



HEARTFAID

**D39 – 10th Quarterly Managerial
Report**

(MB and STAB meeting minutes)

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HEARTFAID

A KNOWLEDGE BASED PLATFORM OF SERVICES FOR SUPPORTING MEDICAL-CLINICAL MANAGEMENT OF THE HEART FAILURE WITHIN THE ELDERLY POPULATION

Project summary	
Project acronym:	HEARTFAID
Project identifier:	IST – 2005 – 027107
Duration of the Project:	01/02/2006 – 31/01/2009
Project Co-ordinator Name:	Domenico Conforti
Project Co-ordinator Organisation:	UNICAL University of Calabria (Italy)
Thematic Priority:	Information Society Technology-ICT for Health
Instrument:	Specific Targeted Research Project

Consortium
<ul style="list-style-type: none"> ➤ UNICAL- Università della Calabria (Italy) ➤ UNICZ- Università degli studi Magna Graecia di Catanzaro (Italy) ➤ UNIMIB- Università degli studi di Milano Bicocca (Italy) ➤ JUMC- Jagiellonian University Medical College (Poland) ➤ VMWS- Virtual Medical World Solutions Ltd (United Kingdom) ➤ FORTHNET S. A.- Hellenic Telecommunications and Telematic Applications Company S. A. (Greece) ➤ SYNAP- Synapsis s.r.l. (Italy) ➤ CNR- Consiglio Nazionale delle Ricerche (Italy) ➤ FORTH-Foundation for Research and Technology Hellas (Greece) ➤ RBI- Rudjer Boskovic Institute (Croatia) ➤ AUXOL- Istituto Auxologico Italiano (Italy)

D39 – 10th Quarterly Managerial Report MB and STAB meeting minutes

Document summary	
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Short Description
This document describes the activities of the Consortium during the 10th quarterly of HEARTFAID project and its future activities.

Change Record		
Version Number	Changes	Release date
1.0	First draft of the Document	01/09/2008
2.0	Final version with further contributions	15/09/08

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Executive Summary

The tenth Quarterly Managerial Report describes the activities and the objectives reached by Heartfaid Consortium during the period May 1 - July 31, 2008.

In short the following WPs have been involved in the work:

- WP0: Management
- WP2: Biomedical Data Identification and Collection
- WP4: Knowledge, Representation, Discovery and Management
- WP5: Data processing and Decision support devices
- WP6: End-User application and Services
- WP7: Testing and validation
- WP8: Dissemination and Exploitation

In particular, the following activities have been satisfactorily carried out:

- WP0: activities related to the outcomes of the Second Project Review.
- WP2: ongoing data collection on the project clinical sites, completion and submission of Deliverable D35.
- WP4: further development of the KDD activities and refinement of the Medical Knowledge Base.
- WP5: development and completion of the CDSS prototype (Deliverable D36) and further extension of the performance of Signal and Image Processing tool kits.
- WP6: development and completion of the End-User Web Portal (Deliverable D37) and integration of services.
- WP7: preliminary activities related to the deployment of the platform services within the clinical settings, and definition of the Clinical Protocol for the testing and validation of the Heartfaid platform .
- WP8: dissemination activities and definition of suitable exploitation strategies.

The subsequent interim period will be particularly devoted towards the organization of the next Steering Meeting in Heraklion - Crete (October 10-11, 2008), the development of the procedure for the request to the EU Commission of a Contract Amendment for the extension of duration of three months of the project, final submission of Deliverables D36 (WP5) and D37 (WP6), whereas Deliverable D38 (WP8) will be delay of three months in according to the request of extension of duration of the project.

Ongoing workpackages progress: WP0

WORK PACKAGE: 0
TITLE: MANAGEMENT
START DATE: MONTH 1
WORK PACKAGE LEADER: UNICAL
PARTNERS INVOLVED: UNICZ, UNIMIB, VMWS, FORTHNET, SYNOPSIS, CNR, RBI

STATUS OF DELIVERABLES DUE IN THIS PERIOD

DELIVERABLE	N°	DATE DUE	COMMENTS
10th Quarterly Managerial Report	D39	31/07/08	Completed on time

FORECAST STATUS OF DELIVERABLES DUE IN THE NEXT 3 MONTHS

DELIVERABLE	N°	DATE DUE	COMMENTS
11 th Quarterly Managerial Report	D41	30/10/08	Foreseen to be completed on time

MEETINGS OF THE PERIOD AND FORECASTED WP0- MB & STAB MEETINGS

ACTIVITY	ATTENDANTS	DATE/PLACE
MB & STAB meeting	Coordinated by VMWS Attendants: Representatives from MB & STAB	London June 10/11
Technical Meeting	Coordinated by UNICAL, attendants: representatives from CNR and SYNAP	Pisa (IT), July 14, 2008

Description of the activities

During this quarter the management of the Consortium has mainly focused on the outcome and handling of the second reporting period.

The deliverables produced in this quarter have been the following:

- D34: 8th Quarterly report.

Together with the submission and the technical supervision and approval of D35 (WP2), submitted on July 22nd.

Following the financial outcome of the second review on May 6th, all the requirements have been fulfilled and finally approved by the Commission on June 20th, the distribution of the renewal of the pre-financing by the Commission has been handled on time in July.

Deviation from the plan

Due to unforeseen circumstances and technical extension and completion of WP3 activities (concerning the integration of some components of the Heartfaid Platform), the deployment of the platform within the clinical sites for testing and validation has undergone a short delay (about three months).

On this basis, during the Steering Meeting in London, the Consortium had unanimously voted to ask the Commission for an extension of the project of three months for which the procedures have been evaluated during this quarterly and will be concluded during next period.

Shortly the overall management has been focused on the following tasks:

T 0.1 Overall management of the Consortium

- Handling of Deliverables and Extension of the Project
- Strengthen the cooperation with the STAB
- Cooperation with VMWS for the MB & STAB meeting
- Cooperation with FORTH/FORTHNET for next MB & STAB meeting

T 0.3: Management of contractual, legal, financial and administrative procedure of the consortium

- Handling of financial and administrative procedures of review outcome.
- Distribution of the Community contribution among the partners.

T 0.2: Co-ordination of the Consortium technical activities

The coordination of the scientific and technical activities has been further consolidated, by a more efficient tuning of the procedures for the effective collaboration among the several partners involved within each WP.

In particular, each WP Leader is responsible to:

- plan and organise the overall internal work;
- coordinate the contribution from the relevant partners;
- define the roadmap for the development of the deliverables;
- collect feedbacks from the WP group as far as Quarterly Reports are concerned.

Finally, each partner will be responsible for all other direct issues with the coordination unit within the deadlines.

In particular, a technical meeting has been carried out in Pisa, on the CNR premises, on July 14, 2008, coordinated by UNICAL with CNR and SYNAP, for discussing issues related to the integration of the CDSS and the development of the demo for the final review.

T 0.4: Internal Communication infrastructure

The internal communication infrastructure has been mainly realized by the extensive use of e-mails, audio conference services and the services and functionalities provided by the Internal side of the Project Web Site.

Forecasted activities

During next three months management activities will mainly focus on:

- coordination of the extension procedure, which will be detailed in the request for a Contract Amendment,
- technical supervision and submission of the Deliverables D38/D40/D41 (D38/D40 delay of respectively 3 and 1 month being included in the request of Amendment)
- Co-organisation of next MB & STAB meeting Creete 10/11 October
- Consortium agreement with HEARTCYCLE project (FP7) for sharing the Heart Failure Ontology developed by HEARTFAID project.

Ongoing workpackages progress: WP2

WORK PACKAGE: 2
TITLE: BIOMEDICAL DATA IDENTIFICATION AND COLLECTION
START DATE: MONTH 3
WORK PACKAGE LEADER: VMWS
PARTNERS INVOLVED: UNICAL, UNICZ, UNIMIB, JUMC , FORTHNET, SYNAP, AUXOL

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 2.3	Data Collection	The task is progressing as expected. No deviations from the work plan are noticed.

FORECAST STATUS OF TASKS DUE IN THE NEXT 3 MONTHS

TASK	N°	COMMENTS
Data Collection	T 2.3	End of task and of WP (31/10/08) according to the plan.

Description of the activities

The activities in this period are related to the collection of the relevant biomedical data in all the identified environments. The activities carried out by the partners in this period are presented in the following paragraphs.

T2.3.1 Homecare Data Collection

For home monitoring environment **UNICZ** has continued to collect, in a group of fifty-one patients the following parameters in a standardized manner: systolic blood pressure, heart rate, respiratory rate, % of body water and weight, body temperature, in order to achieve an early diagnosis of heart failure decompensation, so as indicated in Deliverable D5. These data is continuing to be used in the knowledge discovery approach in WP4.

Both **UNIMIB** and **AUXOL** have continued data collection from patients with chronic heart failure, by considering both patients referred to their CHF clinic in the hospital setting. Some of these patients have been included in a remote monitoring program through telemedicine facilities. This was done with the aim of increasing the information necessary to build a platform able to assist in the diagnosis of CHF and at identifying early decompensation symptoms.

Data obtained from patients followed up at home through telemonitoring technologies over 12 months have also been collected using telemonitoring facilities. Data collected in the Home environment include systolic blood pressure, heart rate, respiratory rate, body weight, urine output and specific symptoms, all parameters known to be useful to achieve an early diagnosis of heart failure decompensation, as indicated in deliverable 5. The MagIC vest has also been used to collect additional data on the move also during physical exercise on a cycloergometer. In the meanwhile, UNIMIB and AUXOL have also continued the research activities aimed at improving a system of wearable sensors (MagIC vest) aimed at collecting data on ECG (and thus heart rate), physical activity and respiratory frequency in subjects monitored on the move. Such a system will

represent an innovative solution for remote patients' monitoring. Solutions for wireless communication between such a homecare device (for example Bluetooth technology) and tools capable of remote data transmission (such as a PDA or smartphone) have also been sought.

Patients evaluated in the Hospital environment will also be assessed in the HOME/on-the-move setting. The proposed recruitment will include at least 7 patients in each center (total number: at least 21 patients from the 3 centers UNICZ, UNIMIB/AUXOL, JUMC). These 21 patients will be selected with a CHF severity ranging from NYHA class II and NYHA class III. Data collection in the Home setting will be done either by using "Manual" acquisition procedures, or "Automatic" acquisition devices (using the above mentioned Medical Devices). These parameters should be collected from patients' home making use of methods available at the various clinical centers. The patients should be followed-up for 3 months, with the aim of comparing the indications on management provided by the platform with the decision spontaneously taken by the physicians in charge.

T2.3.2 Healthcare Data Collection

During this period **UNICZ** has continued data collection from patients with Chronic Heart Failure (CHF), and other clinical data have been collected. The data have been introduced in a database of CHF ambulatory that contains all available list of biomedical signs and symptoms, list of parameters of selected tests so as: Electrocardiogram, Holter electrocardiography, Chest X-ray, Echocardiography, Clinical chemistry, and so on, that are useful for heart failure domain. The clinical assessment in these patients is scheduled every one-two months, and also earlier if clinical conditions are worsening and every new change in clinical condition is reported in database. At this moment we have a database with data from One-hundred and three patients with heart failure diagnosis. In addition, we have continued the storage of digital ECG files in SCP format and the echocardiographic images in DICOM format.

In the Hospital setting, the data from CHF patients enrolled so far have been introduced by **UNIMIB/AUXOL** in a database of the CHF clinic containing the biomedical signs and symptoms, and parameters of selected tests such as Electrocardiogram, Holter electrocardiography, Chest X-ray, Echocardiography, Clinical chemistry, Thoracic Impedance. Data have been obtained both from basal assessments (initial visits) and additional clinical visits.

Finally in **JUMC** the data from ambulatory CHF patients have been collected as defined in previously agreed protocols by clinical partners. The data included the clinical anamnesis, physical examination, treatment, laboratory tests, ECG, treadmill test, echocardiography and quality of life assessment. The data have been collected according to eCRF developed as a tool for storage and utilization of the clinical data. Moreover for a limited group of patients also a daily questionnaire including the basal parameters (clinical symptoms, treatment, weight, respiratory rate, blood pressure, heart rate) have been performed. It was the part of JUMC own contribution as according to DoW, JUMC is not included in the task regarding data collection.

Ongoing workpackages progress: WP4

WORK PACKAGE: 4
TITLE: KNOWLEDGE, REPRESENTATION, DISCOVERY AND MANAGEMENT
START DATE: Month 8
WORK PACKAGE LEADER: RBI
PARTNERS INVOLVED: UNICAL, SYNAP, CNR, FORTH

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 4.3	Implementation of Knowledge Discovery in database processes	We have concentrated on dissemination activities. A journal paper has been prepared and submitted, one conference paper has been accepted for presentation and one journal paper has been accepted for publication. The developed subgroup discovery methodology has been successfully tested on a very difficult medical domain with attributes extracted from mammogram images. The first experiments with presentation of machine learning results in the portable document format have been realized. Further KDD activities have been conducted regarding the early detection of decompensation conditions.

FORECAST STATUS OF TASKS DUE IN THE NEXT 3 MONTHS

TASK	N°	COMMENTS
Implementation of knowledge discovery in database processes	T 4.3	Additional experiments with ANMCO dataset will be performed with intention to construct a useful prognostic scale related to future hospitalizations and/or worsening of HF patients. We will continue with dissemination activities.

Description of the activities

In this period we have concentrated on dissemination activities including publication of the knowledge discovery results and results obtained in other WP4 tasks. We have presented the paper on attribute ranking on the conference and we have prepared a paper for "European Journal of Heart Failure" about HF ontology. The paper has been rejected without review (!) although we proposed to include the complete HF ontology as its electronic supplement. We have rewritten the paper and submitted it to the journal "Computers in Biology and Medicine". Additionally, in this period we have one accepted paper for a conference (Computers in Cardiology) and one accepted journal paper about contrast set mining (Journal of Biomedical Informatics).

We have successfully tested the developed subgroup and random forest methodology also on very complex data obtained by feature extraction procedures from mammogram images. The technique for attribute ranking has been applied on the ANMCO data and it enabled us to detect relevant changes in a) survival rate of HF patients in Italy depending on the year of the first visit and b) significant and relevant changes in the medication treatment in different years in the period 1995.-2005. The results will be summarized in a special report that we are preparing for the ANMCO organization and that will be the basis for future publications.

We have continued with the efforts to appropriately visualize knowledge discovery results. Visualization in the portable document format (PDF) has been realized but currently only for Windows server operating system and for restricted type of reports. The intention is to integrate the approach into the on-line KDD tool.

Moreover, in this period, large efforts were spent in improving the decision models related to the Early Detection of Decompensation Conditions in heart failure patients. New updated data was used for improving such support service's predictive power and generalization property. The current obtained results have been presented in a paper accepted to the conference "Computers in Cardiology 2008".

In the next period we will work on the definition of a prognostic scale based on the KDD results obtained by very different experiments with the ANMCO dataset and taking into account comments obtained from medical partners related to the HFSS presented in D29. The intention is to identify patients with bad prognosis both in respect to low survival or fast future hospitalization and to include these rules into the knowledge base. Additionally, due to interest for the HF ontology also outside the Heartfaid consortium, we have to prepare instructions for its usage and integration into knowledge based systems.

Ongoing workpackages progress: WP5

WORK PACKAGE: 5
TITLE: DATA PROCESSING AND DECISION SUPPORT DEVICES
START DATE: MONTH 5
WORK PACKAGE LEADER: CNR
PARTNERS INVOLVED: UNICAL, UNICZ, SYNOPSIS, FORTH, RBI

STATUS OF DELIVERABLES DUE IN THIS PERIOD

DELIVERABLE	N°	DATE DUE	COMMENTS
HEARTFAID Decision Support System prototype	D36	31/07/08	The first draft has been distributed to the involved partners at the middle of July. The final version of the document is being completed and will be submitted in time

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 5.4	Implementation of the Decision Support System	<p>The development of the Clinical Decision Support System (CDSS) was concentrated on the collection and integration of the results obtained for:</p> <ul style="list-style-type: none"> • the knowledge base and inferential reasoning; • the computational reasoning methods; • the algorithms for signals and images processing. <p>The integration into the platform required:</p> <ul style="list-style-type: none"> • further work on the DICOM-compliant web-viewer application; • the development of a web-based interface for the analysis and interpretation of Echocardiographic findings <p>- Preparation of the steering meeting held in London on July</p> <p>- Preparation of Deliverable D36 "HEARTFAID Decision Support System Prototype".</p> <p>- Preparation and submission of</p> <ul style="list-style-type: none"> • two papers (one for poster and the other for oral presentation) at 35th annual Computers in Cardiology conference; • a paper at the 2008 International Conference on Semantic Web and Web Services.

Description of the activities

Task 5.4 – Implementation of the Decision Support System

The activities were concentrated on the finalization of the HEARTFAID Clinical Decision Support Prototype.

According to the careful planning of the architectural and functional specifications reported in the previous project reports, each component of the CDSS was suitably developed by exploiting up-to-date technologies and techniques.

In order to finalize the prototype, all the results obtained so far were collected and suitably integrated according to a service-oriented approach. The implementation activity was particularly focused on the development of the functionalities of the "Patient's Management Showcase".

The ontological knowledge base was completely developed by defining a *Domain description*, formalizing the *Procedural knowledge* and *Factual knowledge*. The work done was disseminated in a paper about decision making processes based on

knowledge representation in the ontological form at the International Congress of European Federation for Medical Informatics. Based on this paper and comments from the reviewers and conference participants, a paper was prepared and submitted to the ‘Artificial Intelligence in Medicine’ journal. In this paper we describe in detail the structure of the HF knowledge base and relations among descriptive, procedural, and factual parts of the knowledge base, including presentation of the reasoning process and illustration of the complete methodology in the application within the HEARTFAID platform.

Further work on the DICOM-compliant web-viewer application was done for finalizing the image management and visualization activities. In particular, the web-viewer application now offers enhanced support for multi-frames images; since echocardiographic image sequences are encoded as multi-frame images, this improvement is particularly useful. In addition, several queries to the web-viewer may be performed directly by composing a suitable URL string; in this way, the web-viewer may be easily integrated with the other web-applications available in the HEARTFAID portal. In particular, the web-viewer application may work in tandem with the web-based user interface devoted to the “*sonographer context*”.

More in detail, the “sonographer context” web-interface, besides permitting to review the images and the findings of an echocardiographic examination, offers seamless-integrated decision support services for their interpretation.

In the realization of this web-interface, particular attention was devoted to the transmission of data compliant to the HL7 standard.

Regarding the integration of the image analysis algorithms reported in deliverable D30, a desktop application named “HEARTFAID Image Analysis Toolkit” is going to be released. The HEARTFAID Image Analysis Toolkit application embeds the developed algorithms for image processing in a graphical user interface which, besides guaranteeing easy usage of the algorithms themselves and image visualization capabilities, offers an arsenal of input/output methods and DICOM network services. Such arsenal is enough rich to support several different data-workflows inside the clinical validation sites, making the toolkit adaptable to many of the IT infrastructures encountered in practice.

The work on ECG signal processing was finalized on the 74 ECGs provided by UNICZ, with satisfactory results.

All the results and a detailed description of the activities can be found in Deliverable D36, “HEARTFAID Decision Support System prototype”, which is been drawn up and will be submitted in time.

Most of the functionalities of the CDSS was reported and discussed at the Steering Meeting held in London in June.

At the end of June, two meetings were held at UNICZ, among CNR, UNICAL and UNICZ for planning the activities for the third year and finalizing the development of the “Patient’s Management” showcase.

Several meetings were held with SYNAP, in June and July, for better defining and developing the integration of the CDSS into the Platform.

A meeting with SYNAP and the project coordinator was held in July for defining the strategy of the further project development.

Ongoing workpackages progress: WP6

WORK PACKAGE: 6
TITLE: END-USER APPLICATION AND SERVICES
START DATE: MONTH 10
WORK PACKAGE LEADER: FORTHNET
PARTNERS INVOLVED: UNICAL, UNIMIB, JUMC, CNR, FORTH, RBI

STATUS OF DELIVERABLES DUE IN THIS PERIOD

DELIVERABLE	N°	DATE DUE	COMMENTS
HEARTFAID end-user applications and services prototype	D37	31/07/08	The HEARTFAID front end portal has been finalized and a working prototype was made available to all the partners, through the internet, hosted on a Forthnet's server. This prototype features all the available HEARTFAID services. An accompanied document, named "HEARTFAID Front End user manual", has also been produced for this deliverable, in order to guide end users through the HEARTFAID services and available functionalities. Please note that all the available services and functionalities of the Front-end have been analyzed in Deliverable D23.

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 6.4	Integration of services	Further testing has been performed to all the HEARTFAID services, through the Front-end, in order to ensure proper integration and interoperability. Updates have also taken place, regarding the design of the User Interface of the Front-end, in order to incorporate some additional features to the Front-end, like a newsletter for the end users, creating a more user-friendly interface at the same time.

Description of activities

T6.4 Integration of services

The final version of the Front-end prototype, including all the available HEARTFAID services and functionalities has been made available to all the partners through the internet, by uploading it on a Forthnet's server. Security issues have also been addressed, providing individual access codes for a number of partners. Further tests have been performed, in order to ensure once more the proper operation and interoperability of the Front-end, this time including on-line tests (through the internet) by various partners.

Furthermore, the design of the Front-end user interface has also been changed, in order to incorporate additional features, like a newsletter for informing the end users about forthcoming events, providing a more user-friendly interface at the same time. A new link has also been added to the main menu of the Front-end, in order to redirect the user to a new window, for interacting with the available DSS services.

Moreover, JUMC has continued the collaboration with technical partners regarding eCRF integration with the HEARTFAID platform and also on the functionalities of end-user services especially when applied to Polish language conditions.

Finally, UNIMIB and AUXOL contributed in the development and testing activities for the integration of the services provided by the use, within home care and on-the-move settings, of a dedicated vest (belonging to the family of wearable sensors), able to monitor ECG, respiratory activity and subjects' movement.

Ongoing workpackages progress: WP7

WORK PACKAGE: 7
TITLE: TESTING AND VALIDATION
START DATE: MONTH 25
WORK PACKAGE LEADER: UNIMIB/AUXOL
PARTNERS INVOLVED: UNICAL, UNICZ, UNIMIB, JUMC, VMWS, FORTHNET, SYNAP

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 7.1	Deployment of the prototypes in suitable clinical settings	Assessment and refinement of the performance of the platform components and services during testing and validation
T 7.2	Clinical Validation	Definition of the health care scenarios for testing and validation. Definition of the clinical protocol for testing and validation.

FORECAST STATUS OF TASKS DUE IN THE NEXT 3 MONTHS

TASK	N°	COMMENTS
Deployment of the prototypes in suitable clinical settings	T 7.1	Final deployment of the platform services within the clinical sites. Preliminary testing activities.
Clinical validation	T 7.2	Implementation of the clinical protocol for testing and validation. Definition and implementation of the procedure for the patient enrolment. Starting in the execution of the clinical testing.

Description of activities

In this period the Clinical Partners have started the work necessary to prepare the WP7 activities. This has focused on testing and validation of the services provided by the platform. A clinical protocol has been finalized focused on the collection of the set of parameters defined in the previous deliverables. The clinical partners have started collecting these parameters from patients' home making use of methods available at the various clinical centers. In the clinical centers a total of 45 patients (15 per center) have started being recruited. This recruitment will take roughly a 3 month period.

The performance of the HF platform in confirming the diagnosis of CHF, assessing the HF disease severity, predicting prognosis and prescribe treatment will be compared with the assessment and decisions originating by the physicians.

The clinical partners will continue enrolling patients from their outpatient heart failure clinic and to remotely monitor some of them. Feedback to the technical partners will be given with respect to the performance of the platform to improve the functionalities of the final prototype.

Ongoing workpackages progress: WP8

WORK PACKAGE: 8
TITLE: DISSEMINATION AND EXPLOITATION
START DATE: MONTH 1
WORK PACKAGE LEADER: UNICAL
PARTNERS INVOLVED: ALL

STATUS OF TASKS DUE IN THIS PERIOD

TASK	TITLE	COMMENTS
T 8.1	Dissemination activities	The dissemination activities have been mainly characterized by internal dissemination and preparation and submission of scientific and technical papers.
T 8.2.1	Investigation of new models for Healthcare processes	Definition and assessment of the new organization and management models proposed in the deliverable D8.
T 8.2.2	Cost/Benefit analysis	Preliminary definition and assessment of the criteria for Cost/Benefits analysis

STATUS OF DELIVERABLES DUE IN THIS PERIOD

DELIVERABLE	N°	DATE DUE	COMMENTS
Investigation on new models for health care delivery	D38	31/07/08	According to the request of extension of project duration, the D38 will be delayed of other three months and it will be issued by 31/10/08

FORECAST STATUS OF TASKS DUE IN THE NEXT 3 MONTHS

TASK	N°	COMMENTS
Dissemination activities	T 8.1	The activities will carry out with more stressing to collaboration and involvement of the medical professional associations and patient associations
Investigation of new models for Healthcare processes	T 8.2.1	Final assessment and implementation of the new organization and management models for the effective and efficient delivery of the Heart Failure care
Cost/Benefit analysis	T 8.2.2	Final assessment and implementation of the criteria for Cost/Benefits analysis

Description of the activities

All the partners have continued the dissemination activities, mainly by organizing specific events for internal dissemination of the current project results.

Strong efforts have been addressed also for the preparation and submission of several scientific and technical papers to journal and conference. In particular, 5 papers have been accepted for the presentation at the well known International Conference “Computers in Cardiology”, which will be held in Bologna (Italy) the next Sept. 2008.

Moreover, as far as horizontal dissemination activities are concerned, an agreement has been established with the FP7 project “HEARTCYCLE” for sharing the Heart Failure Ontology developed by Heartfaid consortium within the activities of WP4.

Finally, CNR contributed also to the organization of the PHS2020 Consultation Workshop, held in Pisa in the middle of July.

Dissemination activities performed by FORTH in this period were:

- Acceptance for oral presentation of three abstracts at Computers in Cardiology 2008.
 - F. Chiarugi, I. Karatzanis, G. Zacharioudakis, P. Meriggi, F. Rizzo, M. Stratakis, S. Louloudakis, C. Biniaris, M. Valentini, M. Di Rienzo, G. Parati. “Measurement of Heart rate and Respiratory Rate Using a Textile-Based Wearable Device in Heart Failure Patients“.
 - F. Chiarugi, D. Emmanouilidou, I. Tsamardinos, I.G. Tollis. “Morphological Classification of Heartbeats Using Similarity Features and a Two-Pahse Decision Tree”.
 - F Chiarugi, S Colantonio, D Emmanouilidou, D Moroni, F Perticone, A Sciacqua, O Salvetti. “ECG and Echocardiography Processing for Decision Support in Heart Failure”.
- Acceptance for oral presentation of a paper to the IHIC 2008 conference. The updated and final version of the paper was submitted before the end of July:
 - S. Di Bona, D. Guerri, M. Lettere, R. Fontanelli, F. Chiarugi, A. Marsh, O. Salvetti. "An Integrated and Interoperable Platform of Services for the Management of Heart Failure"
- Cooperation to the preparation of the oral presentation of a paper for the MDA 2008 conference (paper was presented by ISTI-CNR):
 - F. Chiarugi, S. Colantonio, D. Emmaouilidou, D. Moroni, O. Salvetti. “Biomedical Signal and Image Processing for Decision Support in Heart Failure”.
- Publication of a paper in the Hellenic Journal of Cardiology (July-August 2008 issue) in the state-of-the-art session:
 - F. Chiarugi. “New Developments in the Automatic Analysis of the Surface ECG: The Case of Atrial Fibrillation”. Hellenic J Cardiol 2008; 49: 207-221

Planned activities for the next three months:

- Preparation of a HEARTFAID demo at the IHIC 2008 conference.
- Preparation of 1 paper for a bioinformatics conference on different approaches for morphological classification of ECG heartbeats (it was decided to not participate in the BIOSTEC 2009 conference).

Deviation from the plan

According to the request of extension of project duration, the D38 will be delayed of other three months and it will be issued by 31/10/08.

Dissemination activities of the period

Date	Channel	Event	Place/ Country	Partner responsible	Nature and size of audience
25.-28. May 2008.	oral presentation at the conference	Conference Medical Informatics in Europe (MIE 2008)	Goeteborg Sweden	RBI	200 scientists mainly from Europe
23.-26. June 2008.	oral presentation at the conference	International Conference on Information Technology Interfaces	Cavtat/Du brovnik Croatia	RBI	150 scientists mainly from Croatia and Slovenia
14 July 2008	Oral presentation	Int. Conf. on Mass- Data Analysis of Images and Signals in Medicine, Biotechnology, Chemistry and Food Industry	Leipzig, Germany	CNR, FORTH	35 international Computer Scientists
16-18 July 2008	Oral Presentation	8th Industrial Conference on Data Mining ICDM'2008	Leipzig, Germany	CNR	100 International Computer Scientists
14-17 July 2008	Oral Presentation	the 2008 International Conference on Semantic Web and Web Services	Las Vegas, USA	CNR, UNICAL, VMWS	International

Future activities and dissemination

Date	Place	Event	Partner responsible	Description
14.-17. September 2008.	Bologna, Italy	Conference Computers in Cardiology	RBI+dr. Goran Krstacic	poster presentation
17.-18. October 2008.	Split, Croatia	Meeting of the program "Computational Knowledge Discovery in Scientific Applications	RBI	tutorial
14-17 September 2008	Bologna, Italy	35th annual Computers in Cardiology Conference	CNR, UNICAL, UNICZ, UNIMIB, JUMC, AUXOL, FORTH, RBI	Oral Presentations
14-17 September 2008	Bologna, Italy	35th annual Computers in Cardiology Conference	CNR, UNICAL, UNICZ	Poster Presentation