



Coordination Action in R&D in Accessible and Assistive ICT

Grant Agreement: 248582

CARDIAC

**Coordination Action in R&D in Accessible and
Assistive ICT**

FP7-Coordination Action

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D6.4, 4th Bi-annual Progress Report

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Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations

as stated in Article II.2.3 of the Grant Agreement declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;
- The project (tick as appropriate) ⁸:
 - has fully achieved its objectives and technical goals for the period;
 - has achieved most of its objectives and technical goals for the period with relatively minor deviations.
 - has failed to achieve critical objectives and/or is not at all on schedule.
- The public website, if applicable
 - is up to date
 - is not up to date
- To my best knowledge, the financial statements which are being submitted as part of this report are in line with the actual work carried out and are consistent with the report on the resources used for the project (section 3.4) and if applicable with the certificate on financial statement.
- All beneficiaries, in particular non-profit public bodies, secondary and higher education establishments, research organisations and Sees, have declared to have verified their legal status. Any changes have been reported under section 3.2.3 (Project Management) in accordance with Article II.3.f of the Grant Agreement.

Name of scientific representative of the Coordinator: Patrick Roe.....

Date:22/ 05/ 2012

For most of the projects, the signature of this declaration could be done directly via the IT reporting tool through an adapted IT mechanism.

⁸ If either of these boxes below is ticked, the report should reflect these and any remedial actions taken.

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Executive Summary

The major aim of the Coordination Action is to improve the overall success of Challenge 7 ICT 2009 7.2 'Accessible and Assistive ICT' by drafting a research agenda roadmap highlighting research priorities that will favour eAccessibility.

The main achievements of the fourth six-month period of the project have been to:

- complete deliverable D1.2, where a step by step methodology has applied to move from the original influence maps generated by the SDDP in Pafos to full roadmaps on the topic of technology transfer for both accessible and assistive ICT.
- make substantial progress on the advance draft of deliverable D3.2, where the same methodology of moving from an influence map to a roadmap is being applied, for the influence map generated in San Sebastian on the topic of user interaction.
- begin preparations for third second SDDP event to be held in Florence, Italy, with the Triggering Question "What research actions should be supported to exploit emerging network infrastructures and services to facilitate inclusion" (see deliverable D4.1).

These two deliverables (D1.2 and D3.2) constitute the first deliverables that include initial results and recommendation from the project.

A detailed list of responses to the recommendations of the reviewers from the interim evaluation meeting, is provided in Section 1.6.

The expected result of the project is a report containing a series of recommendations and research agenda roadmaps that indicate the short, medium and long term research priorities in the field of accessible and assistive ICT products and services, including recommendations to support the technology transfer process in these research areas.

Further information can be found at: www.cardiac-eu.org

List of Partners

No	Name	Short name	Country
1	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	EPFL	Switzerland
2	CENTRAL REMEDIAL CLINIC	CRC	Ireland
3	Cyprus Neuroscience and Technology Institute	CNTI	Cyprus
4	UNIVERSIDAD DEL PAIS VASCO	UPV/EHU	Spain
5	CONSIGLIO NAZIONALE DELLE RICERCHE	CNR	Italy
6	EVANGELISCHE STIFTUNG VOLMARSTEIN	FTB	Germany
7	JOHN GILL TECHNOLOGY Ltd	JTG	United Kingdom
8	STICHTING SMART HOMES	SMH	Netherlands
9	UNIVERSITETET I OSLO	UIO	Norway
10	TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY.	IIT	Israel
11	FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	ICS-FORTH	Greece
12	UNIVERSIDAD DE SEVILLA	USE	Spain
13	FACULDADE DE MOTRICIDADE HUMANA	FMH	Portugal

Section 1: Project objectives and major achievements

1.1 Overall project objectives

The overall aim of this coordination action is to play a role in helping increase the amount of products and services available on the market in the field of accessible and assistive ICT.

The core objective of the project is to advise the European Commission as to where to direct research funding in the short, medium and more distant future within the context of ICT for independent living, inclusion and governance.

This is to be achieved through a series of interactive events known as Structured Dialogic Design Process (SDDP), where influence maps are to be drawn up in consultation with all the relevant stakeholders.

1.2 Objectives for the fourth 6-month period (month 19-24).

The three main objectives for the period have been to:

- ensure expected progress is made for the first deliverables that are to include initial results and findings (D1.2, complete draft, D3.2, advance draft).
- ensure all preparations are in place for the third SDDP event to be held in Florence between the 29-31st of May 2012 (next period).
- take account of and react to the recommendations made by the reviewers at the 18-month interim review.

1.3 Main achievements and work performed in fourth period

The main achievement has been to continue the analysis of the results from the first two SDDP events (reported in deliverables D1.2 and D3.2).

1.4 Summary of deliverables and Milestones for fourth period

Apart from this progress report (D6.4), there are in all four other deliverables to be reviewed at this review:

- Deliverable D1.2 “Production of Accessible and Assistive ICT Systems and Materials” (due in month 24), which is the report containing the first roadmap on technology transfer drawn up from a variety of sources including the results from the first SDDP event held in Cyprus.
- Deliverable D2.2 “Influence tree on inclusive HCI research and development priorities for WP3” (due in month 20), which is the report from the second SDDP held in San Sebastian in June 2011 that includes all the raw data from the event as well as the influence map generated by this second SDDP meeting.
- An advanced preliminary version of Deliverable D3.2 “Trends on Inclusive User Interface Design” (due in month 36), as requested by the reviewers at the 18-month

interim review.

- Deliverable 4.1 entitled "Report with background material needed to support the SDDP-3 Meeting" (due in Month 24) which is the report distributed to the participants of the SDDP-3 event that contains the background information to create a common platform amongst attendees.

There were no milestones planned for this period. The next milestone will be the 3rd SDDP event to be held in Florence between the 29th-31st of May 2012.

1.5 Problems and corrective actions

There have been no problems or corrective action to report.

1.6 Response to recommendations from complementary review (sent on 18.01.2012)

REC-1. Explain more synthetically (including with diagrams) and comprehensively WPI achievements.

Response: Additional diagrams and explanations have been included in the updated version of Deliverable 6.3, resubmitted on the 15th of February, 2012.

REC-2. Explain more synthetically (including with diagrams) and comprehensively WP3 and WP4 execution planning, including in relation 6 below.

Response: Additional diagrams and explanations have been included in the updated version of Deliverable 6.3, resubmitted on the 15th of February 2012.

REC-3. Produce plans for (i) identifying how elements of the roadmap will be separated into short, medium and long term forecasts; and (ii) identifying what may (based on evidence currently being gathered for the project) be on the horizon in relation to future technology in the arena of assistive and accessible ICT.

Response: The influence maps generated through the SDDP methodology do of course themselves contain a relative time element in their structure, i.e. the ideas and factors at the foot of the influence trees need to be addressed first with the factors at the top of the tree generally being more long term issues. However, it is difficult to extract precise timelines in terms of dates and years from this data alone although it can be used as a relative indication. Additional data, input and analysis will be needed and with approaches may vary from one WP to another. For example, WP has gathered additional information from three external experts, where the questions was specifically put In terms of short, medium and long term forecasts (see D3.2, section 5). The time issue is slightly different regarding WPI, where many of the ideas and recommendations that are true today will also be valid in 5 or 10 years time. For example, involving users in the entire design process will be as

important in ten years time as it is today. The time issue in WPI has therefore to be handled differently (see D1.2, page 40).

REC-4. To completely develop sections 4.7.1 and 4.7.2 of D1.2, including via consultations e.g. with service delivery actors as well as relevant financing actors.

Response: Sections 4.7.1 and 4.7.2 of D1.2 are now numbered 5.1 and 5.2 respectively in the current version. These sections have been completely redrafted. As regards consultations, we found in our investigations that service delivery and financing issues are not regarded as being part of the technology transfer process itself, although certainly they have some indirect influence on technology transfer. Therefore, we consider this influence in our road-mapping process, but decided to focus with our questionnaire/interviews to the key players of ICT.

REC-5. To produce an advance draft report with regard to WP3.

Response: This has been done (see advance draft of D3.2)

REC-6. In order to reach an outcome of WPI and WP3, to produce a draft 'umbrella' report that brings together already the work of WPI and WP3 (WP4 having not yet delivered) to demonstrate how the expected achievements from the different pillars will meet the broad objectives of the project.

Response: as can be seen from the work-flow diagrams in the resubmitted version of D6.3 and in D6.4, the results from WPI, WP3 and WP4 are to be fed into the final report D5.4 where an overall research agenda roadmap is to be drawn up and presented (this will act as the ultimate 'Umbrella' report of the project). The plan, as described in the DoW, is to use the final meeting of the project to generate the overall road map. This corresponds to task T2.4, which is to be reported on in Deliverable D2.4. The results from D2.4 will then feed into the final report D5.4.

The methodology adopted by each of the WorkPackages WPI, WP3 and WP4 in their analysis to move from an influence map to a full roadmap will be the same. This should facilitate a common analysis and assist in bringing the various strands together. This common methodology can be seen in Deliverables D1.2 and D3.2 (advance draft).

The final SDD, which will build on the knowledge and clarity acquired and accumulated from the three domain specific SDDs will aim to create a comprehensive influence map that can be used by all relevant stakeholders as a guide to design their corresponding strategies and actions. The underlying principle is that the results of the three SDDs, and especially their corresponding influence maps (which essentially reflect priorities both in terms of actions to implement as well as timing), will serve as input for the final experts' SDD meeting. This two-day event, which is expected to produce an overall influence tree was foreseen as the main means of bringing the different strands together. Two different strategies are being considered to bring about this 'melding' of influence trees. One of them consists of enriching the sub-influence maps of one of the SDDs with factors from the other two SDDs

and the other approach is to generate an overall influence tree with the most important factors from all three SDD events.

However, in view of this request to produce an interim ‘Umbrella’ report from the preliminary results of WPI and WP3, two additional, and more immediate, approaches are to be explored in the umbrella report: the first approach will be to take one example from Chapter 6.3 (Novel User interfaces) of deliverable D3.2, provide additional background information and then enrich this example with the findings from WPI (Technology Transfer), thus bringing the two strands together.

The second approach will involve extracting an individual sub-influence map from the influence tree generated in the SDDP2 meeting in San Sebastian, as an example, and mapping it against the format of EC Call for proposals (see deliverable D2.2 for the sub-influence maps).

In summary, the consortium partners have taken on board and reflected on this recommendation, but due to the timing of T2.4 and D2.4 (month 36) and with the preliminary results and reports available from WPI and WP3 only just completed it has not yet been possible (as of 22.05.2012, deadline for submission) to complete this ‘Umbrella’ report. However, every effort will be made over the coming days to draft a very preliminary, exploratory version of this ‘Umbrella’ report in time for the second annual review, which should at least give an idea and insight into how the various strands can be brought together.

REC-7. To make explicit how dissemination strategies (i) are systematic in coverage of target audiences; and (ii) make effective use of feedback.

Response: The identified target audiences will continue to be addressed either through specific seminars, such as the one held in London in January 2012, via the CARDIAC Wikis regarding relevant stakeholders for the remaining SDDP events and through forthcoming publications (for example D5.3 and the final report). A targeted email has also been sent out to collect further input regarding funding priorities. The feedback will be gathered and fed into the final report (D5.4). The use of feedback from questionnaires is also described in deliverables D1.2 and D3.2.

REC-8. To address points remaining under Recommendation 5 of the May 2011 review, namely: (i) consideration for the human as well as the machine side of the "human-machine interaction" and the interdisciplinary characteristics of this field (with specialists on disabilities, and in particular, on ageing); (ii) Inclusion of ICT accessibility as well as Assistive ICT.

Response: the third SDDP meeting in Florence will mainly be looking at people and not technology. It will start from the premise that accessibility is essentially available and will be looking into how services can help people live and the impact of technologies on users. This should therefore ensure that the 3rd SDDP, by principle, considers the human side of interaction both from the accessible and assistive ICT dimension.

Furthermore, all these issues were taken into consideration in the SDDP2 in San Sebastian, as can be seen in the selection of mechanisms below, extracted from the list of Mechanisms discussed in SDDP2:

- 02: Research aiming at avoiding cognitive barriers in the design of Human Machine Interfaces.
- 03: Development of new haptic interfaces and methods for haptic usability.
- 05: Development of practical adaptive user interfaces.
- 06: Research of the use of context awareness to adapt user interfaces.
- 08: To do research on tangible artifacts to promote e-inclusion of people with special needs in technologically mediated environment.
- 11: Promote tools for decision making in the user-centred design process.
- 12: Promote research on the role of inclusive HCI to support self-management in health care.
- 13: Support research on novel human-machine interfaces for recreational activities.
- 15: Delivery of the interface - based on personalization, customization, adaptation and open APIs (such as REST) - to many more varied platforms.
- 17: Research and development on provision of accessible interfaces inclusive products and services in a ubiquitous manner.
- 19: Research on inclusive user-interaction in ambient intelligence environments.
- 20: Create a paradigm that avoids the traps of either forcing all to use a single new technology or for all content to be rewritten.
- 21: Consider not only the interface as it appears but the entire interaction dialogue.
- 22: Support the research in detecting the behaviour, emotions and intentions of the user without the conscious control by the user.
- 23: Development of sophisticated brain-computer interfaces for people with special needs.
- 24: Training programs for disability representatives to effectively participate in R & D processes.
- 25: Research on who could be excluded from using novel user interfaces.
- 26: To develop more specific and clear accessible guidelines for application developers.
- 27: To do research on how to use mobile technologies as a universal middleware in public and private environments.
- 28: Research about the exclusion that has been created by HCI.
- 29: Research methodologies that efficiently collect data about users including existing HCI quantitative tools.
- 30: Make social media inclusive.
- 31: Promote research into the cost of eye-tracking and tongue piercing based interfaces.
- 32: Support research that looks how to reduce the complexity of user interaction whilst retaining functionality.
- 34: Research on how to enforce accessibility in consumer goods.
- 35: Support research on how affective computing can assist accessibility interfaces.
- 37: R&D on text normalization, simplification, personalization and evaluation.
- 38: Research on mid to long-term interaction by disabled and elderly people.
- 39: Promote ubiquitous computing and programming tools.
- 40: Promote methodologies to include the human diversity in user interface design.
- 41: Use reasoning techniques for personalization.
- 43: Identify where research is needed to obtain universal access in ambient intelligence environments.
- 44: Accessible telecommunications technologies for people with no or little speech.
- 45: Research on the cognitive load associated with various user interfaces.

- 47: Research on methodologies to analyse collaborative accessibility and undertake collaborative user- and usage centred design.
- 48: Create a meaningful use of HCI clearly supporting activities.
- 49: Research that promotes inclusive practices of professionals responsible to develop new products or services.
- 50: Promote research on inclusive HCI for highly dynamic impairments.
- 52: Support research on the implications for people with disabilities of the use of biometric systems for identification and security.
- 53: Research into how AT can provide better than typical results (e.g. cyber-human).
- 55: Identify human factors barriers to health, education and participation of low income groups.
- 57: Further research on static and adaptive user interaction profiles.
- 60: To promote common research on user needs and preferences to be used by all e-inclusion projects.
- 61: Ways to move from purchase to lease or renting accessibility and assistive technology.
- 62: Digital literacy stepping stones.
- 63: Research on automated evaluation aids.
- 64: Basic research needs to be made on AT abandonment/adoption.
- 67: Usable accessibility.
- 70: Research on how to make accessibility simpler to deliver, apply, configure, support and use and explain to policy makers.

REC-9. The use of Wikis should be analysed and refocused where necessary for any remaining part of the project.

Response: The CARDIAC Wikispaces, are continuing and will continue to be used to gather responses and create a common platform of understanding around the Triggering Question ahead of the SDDP meetings. It will also serve as such be a repository of all the input received from the SDDP participants, and as such will be one of the means of disseminating the raw data. Whilst this medium is useful in getting the participants to start thinking of the issue at hand, it should only be seen as part of ‘journey of learning’ that the participants will experience during the entire process. The Wiki will also serve to capture the ideas of experts who are not able to attend the meeting.

Section 2: Workpackage progress for the year

2.1 WP1 Technology Transfer – How to achieve accessibility

Overall goal of WPI

The **overall goal of Work Package I “Technology Transfer – How to achieve accessibility”** is to study market factors and economic requirements relating to the development of Accessible and Assistive ICT products and systems by designers and manufacturers, helping them to incorporate the necessary features at a reasonable cost, whilst dealing with the unavoidable complexity of the industrial value chain and remaining profitable.

Technology transfer is the process of sharing of skills, knowledge, technologies, methods of manufacturing, samples of manufacturing and facilities among governments and other institutions to ensure that scientific and technological developments are accessible to a wider range of users who can then further develop and exploit the technology into new products, processes, applications, materials or services.

Objectives of WPI (and related tasks)

- To identify the **main factors** that influence how accessible and Assistive ICT products are sold to consumers, in complex supply markets. **(T1.1)**
- To study **organisational means and procedures** – intra and inter – ICT developing companies and other related organisations to achieve accessibility of their products and services, including the analysis of industrial practice and the description of best practice. **(T1.1)**
- To study the advancements in **solutions for supporting developers** in embedding generalised accessibility support within mainstream ICT-based products and services. **(T1.2)**
- To identify the **existing supports for manufacturers or designers** in bringing a proposed product or service, successfully to market. **(T1.5)**
- To propose a **short/medium/long term set of objectives** for the development and application of systems and services supporting accessibility as well as for the implementation of accessibility supporting means in and between companies/ organisations. **(T1.5)**
- To create a **road-map** that supports future EU research and industry alike in ensuring better uptake of technology, knowledge and skills. **(T1.5)**

Deliverables of WPI (and contributing tasks)

- **DI.1** “Report with background material needed to support the SDDP-I meeting”. **(T1.1)**
[month 8 - done]
- **DI.2** – Advanced Draft “Production of Accessible and Assistive ICT systems & materials”. **(T1.1/T1.4)** [month 20 - done]
- **DI.2** “Production of Accessible and Assistive ICT systems & materials”. **(T1.1/T1.4)**
[Review 2012] – DI.2 aims primarily at the industrial and research community. It will help manufacturers, researchers and designers to take a broad look at technology transfer for the production of Accessible and Assistive ICT systems and materials. It will outline factors for success based on the analysis of previous work and on examples of best practice.
- **Draft Umbrella Report** combining intermediate outcomes of WPI and WP3
[Review 2012]
- **DI.3** Available systems and services supporting developers to achieve accessibility. **(T1.2/T1.5)** [month 36] – DI.3 will describe available systems and services supporting developers to achieve accessibility; it will identify research and development areas which could benefit from such systems and services; it will also contain a directory of useful support for Accessible and Assistive ICT producers interested in successful technology transfer; it will identify gaps in available systems/services, and needs and requirements for closing those gaps; suggesting tasks for R&D in the area of accessibility supporting systems/services/methodologies.

Tasks of WPI (and related deliverables)

TI.3 – Formulate **triggering question** for WP2 / SDDP-I – [done]

TI.1 – Analyse **technology transfer in Accessible/Assistive ICT**

Study organisational and procedural processes

-> **DI.1** (background material for SDDP-I) – [done]

-> T5.2 / **D5.2** (Public report on TT) – [done in WP5]

-> **DI.2 – Advanced Draft** including **Draft roadmap** – [done]

-> **DI.2** (analysis of processes and success criteria) – [done]

TI.4 – Analyse the **Smart Living** area

-> essentials regarding technology transfer described in **DI.2** – [done]

-> separate report on Smart Living Area analysis [in progress]

TI.2 – Study of **guidelines, standards, solutions, models, ...**

-> **DI.3** – [month 36]

TI.5 – Identification of **existing technology transfer supports**

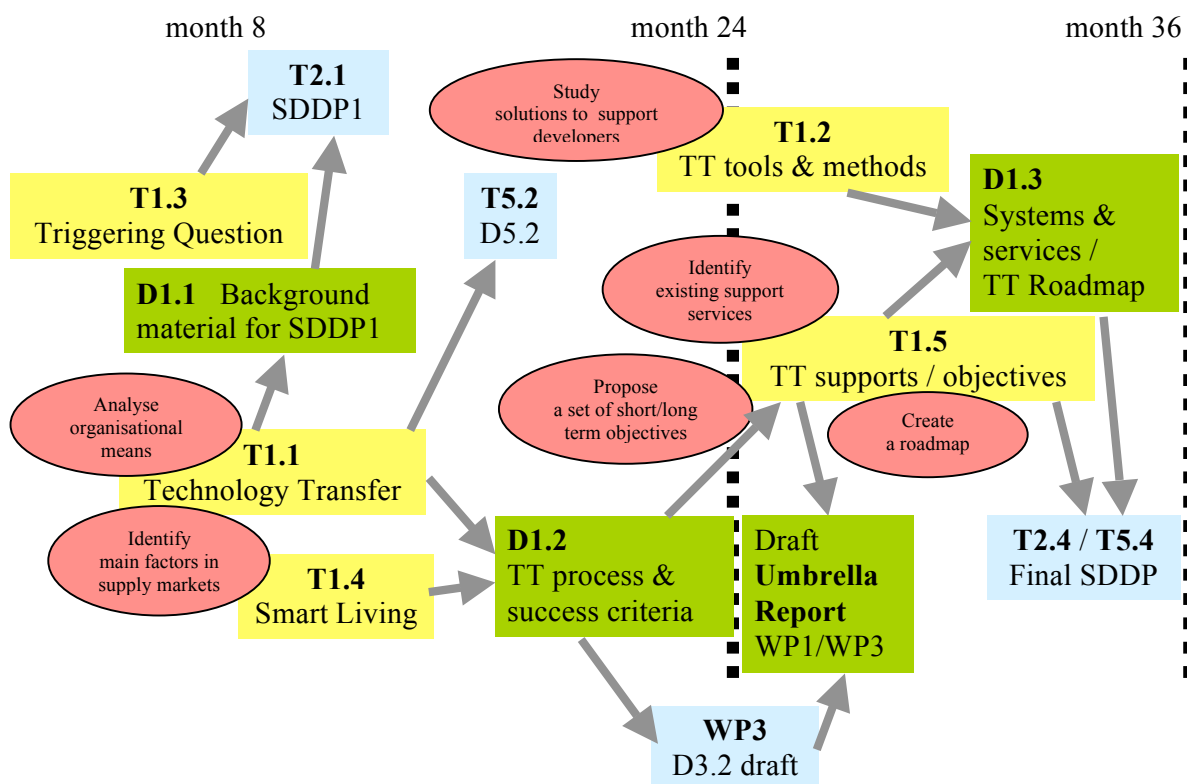
short, medium & long-term objectives / **roadmap**

-> **Draft Umbrella Report of WPI and WP3** – [review 2012]

-> T2.4 / T5.4 / **D2.4** – [Final SDDP workshop]

-> **DI.3** – [month 36]

Relations and dependencies between objectives – tasks – deliverables of WPI and other WPs



Contributing tasks to this Deliverable D1.2

The **first task, T1.1**, of this Workpackage is to analyse the success or failure of the transfer of technology in the area of ICT and assistive technology. Even some of the more successful research proposals and R&D in this area have not had the expected impact. It is important to analyse why this is the case and what new approaches could be used to improve the transfer process. Defining criteria for success and analysing indicative factors on a continuum of success/failure are the focus of this work.

Furthermore a detailed study of organisational and procedural processes – intra and inter – that ICT development companies and other related organisations exploit to achieve accessibility of their products and services is conducted in conjunction with an analysis and description of best practice examples. The outcome of this work provides the basis for defining a best practice methodology for successful technology transfer. The core outcomes of this work will form the content for Deliverable 1.2.

The **fourth task T1.4** will involve the analysis of “sample areas” within the Assistive and Accessible ICT fields, specifically that of ‘Smart living’. A thorough review of the development that lead to current market ready Smart Home Technology available in the European market place, with a view to defining the successes and failures of achieving technology transfer. The results of this work will be presented in D1.2 and in detail in a separate report.

Contributing tasks to Deliverable DI.3

The **second task, T1.2**, will involve conducting a state-of-the art study about solutions (methods, models, guidelines, standards, tools, ...) that support developers of mainstream ICT-based products and services to realise accessibility of such systems. Review of the advancements in the field of virtual environments and user modelling will be presented as an exemplar for this analysis. – The study will mainly be done as a desktop research.

The **fifth task, T1.5**, will involve the identification and mapping of existing technology transfer supports, institutional and commercial available throughout the EU as well as the definition of a common set of short, medium and long-term objectives for the development and application of systems and services supporting accessibility.

There are no deviations to report in WPI from Annex I of the DoW.

2.2 WP2 Road-mapping

The two main activities of WP2 during this period have been to draft the report, from the second SDDP meeting in San Sebastian, deliverable D2.2, and to support WP4 in preparing for the third road-mapping event that will be held between 29th-31st of May 2012 in Florence (Task 2.3).

The work has included participating in the Knowledge Management Team (KMT) discussions and setting up a CARDIAC Wikispace for gathering input from the stakeholders ahead of the SDDP meeting (<http://userinteraction-sdd-cardiac.wikispaces.com/>).

No work has yet been undertaken under task T2.4 (year 3 of the project).

There are no deviations to report in WP2 from Annex I of the DoW.

2.3 WP3 Inclusive Human-Machine Interaction

The main effort in WP3 during this period has been focused on drafting a preliminary advanced version of Deliverable D3.2, as requested during the interim review meeting in November 2011 (Recommendation 5).

To this end a number of actions have been performed:

- Consultation with three reputed non-European experts in order to collect their visions about the research needs for the future, in order to compare them with the results from DDP2 and to find coincidences and divergences.
- Presentation of the methodology and the provisional results obtained from DDP2 and the consultation in the seminar “Priorities for Standardisation of Accessible User Interfaces” http://www.cardiac-eu.org/user_interfaces/seminar.htm. The discussions from that seminar oriented the work for the next period. In addition, several European experts volunteered to provide us with their vision. As a result, the opinion of three reputed European experts has been collected and included in the Deliverable D3:2

- In parallel the outcomes from a number of European prospective actions and research projects have been analyzed and compared with the SDDP2 results.
- The same methodology used to analyze the SDDPI has been applied to extract conclusions from SDDP2.

WP3. Deliverables:

A detailed analysis of the results of the SDDP-2 and its interpretation has been included in the Deliverable D2.2 "Influence map on inclusive HCI research and development priorities" (Month 20) together with the raw data from SDDP2 (prepared by WP2). WP3 will collaborate in the analysis and interpretation of the SDDP-2 results.

An advanced preliminary version of Deliverable D3.2 on "Trends on inclusive user interface design" has been submitted (Month36).

There are no deviations to report in WP3 from Annex I of the DoW.

The block diagram in figure 2 below shows the relationship between the various tasks and deliverables in Workpackage 3.

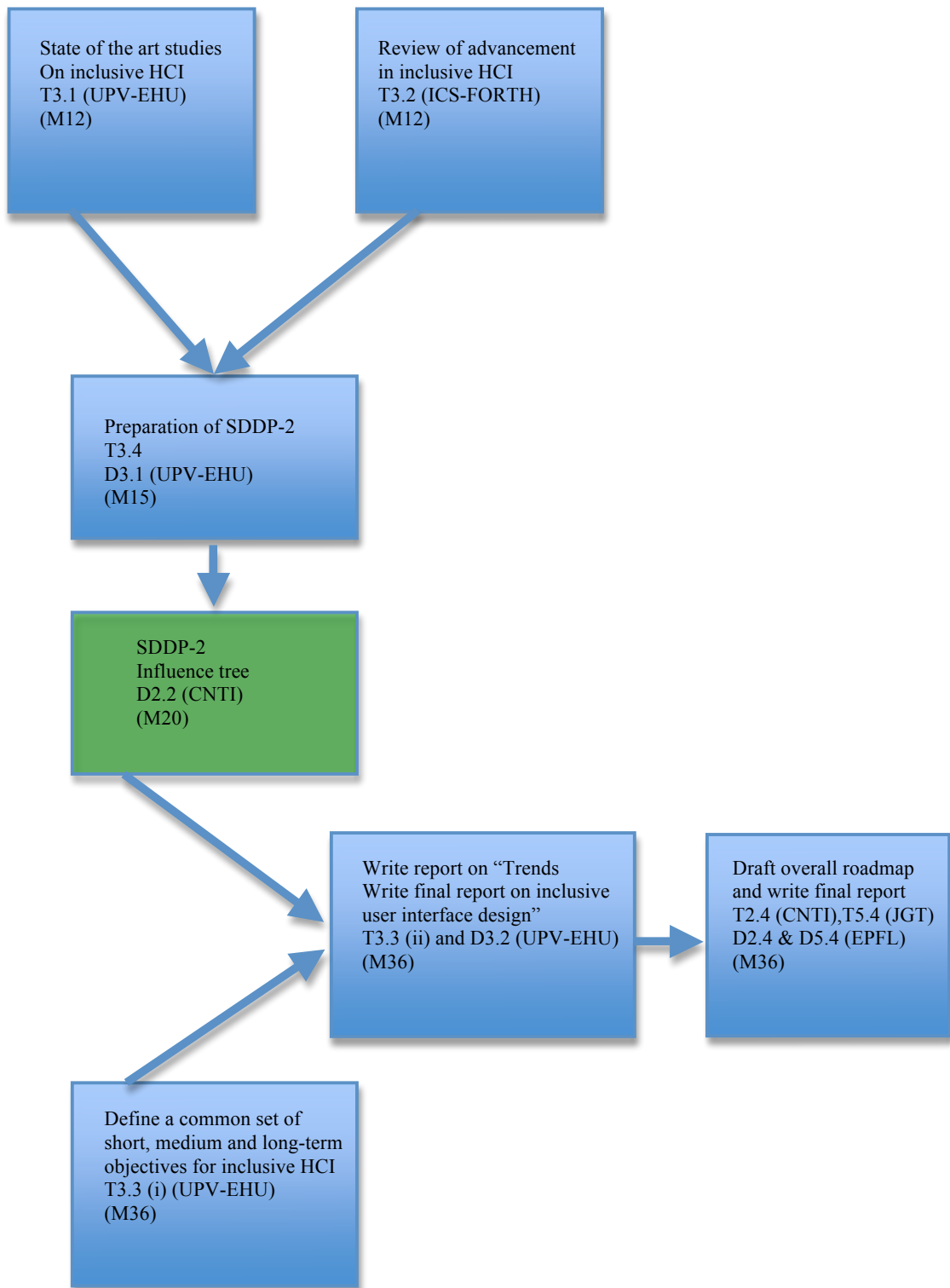


Figure 2: WP3 Workplan

2.4 WP4 Network-based Applications

The state-of-the art study (task T4.1) has been completed and has been summarised in Deliverable 4.1 “Report with basic materials needed to support the SDDP-3 meeting”.

This report is based on the idea that telecommunication services for access to information and interpersonal communication are becoming an integral and important part of human activities and, therefore, it is important and necessary to discuss their accessibility, usability and usefulness. Questions such as the following are crucial: are the offered functionalities really necessary and sufficient to grant access for all citizens to relevant information and interpersonal communication? Moreover, can these functionalities be used, when necessary, to support people in their everyday activities, for example favouring independent living, socialisation, leisure and so on?

The deliverable (and consequently the third SDDP) is mainly concerned with usability and usefulness of present and foreseen network services and applications. It is not a technical document, i.e. it does not discuss in depth technical implementations of services. Services and implementations are considered from the perspective of functionalities to be made available and the report is based on widely available international documents dealing with societal changes connected to technological development.

Potential users are virtually observed while carrying out normal activities in the house or other environments through the development of simple living scenarios. Even if the environments and the activities are very general in nature, users observed in the environments are people with sensorial and motor activity limitations that could impede their access to information and interpersonal communication. This is also due to the fact the people with activity limitations often stress the potential limits of technology forcing solutions that result in them being useful for all. Moreover, the design for all approach is based on the introduction of the needs, requirements and preferences of all users in the design specification of technology. Therefore these must be carefully elicited.

The Structured Dialogic Design Process (SDDP) is meant to point out and prioritize research and development activities that are deemed necessary by a multidisciplinary group of experts in order to increase the usability and usefulness of emerging services in the ambient intelligent environment for all citizens, including citizens with activity limitations.

The third road-mapping event (SDDP) to be held between the 29th - 31st of May 2012 in Florence has been organised through the activity of a Knowledge Management Team (KMT3) set up at the kick-off meeting in March 2010. The role of this management team has been to identify and consult with the relevant stakeholders, define the Triggering Question for the road-mapping event and invite all the participants (task T4.2). A Wiki is active, giving a wider group of people than those present in Florence the possibility to contribute with relevant ideas.

Work has been carried out on task T4.3 dealing with an analysis (at the conceptual level) of the possible impact of the suggested research activities in ensuring Accessible and Assistive content and support in the eLearning environment. The Learning Management Systems surveyed include Blackboard/WebCT (almost completed), LAMS – open source, popular, eLearning standard oriented, advanced pedagogic support (under development), Model – open source and freeware, widely used, eLearning support DotLRN – open source and freeware, popular, standard oriented, advanced pedagogic support and ATutor – specially

concerned with accessibility related issues. A request to run an additional remote SDDP related to this specific topic was made to partner 2 (CNTI). This will be possible and a date is to be fixed. The results of this work are to be synchronised with the rest of WP4 tasks and the SDDP3 in particular (partner responsible: ATS-US).

WP4. Deliverables:

The D4.1 "Report with background material needed to support the SDDP-3 Meeting" (Month 24) is being used for the preparation of SDDP-3 meeting on the theme of "Network-based applications and services", in Florence, Italy in May 29-31 2012. The aim of this deliverable has been to create a common knowledge basis to orientate and facilitate the discussions of the invited experts.

A detailed analysis of the results of the SDDP-3 and its interpretation will be included in the Deliverable D2.3 "Influence map for eInclusion research and development priorities for WP4" (Month 29) together with the raw data from SDDP-3 (prepared by WP2). WP4 will collaborate in the analysis and interpretation of the SDDP-3 results.

The conclusions of SDDP-3 will be extensively used to define a common set of short, medium and long-term objectives eInclusion that will be the core of the Deliverable D4.2 on "Report identifying research and development areas and activities, suggesting how inclusion could be achieved and describe the foreseeable benefits" (Month36).

There are no deviations to report in WP4 from Annex I of the DoW.

The block diagram in figure 3 below shows the relationship between the various tasks and deliverables in Workpackage 4.

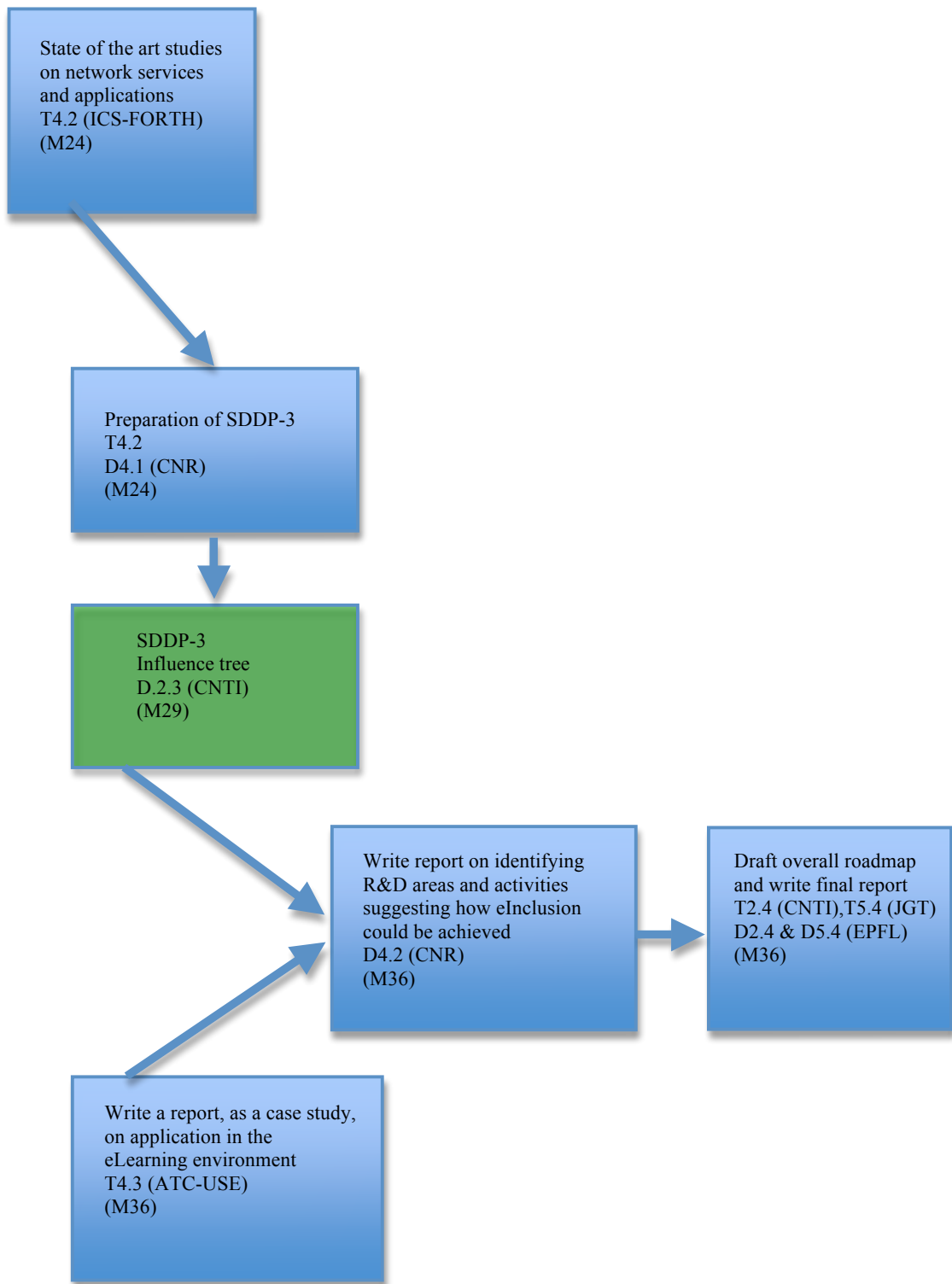


Figure 3: WP4 Workplan

2.5 WP5 Dissemination

The Cardiac website (www.cardiac-eu.org) has been updated to include a new section on the project deliverables and a new section concerned with network-based services.

A seminar was held at the British Standards Institute in London on the 19th of January 2012, in collaboration with CEN, on “Priorities for Standardisation of Accessible User Interfaces”. The seminar was well attended. The six speakers touched on a wide variety of emerging trends in user interaction with a view of trying to identify which of these trends will most influence the need for new standards over the whole range of terminals (bank ATMs, supermarket terminals, ticket and vending machines, home appliances, computer terminals, etc.). Some of the trends in user interfaces highlighted by Martin Maguire of Loughborough University, included the move towards ‘touch’ as a predominant mode of interaction, the potential for increased use of voice communication, the use of gesturing and emotional communication and the possibility of interaction on large surfaces (tables or windows for example). From an infrastructure point of view, the trends are moving towards having less networks but more services. The bandwidth forecasts shown by Mike Short of Telefonica underlined the rising demands and in particular the growth in bandwidth needed for connected devices, dongles and high-end smartphones over the next 5 years to 10 years. The latest trends in biometrics presented by Julian Jones, showed the wide variety of technologies being applied. Whether it be face, finger, iris, vascular, hand geometry or voice recognition, biometrics are going to play an increasing role as a means of identification in a wide area of applications and contexts. This is an area that may well require further standardisation in the future. The priorities for future research highlighted by Julio Abascal of the University of the Basque country, include ubiquitous computing beyond Human Computer Interaction (HCI), innovative user interfaces, user modelling and adaptive interfaces, design methodologies and tools, interoperability and research on reducing cognitive load. Initial analysis of the CARDIAC user interaction ‘influence tree’ indicates supporting research that looks at how to reduce the complexity of user interaction whilst retaining functionality will assist the analysis of the cognitive load of various user interfaces whilst also supporting the development and enforcement of standardized and harmonized remote HCI’s. One common theme to emerge was the importance of user preferences and personalisation. This can be of particular importance to a wide variety of users and indeed all users can benefit from interfaces adapting to their preferences and habits. The coding of user requirements is of course addressed in the CEN [EN1332-4](#) standard. Mike Davies of [LASSeO](#), described how the [SNAPI](#) project is using this standard to deliver accessibility by allowing users to set up their own preferences. The European FP7 project [APSiS4all](#) is also aiming to personalise Public Digital Terminals for all through the implementation of EN-1332. Jose Martinez of Technosite gave an example of how this personalisation is being implemented in the Spanish bank, La Caixa. However, in view of recent technological trends and the widespread support (and enthusiasm expressed during the seminar) for this standard, it is important that it be extended to cover XML. The APSiS4all project has developed the coding and this could form the basis of a normative annexe. It is interesting to note that this standard came from the SATURN project under the Bridge phase of the EU-TIDE programme back in 1994, which just goes to show important the timescale is when it comes to assessing the success and impact of research programmes. This example also shows the importance of following through to ensure the implementation and adoption of standards. “Standards don’t deploy themselves” to quote Mike Davies. The ability to demonstrate how the system works is also crucial ingredient in the successful uptake and deployment.

Links to the individual presentations can be found on the CARDIAC Website at www.cardiac-eu.org/user_interfaces/seminar.htm.

In view of the difference in issues addressed between the second and third SDDP meetings, it has been decided to convert Deliverable D5.3 into two separate reports – one on developments in accessible user interfaces and one on future research on accessible network-based applications. These reports cannot be written until the relevant roadmaps have been completed, so it is not anticipated that these will be published before the end of the year. This represents a delay of several months in the production of deliverable D5.3, but with the added benefit of having an extra report for the findings of the third SDDP in Florence.

No work has been carried out in tasks T5.3 and T5.4 during this period.

The following major eAccessibility/AT events were attended by at least one member of the consortium during the second six-month period (task T5.5):

- AAL Forum 2011 in Lecce, Italy, 26-28 September 2011, where Ilse Bierhoff, of SmH was attending.
- eChallenges e-2011 Conference in Florence, Italy, 26-28 October 2011.
- European Seating Symposium, incorporating Assistive Technology, Dublin 7-10 November 2011, which partner CRC attended.
- Final AEGIS Workshop in Brussels, Accessibility Reaching Everywhere, 29-30 November 2011, where Patrick Roe represented CARDIAC.

The events identified for the next 6-month period include:

- "Human-Computer Confluence Research Challenges", Vienna, May 14-15, 2012.
- AAATE Workshop, European Service Delivery Systems, Copenhagen, Denmark, May 21-22
- Final BRAID Conference, Prague, Czech Republic, May 28, 2012.
- Concertation Meeting in Brussels, June 7th, 2012
- Universal Design 2012, Oslo, Norway 11-13 June, 2012
- ICOST2012- 10th International Conference on Smart Homes and Health Telematics, 13 - 15 June 2012 Tuscany, Italy, www.conference-icost.org
- ICCHP 2012 Conference. Linz, Austria on 11-13 July 2012 (<http://www.icchp.org/>), which Partner ICS-FORTH will attend
- PDC 2012, Participatory Design Conference, Copenhagen, 12-16 August 2012.

The only deviation to report in WP5 from Annex I of the DoW, is the delay in the production of deliverable D5.3 (Month 34 instead of Month 22).

2.6 WP6 Project management during the second year

Consortium management tasks and achievements

The main management tasks over this period of the project have been concentrated on ensuring the partners took into account the recommendations from the reviewers at the interim review, so that the deliverables D2.1 and D6.3 could be resubmitted as requested by the 15th of February 2012. Efforts have also been focused on ensuring that the main

milestone of the next period will be achieved (the third SDDP event in Florence) and that all the deliverables are ready for the second annual review in June 2012.

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

The latest news regarding John Gill, is that John has made a goo recovery and is expected to be able to travel abroad again in time for the next Consortium and SDDP meeting in Florence.

Changes in the consortium

There have been no changes to the consortium.

List of project meetings, dates and venues

The fourth CARDIAC Meeting is scheduled for the 28th – 29th of May 2012 in Florence, Italy, ahead of the third two and half day road-mapping event to be held on the 29th-31st of May 2012.

Project planning and status

The main tasks over the next period, to which much of the attention of the partners will be focused over the coming months, will be the preparation of the third SDDP road-mapping event to be held in Florence, Italy on the theme of “Network-based applications” and the drafting of the final versions of deliverables D1.2, D2.2 and D4.1.

The preparation of the SDDP event is under the responsibility WP4, partner CNR, with the event itself being run by partner CNTI, the leader of WP2 (Road-mapping WP).

Impact of possible deviations from the planned milestones and deliverables

There have been no deviations in the planned milestones. However, some of the work has had to be moved forward due to the request from the reviewers to submit preliminary versions of Deliverables D1.2 and D3.2 as well as some additional work (for example. splitting of Technology Transfer Roadmap in WPI, ‘Umbrella’ report, SDDP Strength and Weaknesses report, etc.). The partners have adapted as best possible to these requests and shown a good degree of flexibility. These requests have also had the added benefit of making the partners constantly think one or two steps ahead, which should help prepare for the final phase of the project and final deliverables.

One of the Deliverables, deliverable D5.3, has been delayed from Month 24 to Month 36, so that the full results and analysis from the second and third SDDPs in San Sebastian and Florence could be taken into account. It is also proposed to have two separate reports for each of the roadmaps (D5.3A and D5.3B).

Any changes to the legal status of any of the beneficiaries

There have been no changes to the legal status of any of the beneficiaries.

Development of the Project website, if applicable

The project website has been developed according to plan and has continued to be updated. This is an essential tool for the visibility of the project as well as a means to communicate future deliverables and results.

Other tools used by the partners to coordinate the work include, standard email exchange, the management Skype calls, Illuminate software and teleconference calls.

Special Advisory Board

Contact has been maintained with the seven current members of the Special Advisory Board:

- Dr. Ricardo Baez-Yates, Head of Yahoo! Research, Barcelona,
- Prof. Zhengjie Liu, Director of the Sino-European, Usability Center (SEUC) Dalian Maritime University,
- Prof. Thijs Soede, Zuyd University, Centre of Research Technology in Care.
- Dr. Gregg Vanderheiden, TRACE Center, University of Wisconsin
- Peter Korn, SUN
- Chiara Giovannini, ANEC
- Hiroshi Kawamura, Chairperson of DAISY consortium

The members have been invited to participate in the third SDDP event in Florence, and at the time of writing, it is hoped that at least two of them will be able to participate (Hiroshi Kawamura and Peter Korn).

Over the next six-month consultation is to begin concerning the final CARDIAC event which aims to bring together the three roadmaps into one overall roadmap.

Deliverables and milestones tables

Table 1: Deliverables											
Del. no.	Deliverable name	Version	WP no.	Lead beneficiary	Nature	Dissemination level ⁹	Delivery date from Annex I	Actual / Forecast delivery date dd/mm/yyyy	Status Not submitted/ Submitted	Contractual Yes/No	Comments
D1.2	Production of Accessible and Assistive ICT Systems and Materials	2	WP1	6	R	PU	24	22/05/2012 30/04/2012	Submitted	yes	
D2.2	Influence map on inclusive HCI R&D priorities for WP3	1	WP2	3	R	PU	20	22/05/2012 31/10/2011	Submitted	yes	
D3.2	Influence map on inclusive HCI R&D priorities for WP3	1	WP3	4	R	PU	36	22/05/2012 30/04/2012	Submitted	yes	Advance draft
D4.1	Report with background material needed to support SDDP-3 meeting	1	WP4	5	R	PU	24	22/05/2012 30/04/2012	Submitted	yes	
D5.3	Report on technology transfer based on the work carried out by WP1	1	WP5	7	R	PU	24	21/05/2012 30/04/2012	Not Submitted	yes	delayed till M34
D6.4	4th bi-annual Progress Report	1	WP6	1	R	PU	24	22/05/2012 30/04/2012	Submitted	yes	

⁹ **PU** = Public
PP = Restricted to other programme participants (including the Commission Services).
RE = Restricted to a group specified by the consortium (including the Commission Services).
CO = Confidential, only for members of the consortium (including the Commission Services).
Make sure that you are using the correct following label when your project has classified deliverables.
EU restricted = Classified with the mention of the classification level restricted "EU Restricted"
EU confidential = Classified with the mention of the classification level confidential " EU

There are no milestones due during the 4th six-month period.

Explanation of the use of resources

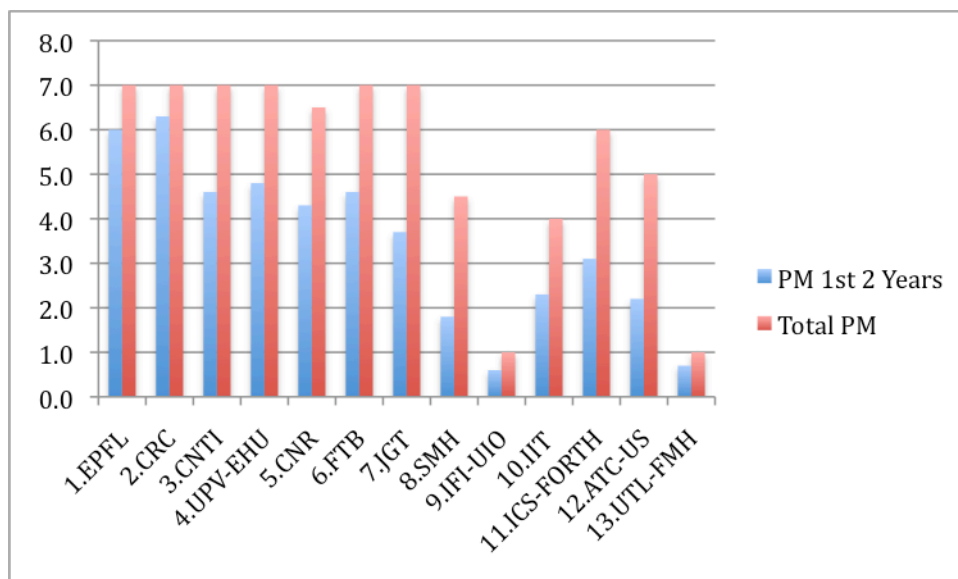
Person-Month Status Table		Partner - Person-month per Workpackage													
CONTRACT N°: 248582															
ACRONYM: CARDIAC															
PERIOD: 01.09.2011 - 29.02.2012 (P4)															
		TOTALS	Coord. EPFL	P2 CRC	P3 CNTI	P4 UPV-EHU	P5 CNR	P6 FTB	P7 JGT	P8 SMH	P9 IFI-UJO	P10 IIT	P11 ICS-FOR	P12 ATC-US	P13 UTL-FMH
Workpackage 1: Title Technology Transfer - how to achieve accessibility	Actual (previous Periods):	8.4	5.0					1.9				1.5			
	Actual (this Period):	3.0	0.5					2.0				0.5			
	Actual (total)	11.4	5.5					3.9				2.0			
	Planned (total):	10.5	4.5					4.0				2.0			
Workpackage 2: Title Road-mapping	Actual (previous Periods):	14.2	2.5	0.8	4.1	0.9	0.6	0.7	0.9	0.8	0.6	0.3	0.6	0.7	0.7
	Actual (this Period):	1.5	1.0		0.5										
	Actual (total)	15.7	3.5	0.8	4.6	0.9	0.6	0.7	0.9	0.8	0.6	0.3	0.6	0.7	0.7
	Planned (total):	14.8	2.5	0.8	4.5	0.7	0.6	0.7	0.9	0.8	0.7	0.6	0.6	0.7	0.7
Workpackage 3: Title Inclusive Human-machine interaction	Actual (previous Periods):	5.7				2.9	0.8			1.0			1.0		
	Actual (this Period):	1.2				0.7							0.5		
	Actual (total)	6.9				3.6	0.8			1.0			1.5		
	Planned (total):	7.8				3.5	0.8			2.0			1.5		
Workpackage 4: Title Network-based Applications	Actual (previous Periods):	2.9					0.9						0.5	1.5	
	Actual (this Period):	2.9					0.4	2.0					0.5		
	Actual (total)	5.8					0.4	2.9					1.0	1.5	
	Planned (total):	5.9					0.4	3.0					1.0	1.5	
Workpackage 5: Title Dissemination	Actual (previous Periods):	2.8	0.5						2.3						
	Actual (this Period):	0.5							0.5						
	Actual (total)	3.3	0.5						2.8						
	Planned (total):	3.3	0.5						2.8						
Workpackage 6: Title Management	Actual (previous Periods):	1.5	1.5												
	Actual (this Period):	0.5	0.5												
	Actual (total)	2.0	2.0												
	Planned (total):	2.0	2.0												
Total Project Person-month	Actual (previous Periods):	35.5	4.5	5.8	4.1	3.8	2.3	2.6	3.2	1.8	0.6	1.8	2.1	2.2	0.7
	Actual (this Period):	9.5	1.5	0.5	0.5	1.0	2.0	2.0	0.5	0.0	0.0	0.5	1.0	0.0	0.0
	Actual (total)	45.0	6.0	6.3	4.6	4.8	4.3	4.6	3.7	1.8	0.6	2.3	3.1	2.2	0.7
	Planned (total):	44.3	5.0	5.3	4.5	4.6	4.4	4.7	3.7	2.8	0.7	2.6	3.1	2.2	0.7

The person months indicated in the table for this first period are closely in line with the planned person months.

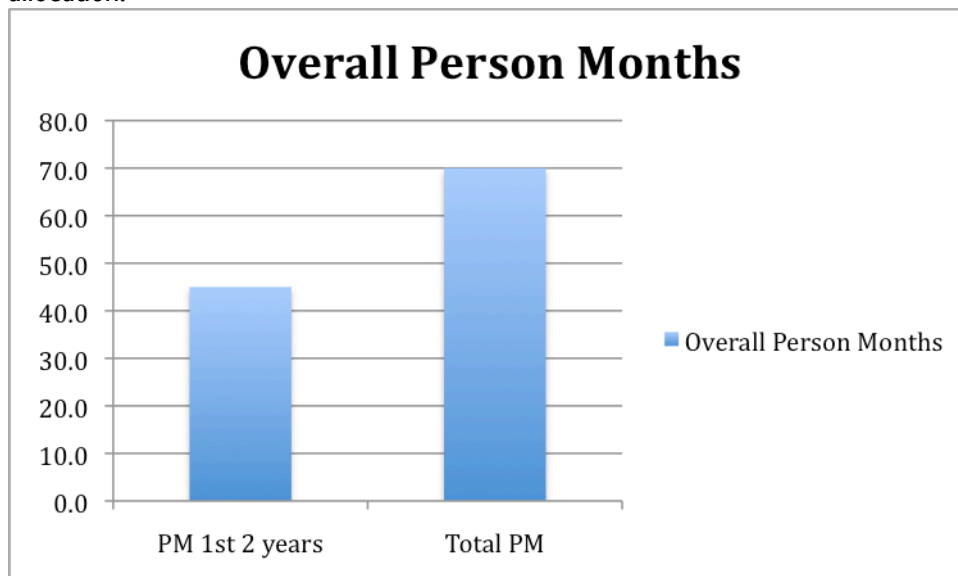
There are no major deviations to report during this period.

Person months

Graph 1 below shows the person months per partner for the first 2 years as compared to the overall allocation of person months and graph 4 shows the total amount of person months of the project during the first 2 years as compared to the overall allocation of 70 person months.



Graph 1. Person months per partner during the first two years of the project as compared overall allocation.



Graph 2. Overall person months of all the partners during the first two years as compared to overall allocation.

There are no major deviations to report during the eighteen months of the project.

Section 3: Conclusions

The project has progressed much as expected over the past 6 months according to the DoW. The partners are acutely aware that the project is now entering the phase where results and recommendations are to be provided in the forthcoming deliverables. The first such deliverable is D1.2 for which a complete draft has been submitted (preliminary draft at previous review meeting). Furthermore, an advance draft of Deliverable D3.2 (due in month 36) has also been submitted in time for the review.

The consortium partners have tried to adjust to the recommendations made by the reviewers during the first annual review and take stock of their current position. The response to each of the recommendations is given in section 1.6 of this report with additional thoughts and reflections on the overall position of the project and management of expectations provided in an additional document entitled “Preamble to 2nd year review”.

There were no milestones during this period, but efforts have been focussed on preparing for the next milestone, the third SDDP in Florence to be held during the next period. An influence map will be generated from the SDDP-3 event and will be fully reported on in Deliverable D2.3 (month 29) and Deliverable D4.2 (Month 36).