Milestone name	Lead Ben.	Date
M1.1	Demo Year 1, annotated data, plan of Demo2	CERTH	M12
M1.2	Demo Year 2, annotated data, plan of Demo3	CERTH	M24
M1.3	Demo Year 3, annotated data	CERTH	M35
M3.1	Tactile hands, 7 pieces, complete prototype	UniGe	M20
M4.1	Photometric Stereo gripper-mounted sensor implementation with supporting documentation	CERTH	M21
M6.1	Pattern recognition tools implemented	CVUT	M18

3 *CloPeMa* Project Management Plan

The goal of project management within CloPeMa is to provide a focused, lean but effective framework to support the whole consortium in achieving the objectives of the project. The project management is responsible for the following tasks:

- Manage the partners and resources to reach the general objectives and goals of the project, on time and with the budget allocated.
- Be ultimately responsible for deliverables and milestones achieved and ensure the accomplishment of obligations stated in the Consortium Agreement.
- Preserve a policy for the overall quality of the project and deliverables.
- Follow the EC rules and be the contact point (interface) with the Commission.
- Provide internetworking tools for communication between partners.
- Provide a plan for knowledge management, IPRs, and exploitation of results.
- Solve problems and risky situations through a contingency plan.
- Follow ethical rules and codes and uphold them within CloPeMa activities.

Since 1st October 2013, the Project Coordinator of *CloPeMa* is *Dr Sotiris Malassiotis* replacing Prof. Maria Petrou.

Several main types of management entities / roles are identified:

- Project Coordinator (PC).
- WP Leaders.
- Project Steering Committee (SC).
- Scientific and Usage Advisory Board (SUAB).
- *CloPeMa* 's Management office.

3.1 Specific Roles and Procedures

Project Coordinator (PC) represents the project and the consortium, reports to the Commission, monitors overall project performance, administers project resources and promotes project visibility. She is also chairing the Steering Committee meetings and is responsible for the project formal communication with EC and other stakeholders. The PC also audits the R&D performance of the project and ensures accomplishment of the scientific and technical objectives. The PC is responsible for resolving work implementation problems and conflicts. She is also the direct link between the project Steering Committee and the researchers.

The first task of the PC is to define and set up the practical mechanisms, which implement the management functions and are specified in the Consortium Agreement. The PC will define a Management Charter, which identifies practical steps for implementing the Consortium Agreement clauses such as changes to the Steering Committee, loss of a partner, taking actions against non-performing partners, etc. The PC will monitor dissemination activities in WP8 and oversee the communication in the project and with the world. The Project Coordinator will maintain the overall *CloPeMa* plan, and regularly review progress with the WP Leaders to ensure that any deviations from the plan are swiftly identified and corrected.

Regarding the technical management of the project the PC will have the following duties.

1. She will ensure that the technical work is of the highest standard and in line with the objectives of the project. Furthermore, she establishes the specific technical objectives to all WP Leaders;

2. As a quality assurance manager, she will ensure that the project's reports and results are of the highest quality and in compliance with all quality evaluation criteria formulated by the Project Boards. In addition, she acts as a contact point on quality matters, performs a quality review prior to the completion of each project deliverable and milestone and supervises the evaluation phases of the project. All this will be formalized in the Quality Plan (4).

WP Leaders are responsible for the work and the contents and timely consignment of the deliverables. Each WP Leader must coordinate all the WP's personnel, divide labour to Task Leaders and manage resources in each package in coordination with the Project Coordinator. WP Leaders provide regularly reports, control the quality and the schedule of the work, participate actively in meetings, archive the results and keep minutes of meetings. The archive is part of the electronic Document Management Tool.

Steering Committee (SC) is the central decision committee, in which each partner has one seat, and it is chaired by the Project Coordinator. The SC has responsibility for monitoring the overall technical progress and direction of the project, the R&D performance of the project and monitoring the accomplishment of the objectives. It is also responsible for the resources used and the costs incurred, risk evaluation, and watching for Ethical Assessment and conflict resolution.

The SC shall convene as necessary and at least every six months, in order to provide quick and efficient response to events that shall arise during the project. Should the circumstances allow it, SC can meet using remote meeting technology. SC meeting's date shall be announced by the PC at least four weeks prior to the meeting. The agenda of each meeting is prepared by the PC with consultation from the members of the SC, the WP Leaders and the PC. The reasons for any deviations from the project plan will be identified and the necessary corrective actions will be agreed by the SC. Any differences between participants will be resolved by the SC as they arise. Decision making will follow consensus whenever possible, otherwise a procedure will be set up in the Consortium Agreement that requires either unanimity, $\frac{3}{4}$ of the votes or a majority rule, depending on the decision type. To be accepted as valid, any decision taken will need a representation of at least two-thirds of the *CloPeMa* members. Minutes from the SC meeting will be created in the responsibility of PC.

Table 4: Members of the Steering Committee

Partner Short Name	Person Name	Role
CERTH	Sotiris Malassiotis	SC Chair & Member
UG	Paul Siebert	SC Member
CVUT	Vaclav Hlavac	SC Member
NEO	Petr Palatka	SC Member

Scientific and Usage Advisory Board (SUAB) will be composed of senior researchers, entrepreneurs and decision makers with a high reputation in the project domain and project research fields. We plan to invite to SUAB key researchers from similar projects, in EU and worldwide. Members will bring/get to/from the project experience and ideas for innovation. The SUAB will be informed of the project results and progress at regular intervals and will meet twice in the course of the project duration to provide suggestions with respect to the project strategic orientations, business and exploitation direction and project support of user needs.

The mission of the SUAB is to asses that the technical and applications progress in CloPeMa remains innovative and forward looking, to evaluate if CloPeMa is producing work of enough technical quality, and to ensure that the activities in CloPeMa are sufficiently tailored towards future exploitation of results and that the project is keeping the necessary ethical standards.

Financial Administration and Management Office will support the Project Coordinator. A Project Assistant with administrative responsibilities including accounting, legal liaison, record keeping etc, and dealing with CERTH central administrative, legal and financial departments, which have significant expertise in EU project participation and coordination.

The coordinator will carry out administration of financial matters relating to receipt of funding from the EC and its disbursement to the CERTH partners, such that all financial targets are accurately met, and all payments are made in a timely fashion. A three year Financial Plan will be made and maintained, such that expected income, expenditure, and disbursements are clear and verifiable, and that cash flow is monitored and liquidity is maintained. The PC will review the financial status monthly, and report on progress to the Steering Committee at half-yearly meetings. The PC will take timely corrective action in the case of exceptions.

3.2 Project Communication

The information for the Project is exchanged through:

- Reporting by the project coordinator to the European Commission.
- Quarterly internal progress reporting among all partners and to the PC.
- Working group events and seminars.
- Meetings of the Steering Committee for the contractual and administrative execution and monitoring of the project.
- Meetings of the relevant partners for the execution/monitoring of the scientific coordination progress.
- Electronic communication or virtual meetings based on existing instruments.

3.2.1 Meetings

- Plenary meetings will be organized every four months to monitor project progress.
- The Steering Committee will also convene during these meetings.
- If needed, technical meetings will take place preferably parallel or subsequent to the plenary meetings.
- An agenda will be announced by the PC at least 1 month before the date of the meeting and be verified by the SC members at least one week before the meeting.
- The PC will record minutes for each meeting that will be circulated for approval just after the meeting. The minutes document will contain the list of participants, a summary of discussions and decisions, and a list of action points for the next period.
- The meeting minutes and the agenda will be archived at the document repository.
- Virtual meetings in the form of Skype or telephone conferences will take place in an ad-hoc manner for short discussions on plans and decisions to be taken.

3.2.2 Internal Project Reporting

All partners should submit quarterly progress reports to the coordinator based on the template supplied in the annex of this deliverable. The reports contain a short description of work performed during the reporting period, the effort required, planned work and effort for the next period, and any issues or foreseen delays in the implementation of the work. The reports will be communicated to the PC with e-mail in PDF format latest two weeks after the end of the reporting period.

3.2.3 Yearly Project Reporting

The consortium shall submit a periodic report to the Commission within 60 days after the end of the reporting period (See Grant Agreement II.4). The reporting shall comprise:

1. an overview, including a publishable summary, of the progress of work towards the objectives of the project, including achievements and attainment of any milestones and deliverables identified in Annex I. This report should include the differences between work expected to be carried out in accordance with Annex I and that actually carried out,

2. an explanation of the use of the resources,

3. and a financial statement, from each beneficiary together with a summary financial report consolidating the claimed Community contribution of all the beneficiaries in an aggregate form, based on the information provided in Form C (Annex VI) by each beneficiary.

The consolidation of the report is initiated by the PC that will supply a template activity report at least two weeks before the end of the reporting period. The WP Leaders will collect from corresponding partners the information regarding the status of the WP, the work done, the deliverables released, problems encountered, effort and so on. The PC will then create an overall progress report. Partners should also send to the PC their financial statements along with explanation of the use of resources not later than the end of the reporting period. The PC will check the quality and the accuracy of the data and will finally submit the reports to the Commission.

3.2.4 Information Exchange Tools

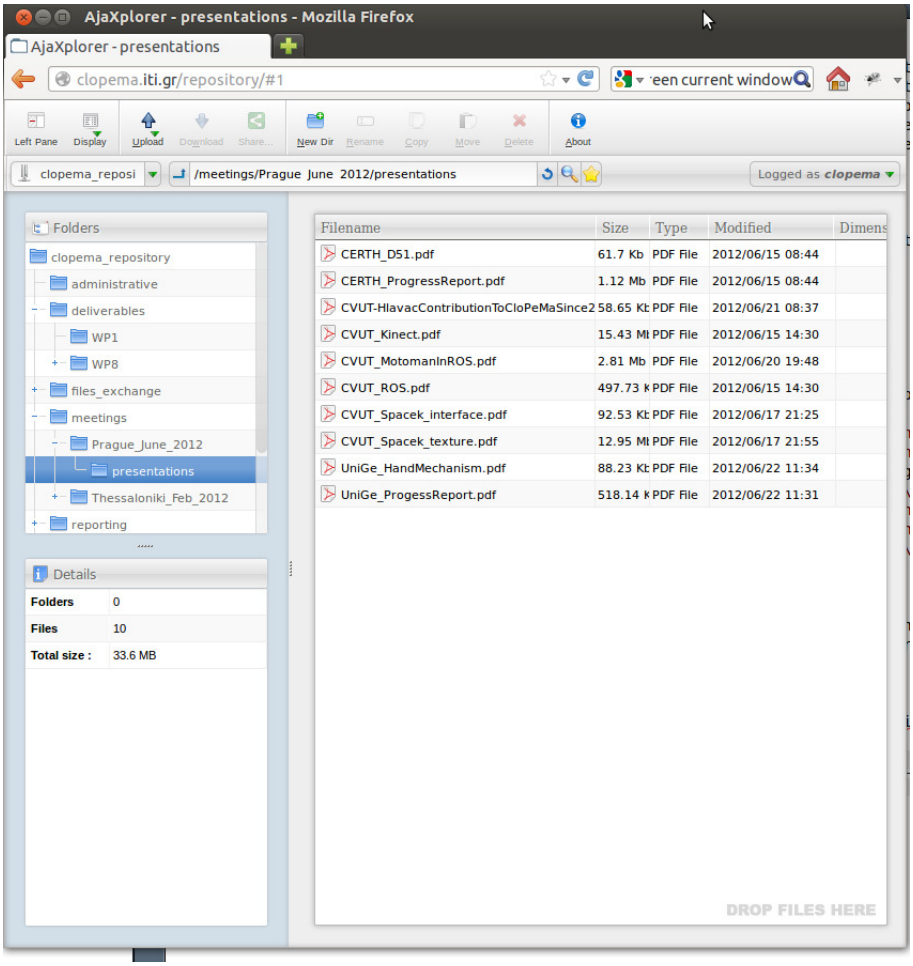
The communication in the project will take place through various electronic tools that have already been established.

***CloPeMa* mailing lists** . The following mailing lists have been created and are being maintained by UG (Susan Oehler).

clopema-l@dcs.gla.ac.uk	Everyone. This should be used only sparingly (e.g. for meeting announcements)
clopema1-demonstrators@dcs.gla.ac.uk	Demonstrators.
clopema2-testbed@dcs.gla.ac.uk	Experimental testbed.
clopema3-hand@dcs.gla.ac.uk	*CloPeMa* hand and tactile sensing.
clopema4-vision@dcs.gla.ac.uk	Vision and depth measurement.
clopema56-reasoning@dcs.gla.ac.uk	High-level reasoning.
clopema7-integration@dcs.gla.ac.uk	Integration and ROS.
clopema89-admin@dcs.gla.ac.uk	Management and dissemination.

The core mailing list contains all partners e-mail while in the mailing lists corresponding to specific themes/workpackages each person should register individually according to their involvement in the project.

Project Web Repository . The *CloPeMa* web repository is a web-based private document repository.A modern browser is all that's needed to access the repository at the address `http://clopema.iti.gr/repository/`. The interface is very similar to OS-native file explorers (see fig. 3.2.4). Users can easily share files or folders over the Internet, preview and edit most common file formats directly online, without having to download/upload the files to/from their local computer. The repository has pre-structured folders for finding specific information regarding the project easily as well as loosely structured folders that partners may use freely according to their demands.



administrative/	Contains administrative documents, such as the technical annex, the consortium agreement and contact details of people involved in the project.
deliverables/	This contains the deliverables released in PDF format. This are structured per workpackage.
meetings/	Contains meeting information. Each sub-folder corresponds to a meeting and contains the agenda, meetings minutes and meeting presentations.
reporting/	The folder contains quarterly internal progress reports and yearly progress reports
reviews/	This folder will contain documents that may be accessible by the reviewers for project reviews.
templates/	Contains various LaTeX templates for standardized document editing.
workpackages/	This folder provides free area for exchange of information per work-package.

FTP server . The FTP server (`ftp://clopema.iti.gr`) is for exchange of bulky documents or datasets such as image databases, software packages, videos etc.

SVN repository . The SVN repository (`https://clopema.iti.gr/svn/clopema/`) is for collaborating editing of documents and source code, as well as version control management.

Software development tools . Tools facilitating collaborative software development and integration will be established as needed. This include version control systems, bug tracking systems, software wiki etc.

3.3 Intellectual property management

Issues regarding the IPR and knowledge management as well as for the exploitable products that will delivered as foreground during the project lifetime are described in the *ClopeMa* Consortium Agreement. In addition, the consortium agreement provides dispute-resolution procedures and effective conflict resolution in order to avoid deadlocks in project operational progress. Specifically, for conflict resolution, either the project steering committee or the project coordinator can initiate the conflict resolution procedure. The voting procedure described in the Consortium Agreement will be followed in this case.

3.4 Risk Management

The PC is the overall risk manager and responsible for identification and mitigation of general, operational or technical risks. The WP leaders assist the PC in the risk assessment within their work packages, which includes identification, analysis, handling, information (in case of moderate or high risks), monitoring, and tracking efforts to reduce low and moderate risks. The PC will be in charge of informing the project SC about specific critical situation and possible measures to be taken.The most important risk of a project is the operational risk, the possibility that the project will not be completed within its time-schedule, with the proposed resources and according to its quality requirements.

Project risks have been identified in the proposal phase based on the experience of consortium partners from former projects and documented appropriately. They have been evaluated, classified in accordance with defined risk parameters and categorized according to the defined categories to facilitate risk handling. Furthermore, mitigation plans for each category have been specified by the partners to avoid occurrence or reduce their potential impact on the project. For a detailed description of identified risks we refer to Annex I of the grant agreement.

The risk status will be reviewed continuously by means of quarterly internal progress reports and progress reporting during the consortium meetings. Risks that have not been foreseen may be also identified. In the case of identification of risks, depending on the assigned priority and consequences of each risk, the PC decides on further risk handling when monitored risks become critical. Risk handling may range from simple acceptance

and monitoring in case a risk is judged as minor, to development and implementation of a risk mitigation plan for risks that are marked as moderate or significant. The responsibility for development and implementation of a mitigation plan as needed to reduce the risk to an acceptable level lies with the associated work package leader. Risk mitigation plans will address a) development of alternative courses of action, workarounds and fallback plans, b) scheduling of mitigation plans, c) identification of performance criteria for monitoring of mitigation activities.

If despite the mitigation plan, some risks become critical to the project the PC will call for meeting of the SC to draw a contingency plan that may require voting (e.g. to transfer task from an under-performing partner to some other partner). The resulting contingency plan will be executed by the responsible project partner and monitored by the PC.

4 Quality Plan

Quality assurance of deliverables of the *CloPeMa* project will be implemented using the principles of peer review. All deliverables will be reviewed by at least two members of the consortium who were not involved in the creation of the deliverable.

4.1 Deliverables Peer review and Control

Each deliverable is assigned a "Deliverable Responsible Partner", who is typically the WP or the Task Leader associated with the deliverable. The deliverable responsible partner decides on the list of contributors (authors) of the deliverable, who typically come from the partners involved in the work reported on the specific deliverable. These have been already specified in the DoW. The PC will assign for each deliverable two peer reviewers, others from the deliverables authors. The two reviewers participating each time are selected on the basis of their expertise and experience on the subject treated in the deliverable report under consideration. External experts may be contacted also if needed. The peer reviewers have to review the deliverable and provide their comments according to the template specified in Annex A of this document.

Each deliverable will be evaluated according to the following criteria:

- *Relevance and completeness*. Relevnace of the topics discussed in the deliverable and whether these are inline with the workpackage and overall project objectives.
- Clarity of presentation. Quality of the presentation of the results and overall organization of the document.
- Quality of Achievements. Quality of the technical contents of the deliverable, the methodological framework for evaluation and the novelty of the approach.

The deliverable will also be given a final rating in the following scale: Fully accepted, Accepted with reservations, Rejected unless modified properly, Rejected.

Each deliverable is evaluated according to the following schedule:

Deadline	Action
$>$ 15 days before	Deliverable responsible partner and deliverable contributors prepare first draft latest 15 days before deadline.
15 days before	Deliverable responsible partner uploads first draft to the document repository and informs the PC. The PC assigns peer reviewers to the deliverable.
10 days before	Reviewers send comments (via e-mail in PDF format) to deliverable responsible partners, and the PC.
7 days before	The deliverable responsible partner incorporates the reviewers comments, uploads the revised version, and notifies the PC about the of list of actions describing how he/she addressed the comments.
4 days before	The PC assesses the deliverable and if needed asks the deliverable responsible partner for further modifications
Due Date	Deliverable submission

In case the Commission requests a revision of the submitted Deliverable, the internal review will be only repeated if the changes to the deliverable are significant.

The deliverable responsible and the authors of a deliverable should make every possible effort to confront with the quality criteria as well as with the comments of the peer reviewers, and/or the coordinator.

4.2 Documents Formats and Templates

Templates for all official documents of the project (deliverables, internal reports, review reports, presentations) are provided in LaTeX format, in the project web-repository (in folder "templates/").

LaTeX is the official format for document editing. Documents in their final form will be stored in PDF format. Document exchange through e-mail will be also performed in PDF format.

4.3 Document Naming and Coding

For facilitating common browsing and storage in different platforms and OSs, no spaces should be used in the document names, and instead the dash character "-" should be used. All project document names must start with the prefix CloPeMa- in order to facilitate quick identification and indexing. In particular, the following conventions are mandatory for certain types of documents.

Names of deliverable documents should follow the convention "CloPeMa-Dw.n-vX.Y.pdf" where "Dw.n" is the deliverable number , "w" is the WP number. "n" is the numbering within the specific WP. "vX.Y" is the version number. "X" is the version. "Y" is the sub-version.

For instance, the name of (the final version of) deliverable D9.1 sent to the EC is "CloPeMa-D9.1-v1.2.pdf".

Quarterly management reports should be named as: "CloPeMa-QMR-Qx-Partner.pdf" where "Qx" is the corresponding quarter (Q1-Q12) and "Partner" is the partner short name.

Presentations should be names as: "CloPeMa-PP-Name-Partner.pdf" where "Name" is a short name describing the presentation (e.g. "progress report") and "Partner" is the partner short name.

4.4 Publications

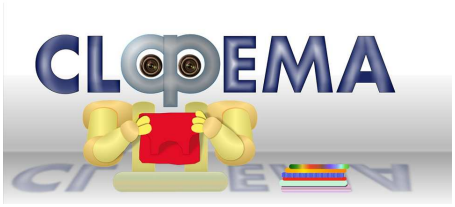
All papers published by members of the consortium in relation to project work should acknowledge the project according to Article II.30 of the GA.

All publications must include the following statement:

> This work was [partially] supported by the EU FP7/2007-2013 (ICT-2011-2.1 Cognitive Systems and Robotics), under grant agreement no. 288553 (project CloPeMa).

Researchers must make their best efforts to ensure Open Access to their publications. Also publications relevant to the project should be communicated to the PC and WP8 responsible. The publication information will be announced on the *CloPeMa* web-site. This will include the publication details (authors, title, event, journal etc.) and a link to an Open Access copy of the document in PDF format.

A Peer Review Report Template



Clothes Perception and Manipulation

Peer Review Report

Deliverable Number	:	D0.1
Title of Deliverable	:	Template for Clopema Deliverables
Reviewer	:	
Date of Review	:	20 - 7 -2012

The research leading to these results has received funding from the European Communitys Seventh Framework Programme (FP7/2007-2013) under grant agreement n^o 288553

1 Guidlines to reviewers

The Clopema Consortium uses a Peer Review process for its internal quality assurance for deliverables to assure high standard. The Peer Review is processed individually by selected reviewers. The allocated time for the review is about two weeks. The author of the document has the final responsibility to collect the comments and suggestions from the Peer Reviewers and decide what changes to the document and actions are to be undertaken.

Please provide constructive comments to the authors concerning the following aspects of the deliverable:

- **Relevance and Completeness**. Please read the work package description in the description of work, and comment on the relevnace of the topics discussed in the deliverable and whether these are inline with the workpackage and overall project objectives. Highlight any missing information, providing suggestions to the authors as to what has to be added.
- **Clarity of Presentation**. Comment on weaknesses in the presentation of the results and the overall organization of the document, providing suggestions for improvements.
- **Quality of Achievements**. Please comment on the technical contents of the deliverable, the methodological framework for evaluation and the novelty of the approach. Provide any suggestions that you believe are neccessary for improving the over quality of the reported results.

2 Review Form

2.1 Overall Evaluation

☑ Fully accepted
☐ Accepted with reservation
☐ Rejected unless modified as suggested
☐ Fully rejected

2.2 Relevance and Completeness

Is this deliverable relevant to Clopema and to the particular activities / WP it covers ? Is there anything missing ?

☐ excellent
☐ very good
☐ good
☐ fair

☐ poor
☐ very poor

2.3 Clarity of Presentation

Is the deliverable clearly written ? Is the organization of the document appropriate ? Is the length of the document sufficient ?

☐ excellent
☐ very good
☐ good
☐ fair
☐ poor
☐ very poor

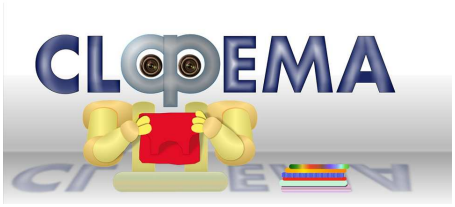
2.4 Quality of Achievements

Mark the technical soundness, methodology and novelty of the results.

☐ excellent
☐ very good
☐ good
☐ fair
☐ poor
☐ very poor

3 Comments to Authors

B Quarterly Progress Report Template



Clothes Perception and Manipulation

Quarterly Management Report

1st Quarter (Feb. 2012 - Apr. 2012)

Center for Research and Technology Hellas

The research leading to these results has received funding from the European Communitys Seventh Framework Programme (FP7/2007-2013) under grant agreement n^o 288553

1 Work performed during quarter

1.1 Description

Task Number	Work Performed	Person Months
TX.X	A few lines describing the work perfomed during this period	X

1.2 Deliverables Produced

Deliverable Number	Deliverable Name	Date Released
DX.X	The title of the deliverable	XX-XX-XXXX

1.3 Dissemination

1.3.1 List of Publications

No.	Publication Reference
1	Containing Authors (s), Title, Conference or Journal, Date

1.3.2 List of Other Dissemination Activities

No.	Description	Date
X	This may include presentations in conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, attendance in exhibitions, thesis, interviews, films, TV clips, posters	XX-XX-XXXX

1.4 Problem areas and open issues

Write here any problems encountered, including delays and deviations from the description of work.

2 Work planned for next quarter

2.1 Description

Task Number	Work Planned	Person Months
TX.X	A few lines describing the work planned for this period	number of planned person months

2.2 Deliverables planned

Deliverable Number	Deliverable Name	Planned Release Date
DX.X	The title of the deliverable	XX-XX-XXXX