ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Project Progress Report
DICOMA

December 2011-June 2012

Edited by Eloy González Ortega on September 14th, 2012

TABLE OF CONTENTS

Progress Report Executive Summary 3

1. Project one-page description 4

2. Context Updates 5

2.1. Changes in the Market Relevance 5

2.2. Changes in the Technical and Strategic Relevance 5

3. Progress 7

3.1. Technical progress 7

3.1.1. Work Package 1: User Centered Design 7

3.1.2. Work Package 2: User Interface Techniques 8

3.1.3. Work Package 3: Disaster Support Management and Training 9

3.1.4. Work Package 5: Communications and Validation 11

3.1.5. Work Package 6: International Interoperability, Standards, Processes (ISL) 11

3.1.6. Work Package 7: Management 12

3.1.7. Work Package 8: Dissemination and Exploitation (MANTIS) 13

3.2. Dissemination & Exploitation 13

3.2.1. Dissemination: communication, papers, seminars, workshops, courses, etc. 13

3.2.2. Standardisation 13

3.2.3. Patent applications 13

3.2.4. Fast exploitation 13

3.2.5. Start-ups/Spin-offs 13

3.3. Compliance with plans 13

3.3.1. Milestones & Deliverables 13

3.3.2. Workplan 15

4. Exploitation Perspectives 17

5. Plus/Minus Report and risks 19

5.1. Past period 19

5.2. Upcoming period 21

6. Manpower 22

Progress Report Executive Summary

The DiCoMa consortium consists of 17 partners from 4 different countries. Until the end of 2011, German, French, Belgian and Greek subconsortiums were also involved in the project, but they did not obtain funding for the project and decided to leave the consortium.

The beginning of this report is characterized by the kick-off meeting of the project that was held in Girona in mid December 2011 with representatives of all countries attending the meeting. In this meeting, the work plan was reviewed and the leaders for the different work packages were officially appointed.

As far as this reporting period is concerned, the objectives for the period have been satisfactorily met.

- ***Technical progress / results achieved***

In this reporting period, most of the efforts have been focused on WP1. A first draft of the specification of the user centred design process was elaborated to ensure the usability and economic perspective of the future solution of the project. An analysis of the context of use, users and tasks of different scenarios has been elaborated. Requirements and user stories were defined for some of the scenarios. With respect to WP3, preliminary study of the requirements for the user interfaces of Control Support Systems has been done as well as an extended survey of algorithms that are already in use today in Decision Support Systems (DSS) and regarding Data Mining / Post Mortem Analysis. Regarding WP5, a state of the art analysis of wireless narrow band communication technologies has been performed as well as an study of the needs of communication systems and supporting architectures.

The **Spanish** subconsortium work was evaluated by the Ministry of Industry, Energy and Tourism of Spain in March 2012. The results are still pending, but they should be published by October 2012. There has not been any evaluation yet of the **Israeli** subconsortium work as they started the project on the first of May 2012. In **Finland**, each partner will prepare periodic reports to the national authority, Tekes. The first report will be submitted in December 2012. Regarding the **Turkish** subconsortium, reports and technical documents are going to be sent to the national authorities at the beginning of October 2012 and probably the evaluation will take place in November or December of this year.

- ***Major dissemination activities***

During this period, the DiCoMa project has been presented in national meetings and conferences by Finnish partners. The members has been in contact with the Tampere Region Disturbance Management Group and with the national Hazardous Goods Steering Group including the main stakeholders related to emergency and disaster management in Finland. These stakeholders have also been invited to the national DiCoMa Advisory Group. The first publication of DiCoMa has been a Project Profile prepared for ITEA2: Information Technology for European Advancement. Moreover, the DiCoMa web site was created to disseminate the results and news that will become available throughout the project.

- ***Managerial issues***

With respect to the overall consortium structure, a first change request for the project was issued in February 2012. The main changes were the following: the German, French, Belgian and Greek subconsortiums did not obtain funding for the project and decided to leave the consortium. In Spain, the company Creativ IT and the research institute IDEG are no longer part of the consortium.. In Israel, the company RUNCOM decided to withdraw from the project. In Turkey, the company C2Tech decided to withdraw from the project and Netcad joined the project, following the comments from the PA's. In Finland, the following companies decided to withdraw from the project: Goodmill Systems, Special Code and Sunit.

Once the consortium overall composition was totally definitive, the PCA was signed by all project partners.

1. Project one-page description

In recent years, the world has seen some dramatic disasters, both natural and manmade. Some spectacular examples include the Indian Ocean Tsunami in 2004, Hurricane Katrina in the same year, the terrorist attacks in Madrid (2004), London (2005), and Mumbai (2007), most recently, the earthquakes in Haiti and Chile (2010).

Disasters such as these are far beyond the ability of a single agency (even one funded by a large, wealthy government) to deal with, and require cooperation between multiple agencies, frequently from multiple countries. Moreover, decision makers dealing with such disasters are frequently swamped with massive amounts of often-conflicting information, on which decisions need to be made in real-time. Adding this to the need to take into account, social, political and economic factors, it is no wonder that many incorrect decisions are made, worsening an already difficult situation. On the other hand effective training of such situations, especially in a multinational setting, requires an enormous effort and thus cannot be used very often.

The goal of the DiCoMa project is to ensure effective management of large disasters and complex emergencies by providing a set of tools that aim to improve the effectiveness of decision makers in dealing with disasters by better training and in situ support in the field. This toolset will include:

- **Data Abstraction tools** – A Comprehensive set of tools designed to process and correlate information from a large variety of public and private sources, allowing the creation of a unified data set, which can be easily explored and understood by decision makers.
- **Simulation and Modelling Tools:** - DiCoMa proposes to create a suite of simulation tools that model both human behaviour and natural phenomena (i.e. fires, earthquakes, weather patterns.). The models will be based upon extensive theoretical work and field experience
- **Decision Support and Training tools** – DiCoMa intends to create applications to be used by decision makers during both real and simulated disasters, that presents information to the decision maker in a manner that is easily and quickly understood, proposes alternative actions, indicating the implication of each alternative Using simulation modelling, and disseminates decisions to all personnel, equipment, and agencies involved in the disaster response process.

In order to achieve these objectives, the DiCoMa consortium intends to follow three main principles:

1. **People** – The DiCoMa consortium believes that effective disaster management requires taking into account people, and the way they react to emergencies. This results in an intense usage of User Centered Design, involving many application partners (as potential users), as well as studying behavior patterns in emergencies and taking these patterns into account, in the design and implementation of DiCoMa.
2. **Interoperability** – DiCoMa intends to focus on the ability of agencies to cooperate, sharing information and resources, regardless of internal procedures and regardless of language. Furthermore DiCoMa will aim at defining a standardized Process Framework, which will allow the different parties in a disaster scenario to work collaboratively together, but still comply with their own country specific set of processes, rule and regulation.
3. **Validation** – The DiCoMa consortium intends to prove the feasibility of the developed concepts und prototypes by executing a validation phase, allowing actual users to work with the system, managing simulated multi-national disaster scenarios.

The DiCoMa consortium includes 17 partners from 4 different countries – sharing their expertise and experiences. The Consortium is purposely large: This was done intentionally, as the project is intended as a “Reference Model”, incorporating many up-and-coming technologies in the field of crisis management.

2. Context Updates

2.1. Changes in the Market Relevance

As described in the DiCoMa FPP the world has experienced many dramatic disasters, both natural and manmade. The scale of the disasters vary; they may be global, national, regional or local, but for the people within the disaster areas they always are real disasters. When it comes to the “Market Relevance” of DiCoMa, it indeed seems that the need and importance of disaster control and management systems and actions is continuously growing and expanding. The climate is changing and causing a lot of weather related disasters, the amount and severity of earthquakes and tsunamis seems to be increasing, unfortunate terrorist activities have become a continuous threat, the possibility of transport related accidents increases when the traffic volumes are growing and there is even a threat of asteroids and meteors. Even if there would not be increase in the amount of disasters, the technological development will make it possible to react and develop better disaster management systems than earlier. This opportunity should not be neglected.

The DiCoMa partners have all identified the potential disaster cases and also they clearly show that there are various contexts where the need for effective management of large disasters and complex emergencies is needed. The need for tools that improve the effectiveness of decision makers in dealing with disasters by better training and in situ support in the field is increasing.

The vulnerability of the countries and regions varies a lot, when it comes to disaster management. Developing countries suffer very much especially from the natural disasters such as earthquakes, floods, volcanic eruptions, landslides, hurricanes, tornados, etc. They are also a challenge for the developed countries, where also the manmade disasters are continuously present such as terrorist actions, oil-spills, industrial accidents. So it seems clearly that the “Market Relevance” is increasing.

The nature of a disaster is such that they can strike unexpectedly, whenever and in a form that has not been forecasted. Therefore there is also be a need for disaster management for situations that never have happened before. To be able to reduce the severity of disasters thus needs clear management plans, quick actions and effective management systems for various disaster scenarios.

The Oxford Dictionary states that a disaster is "a sudden accident or natural event that causes great damage or loss of life". There will always be disasters and the amount of them seems to be increasing. We cannot avoid them, but we can be prepared and have management tools and plans. One can say that the importance of DiCoMa is continuously growing.

2.2. Changes in the Technical and Strategic Relevance

The main changes in both the technical and strategic relevance of the project DiCoMa come from the change in the consortium due to the **withdrawal of several partners** of the original consortium. In particular, French, Belgium, Greek and German subconsortiums have left the project because they did not get any funding from their local authorities. Besides, several other partners from the other subconsortiums have left the project: In the Finish subconsortium, Goodmill subsystems, Special Code, Sunit and Sec Control; in Israel Runcom, in Turkey C2Tech and in Spain CreativIT and IDEG. Regarding Turkey, the consortium has a new addition: the company Netcad.

These changes have had a significant impact in the global scope of the project and the amount of total effort of DiCoMa, thus changing the Technical and Strategic Relevance of the project. German and French participation was very important in the full scope of DiCoMa. Specifically, the leadership of the project has changed and now, Indra from Spain has taken the leadership of the project. Besides, the size of several WP has changed. More specifically, WP1 has reduced its size, removing the total number of deliverables from 29 to 6 and task 1.6 has been removed. Regarding WP2, which was about User

Interfaces and previously led by Thales, some activities that were a field of expertise of the missing consortium members have been removed from the agenda of this WP: the research of different type of human computer interaction and visualization of data, research on ergonomics and cognition. The impact may also be important in WP5 because of the significant implication of RUNCOM and in WP6, regarding the Standardization process, where the French subconsortium had a significant share of the efforts.

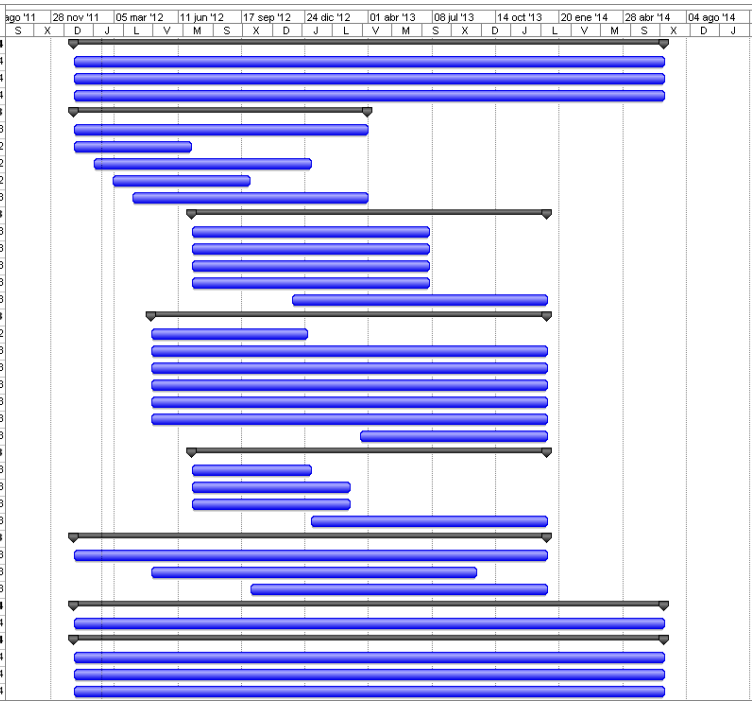
The other WPs has also changed and decreased their number of deliverables and tasks, but their main goasl remain nearly the same.

In order to adjust to this new scenario, several actions have been taken by the remaining members of DiCoMa. First of all, as aforementioned, Indra Software Labs has volunteered to assume the leadership of the project. Second, the leaderships of the missing partners have been obviously changed. Third, the efforts of the remaining partners have changed in order to maintain the viability of the project. Finally, the total number of task and deliverables has been reduced in each WP, taking into account the new efforts of the members, thus resulting in dropping off several of the goals of the previous DiCoMa project.

3. Progress

Activities under the scope of the project and its start and end dates are as follows:

Id	Nombre de tarea	Duración	Comienzo	Fin
1	**WP7 Management**	**651 días**	**lun 02/01/12**	**lun 30/06/14**
2	WP7.1 Technical Management	651 días	lun 02/01/12	lun 30/06/14
3	WP7.2 Administrative Management	651 días	lun 02/01/12	lun 30/06/14
4	WP7.3 Quality Assurance Support	651 días	lun 02/01/12	lun 30/06/14
5	**WP1 User Centered Design**	**325 días**	**lun 02/01/12**	**vie 29/03/13**
6	WP1.1 Definition, implementation and instrumer	325 días	lun 02/01/12	vie 29/03/13
7	WP1.2 Analysis of the context of use, users a	130 días	lun 02/01/12	vie 29/06/12
8	WP1.3 Definition of scenarios, use cases and	239 días	mié 01/02/12	lun 31/12/12
9	WP1.4 Create high-level design	152 días	jue 01/03/12	vie 28/09/12
10	WP1.5 Functional architecture	260 días	lun 02/04/12	vie 29/03/13
11	**WP2 User Interface Techniques**	**392 días**	**lun 02/07/12**	**mar 31/12/13**
12	WP2.1 Multi-Modal Interface Technologies	261 días	lun 02/07/12	lun 01/07/13
13	WP2.2 Interface Definition	261 días	lun 02/07/12	lun 01/07/13
14	WP2.3 Study on context-awareness & localiza	261 días	lun 02/07/12	lun 01/07/13
15	WP2.4 Ergonomic and cognitive aspects	261 días	lun 02/07/12	lun 01/07/13
16	WP2.5 Interaction Techniques, Prototypes	282 días	lun 03/12/12	mar 31/12/13
17	**WP3 Disaster Support Management and Trair**	**436 días**	**mar 01/05/12**	**mar 31/12/13**
18	WP3.1 Simulation and modelling	172 días	mar 01/05/12	mié 26/12/12
19	WP3.2 Event Management	436 días	mar 01/05/12	mar 31/12/13
20	WP3.3 Control Support Systems	436 días	mar 01/05/12	mar 31/12/13
21	WP3.4 Decision Support System	436 días	mar 01/05/12	mar 31/12/13
22	WP3.5 Data Mining / Post Mortem Analysis	436 días	mar 01/05/12	mar 31/12/13
23	WP3.6 Geographical Information system	436 días	mar 01/05/12	mar 31/12/13
24	WP3.7 Microscopic and Macroscopic Simulatio	207 días	lun 18/03/13	mar 31/12/13
25	**WP4 Data and Services Integration Platform**	**392 días**	**lun 02/07/12**	**mar 31/12/13**
26	WP4.1 Data Framework	132 días	lun 02/07/12	mar 01/01/13
27	WP4.2 Information Services	175 días	lun 02/07/12	vie 01/03/13
28	WP4.3 Security	175 días	lun 02/07/12	vie 01/03/13
29	WP4.4 Middleware Technologies	261 días	mar 01/01/13	mar 31/12/13
30	**WP5 Communications and Validation**	**522 días**	**lun 02/01/12**	**mar 31/12/13**
31	WP5.1 Communication Systems	522 días	lun 02/01/12	mar 31/12/13
32	WP5.2 System Integration	358 días	mar 01/05/12	jue 12/09/13
33	WP5.3 System Validation	327 días	lun 01/10/12	mar 31/12/13
34	**WP6 Standardization**	**651 días**	**lun 02/01/12**	**lun 30/06/14**
35	WP6.1 Standards	651 días	lun 02/01/12	lun 30/06/14
36	**WP8 Dissemination and Exploitation**	**651 días**	**lun 02/01/12**	**lun 30/06/14**
37	WP8.1 Design of a Business Model Framewor	651 días	lun 02/01/12	lun 30/06/14
38	WP8.2 Dissemination of the results	651 días	lun 02/01/12	lun 30/06/14
39	WP8.3 Exploitation plan	651 días	lun 02/01/12	lun 30/06/14



As it can be seen in the following paragraphs, the majority of the activities included in the project plan have been satisfactorily conducted and the planned deliverables have been produced in due time.

3.1. Technical progress

3.1.1. Work Package 1: User Centered Design

During this period, all the partners from each subconsortium have maintained several internal meetings in order to analyze and determinate which will be the possible scenarios than can be implemented, taking into account the access and relationships with end users. Although there were no planned efforts in this WP for some of the partners, they were also involved on this package, providing inputs, context of use, requirements, scenarios, etc., working on a preliminary analysis of the roles and usage scenarios.

Task 1.1 – Definition, implementation and instrumentation of user centred design methodology

Furthermore, a suitable tool for the description of Requirements, **RTH** – Requirements and Testing Hub, has been selected. Templates were created for the definition of user stories and use cases as well as the first draft of the specification of the user centred design process. A first draft of the requirements and the information model needed for this scenario has been elaborated by **ISL**. The first draft of **D1.1**: Specification of the UCD-Process was released by **VTT**. **Mattersoft** generated and circulated an internal working document *DICOMA WP1 Plan* which gathered together the methods and tools to be used as well as fine tuned timing and milestones.

Task 1.2 – Analysis of the context of use, users and tasks

Analysis of the context of use, users and tasks of different scenarios has been elaborated. Requirements and User Stories were defined for some of the scenarios, in special for Forest Fires where **ISL** has contributed with the analysis of the context of use where users and tasks have been identified.

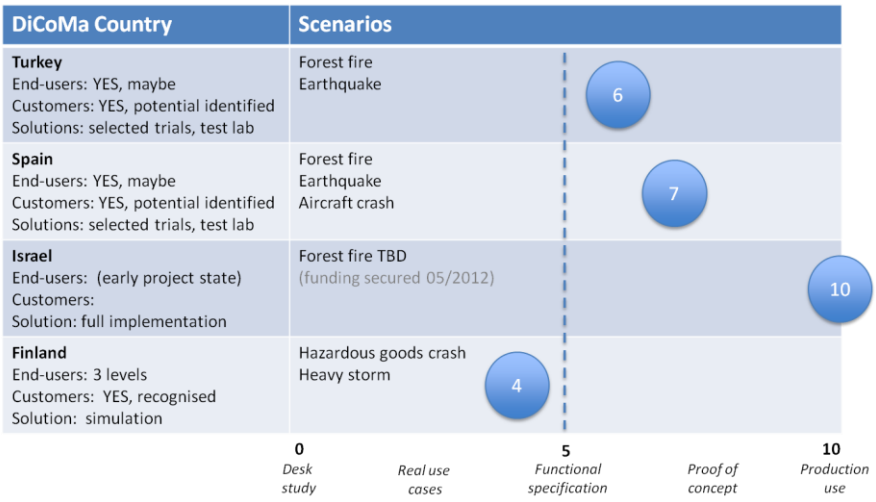
Mobisoft has discussed and planned the work with the other Finnish partners in several national meetings. Also, it has prepared the draft for D1.2 which has been re-named as “Personas and Context of

Use for Scenarios Documentation" and the draft was circulated on 11th May 2012. The former D1.2 and D1.3 (draft circulated by **Mattersoft**) have recently been merged.

Mantis has contributed providing a scenario description document focusing on major disasters occurring in Turkey, as well as reviews written with the help of area experts on natural disaster and public authorities of emergency and natural disasters for commonly happening types of natural disaster such as earthquakes, mass movements and floods.

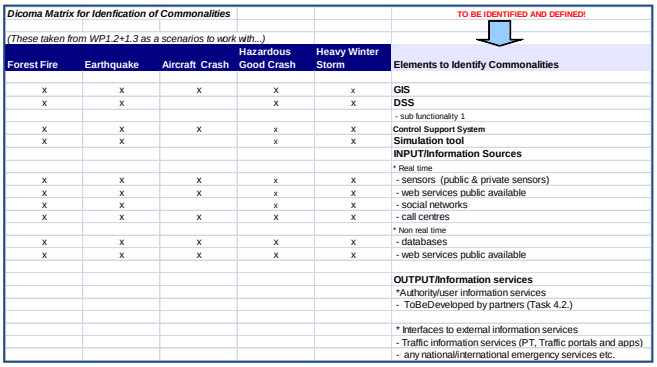
Task 1.3 – Definition of scenarios, use cases and requirements

The **Finish** subconsortium has worked on: Hazardous Good Crash and Heavy Winter Storm. The **Turkish** subconsortium worked on Earthquakes and mass movements and floods, on the use of data mining, knowledge discovery and decision making on natural disasters. The **Spanish** subconsortium has focused their efforts on 3 scenarios (proposed by **Answare**): the forest fire in Guadalajara in 2005; Madrid-Barajas air disaster in 2008 and Lorca earthquake in 2011, writing a description of each one and a brief description of how to develop an actuation protocol for these scenarios. **Answare** and **DeustoTech** worked on Earthquake, **ISL** on Forest Fire, and **US** and **UdG** worked on Aircraft Landing Crash incidents in which it will be planned a rescue protocol applying new technologies as wireless communications and many others in order to increase its efficiency and success.



Task 1.4 – Create high-level design

On this task, the efforts have been focused on only 5 scenarios: Aircraft Landing Crash Incident, Forest Fires, Earthquakes, Hazardous Good Crash and Heavy Winter Storm. All partners participated on the creation of a matrix for identification of commonalities (GIS, DSS, Simulation tools, Real Time and Non Real Time Inputs, and outputs), as it is shown on the following figure.



Dicoma Matrix for Idenfication of Commonalities — TO BE IDENTIFIED AND DEFINED!

(These taken from WP1.2+1.3 as a scenarios to work with...)

Forest Fire	Earthquake	Aircraft Crash	Hazardous Good Crash	Heavy Winter Storm	Elements to Identify Commonalities
x	x	x	x	x	**GIS**
x	x		x	x	**DSS**
					- sub functionality 1
x	x	x	x	x	**Control Support System**
x	x		x	x	**Simulation tool**
					INPUT/Information Sources
					* Real time
x	x	x	x	x	- sensors (public & private sensors)
x	x	x	x	x	- web services public available
x	x		x	x	- social networks
x	x	x	x	x	- call centres
					* Non real time
x	x	x	x	x	- databases
x	x	x	x	x	- web services public available
					OUTPUT/Information services
					*Authority/user information services
					- ToBeDeveloped by partners (Task 4.2.)
					* Interfaces to external information services
					- Traffic information services (PT, Traffic portals and apps)
					- any national/international emergency services etc.

Task 1.5 – Functional architecture

On this task, we have stated to define a first draft of the DiCoMa arquitecture, starting with overall system architecture, over the physical architecture of the devices as their interfaces up to the software architecture, defining the modules, OS's, services, etc.

3.1.2. Work Package 2: User Interface Techniques

This WP has not started yet. **Answare**, as leader of the package, has developed an initial index of the deliverables to be performed within the work package. Also, intermediate deadlines have been proposed for the progressive realization of these deliverables.

3.1.3. Work Package 3: Disaster Support Management and Training

The work has been progressing well and as expected on this work package. During this period, each of WP3 task leaders are investigating their task subjects, understating the difficulties and searching for the best solutions to achieve their goals.

Task 3.1 – Simulation and modelling

The following actions have been initiated: 1.- literature survey and 2.- inspection of legacy systems and search for related government offices help. Also, a template creation has been started, were mainly the inputs, outputs, parameters and estimation/calculation models are taken into account. Also, natural phenomena's geographic behaviours are being investigated and consultancy searched on this topic. Interface design is at preliminary stage since it will be determined project wide. OGC models are examined and planned to be coded (due to lose coupling, these codes will remain behind interfaces). Reachability and visibility tools started to be analysed and SRS for internal use is being written.

Task 3.2 – Event/Incident Management

A document clarifying task objectives, partners' contributions, deliverables and dependencies with other WPs after FPP CR1, has been provided to all the partners.

Analysis of crisis situations and their evolution is being analysed as a temporal sequence of states by data sets. The objective is the identification of relevant information, from crisis management point of view, at each state. However, there is a clear dependence of this information with the crisis under management. Due to this dependency, the activity is being aligned with crisis scenarios defined in WP1.

A simple representation of crisis as sequence of states, defined by a set of variables, is being assimilated to a workflow, where tasks are associated with states, and transitions are given by both significant changes on monitored variables or firing actions. Subtasks associated to analyses data consistency is not being addressed in this period because there is not repetitive data associated to cases under study.

Regarding WP1, use cases and procedures defined in T1.3 will be used in the second half year 2012 for definition of workflows and state indicators for usage scenarios. Regarding WP4, T4.2 will provide necessary information for representing the situation of the crisis at a given time. This will be fundamental for defining a data set, useful in the evaluation of the different states along the workflow execution.

Task 3.3 – Control Support Systems

During this period, **Mantis** started developing the user stories, investigating academic studies and similar projects in the area of resource allocation in emergency and natural disaster situations. Preliminary study for the requirements for the user interfaces of Control Support Systems which involves types of information to display to various user groups also started. We will further improve this task by identifying real users and prioritize their requirements.

UdG is analysing some scenarios in order to define the workflow of a crisis situation, according to the data set that will be defined in T3.2 along the second half year 2012.

Answare will contribute to the definition of the workflows involved in crisis management taking into account the resources involved and the coordination and decision aspects.

Task 3.4 – Decision Support System

We have started our research into DSS (Decision Support System) and the formulation of all the ideas and situations which will be supported. We've made minimal feasibility checks of the project's primary components. We carried out an extended survey of algorithms that are already in use today in DSS

systems and went on to build a prototype of our own that tested the selected algorithms That includes the provision of the COP, that correlate the information coming from different sources of information in order to establish a snapshot of what is the crisis real situation at a specific moment. It is the correlation of all the technologies and information that will provide a better basis to improve the decision on what is happening.

We have started the analysis of integrating a prototype for a RUBE (Rules Based Engine) to assist in decision making, since decisions are made after analysing the current situation resulting from the flow of relevant information from the system

Task 3.5 – Data Mining / Post Mortem Analysis

DeustoTech as package leader will deal with the data pre-processing, the data analysis, the training of the algorithms and the learning and experimentation of the models. Several algorithms have been studied in order to use with data from the crises, such as classic supervised machine learning algorithms: Bayesian Networks, Artificial Neural Networks, Support Vector Machines, K-nearest neighbours, Decision Trees and so on.

Furthermore, since the amount of labelled data of different crises is still unknown in the context of the project and because of the requirements of supervised approaches regarding labelled data, the consortium of DiCoMa project has also studied other alternatives in the area of semi-supervised approaches. In this context, Collective Classification has been deeply studied as well as its results in several domains similar to the domain of project DiCoMa. Collective classification is a combinatorial optimisation problem, in which a given a set of instances are given and a neighbourhood function, which describes the underlying network structure among instances. The collection of instances, is divided into two sets, one unlabelled and other labelled. Therefore, the task is to label the unlabelled nodes with a set of labels.

In the future work, these algorithms and other will be tested with actual data from crises scenarios in order to validate their performance. Besides, a first data pre-processing step will be also be studied and possibly developed in order to both adequate and smooth the data.

Task 3.6 – Geographical Information system

On one hand, a requirement repository document has been generated which contains all the functionalities of the Geographical Information System (GIS) task. These requirements are especially focused on the maintenance of the spatial data pertaining to a disaster situation. Moreover, other functionalities taken into account have been the access and management of geo-data from various sources using OGC standards and open-source solutions, among others.

On the other hand, user stories are being defined in order to represent the user and system requirements previously specified. Each user story includes a scenario in which the GIS will be involved. An example of user story could be “Management of the resulting data from sensors localized near the disaster area” that explains the treatment performed by the system with the resulting data acquired from sensors nearest fire.

ISL participates in this task that just started at the end of the reporting period. A first analysis of the needed requirements has been elaborated as well as the definition of the user stories.

Task 3.7 – Training and simulation Systems

This task hasn’t started yet.

3.1.4. Work Package 5: Communications and Validation

WP5 has two subtasks covered respectively in Task 5.1 and Task 5.2. Since the WP and it's subtasks are in progress, there are no deliverables ready. The first deliverable of the WP5 is aimed to be produced within T5.1 in Mar'13.

One major drawback happened in WP5 with the withdrawal of the company RUNCOM participating from Israel. Since they had their major focus and contributions in the T5.1, as well as being the task leader, it was expected to get the knowledge RUNCOM had into the consortium. Currently the WP leader Mantis leads the T5.1 and the other tasks T5.2 and T5.3, from Turkey.

Task 5.1 – Communication Systems

Within Task 5.1, it has been decided by the WP partners to concentrate on major issues of Task 5.1. All partners participating in this task have been asked to do some research with the focus on communications for DiCoMa. The partners with expertise on major communication technologies like wireless networks, cellular networks, weather related systems and sensor networks hve been investigated with respect to their requirements and functionalities.

In parallel with T1.3 of WP1, **US** has made a state of art analysis of wireless communications technologies focused on narrow band communications from the point of view of the scenario defined on T1.3 (Aircraft Landing Crash). In this state of art study have been analyzed narrow wireless characteristics of interest in the planned scenario.

Mobisoft has studied and contributed to planning of the needed communication systems and supporting architectures, especially on the Finnish national level with the other DiCoMa partners. Mobisoft's focus has mainly been on the issues related to mobile communications to/from the emergency vehicles.

Task 5.2 – System Integration

Due to the synchronization-based delays within the consortium, we are a bit behind the planned schedule for T5.2. However in the next 12 months this delay will be compensated. This task is crucial for the project's lifecycle to make the separated components work as one by ensuring the interoperability between all system segments. After completing the system verification and validation activities, integration plans will be offered and unit tests will start to take place.

Task 5.3 – System Validation

This task hasn't started yet.

3.1.5. Work Package 6: International Interoperability, Standards, Processes (ISL)

After the withdrawal of the French and German subconsortiums, the scope of this work package was dramatically reduced, remaining just the activities related to standards. This task will follow the most important international standards development, providing guidelines to apply the standards in practice, and positioning the project outcomes with regard to existing standards and standards under development. The main results of the task will be: reports of the performed follow-up activities and participation in standardization meetings and research communities.

Coordination of the various emergency agencies/services operating in a disaster scenario is a crucial point and a key factor of the emergency response's effectiveness. The latter is based on interoperability and in particular on the ability of different teams of responders to work together and to share information to build a "common picture". However, agencies such as the police, the fire services, the health services and relevant non-governmental organisations display major differences in the way they respond to crises. The lack of EMIS interoperability (at all levels) is clearly identified as a current key drawback which might be attributable to the current lack of standardisation efforts and to the culture that

characterises each emergency response organisation. So, the overall goal of this work package is to help standardize Civil Protection Services interoperability by promoting project results through the appropriate Standarization bodies.

There are only two partners participating in this work package: **ISL** and **Answare**. In this reporting period, there has not been any activity related to this topic especially considering that the project started only a few months ago.

3.1.6. Work Package 7: Management

The objectives of this work package are the following ones: **a)** To set-up the management infrastructure (committees, boards, quality plan, procedures, risk, registers, project management tools, internal web site, etc.). **b)** To provide financial and contractual management of the consortium, including maintenance of the Consortium Agreement, follow-up of contractual obligations (contractual reporting, deliverable issuing, monitoring of resources, etc.). **c)** To manage the knowledge generated and innovation activities to exploit this knowledge. **d)** To make this process as efficient as possible, a shared file repository space with enhanced interaction facilities has already been established for the project, enabling truly interactive work at all critical project phases, while reducing drastically the information sharing overhead typical for large consortia.

As far as tasks associated with project management are concerned, the following milestones were accomplished:

- The kick-off meeting for the project was held in Girona, Spain in mid December 2011.
- Project handbook was produced.
- An internal collaborative web site was created to upload and share information and documents created throughout the project among all project partners.
- Templates were created for presentations, deliverables, meeting minutes, etc..., which are available on the project website.
- Regular audio conferences were maintained among consortium members for reporting and controlling project progress.
- Signature of the PCA agreement was performed by all project partners.

In this reporting period, two deliverables have been finalized:

- **D7.1** Project management and quality assurance manual, A Handbook describing the project management and quality assurance procedures.
- **D7.2** Internal collaborative web-based platform operational.

ISL, as project leader, has been monitoring, tracking and supervising the progress on the project work packages in order to ensure that the required deliverables are prepared and presented on time and according to the established format. Also, it has created the project handbook, templates and the internal collaborative web-based platform.

UdG contributed to organise and prepare at a logistic level the DiCoMa kick-off meeting under Indra's coordination. In addition, in this half year 2012, UdG has also contributed to carry out FPP CR1 updates and also has actively contributed to this PPR (Project Progress Report).

Deustotech and **Answare** attended the kick-off meeting. Also, they have helped to carry out the changed of request of Final Project Proposal and to this Project Progress Report.

3.1.7. Work Package 8: Dissemination and Exploitation (MANTIS)

All three subtasks in WP8 started with the kick-off and will all end together with the DiCoMa project, ensuring dissemination and exploitation at every step of the DiCoMa project lifecycle. In this reporting period, 2 **deliverables** have been finalized: **D8.1** Internal communication platform and, **D8.2** External presentation webpage.

The DiCoMa project and its objectives have been presented to national meetings and conferences. The project has also been discussed with Tampere Region Disturbance Management Group and with the national Hazardous Goods Steering Group including the main stakeholders related to emergency and disaster management in Finland. These stakeholders have been invited to the national DiCoMa Advisory Group.

At this period of the project, no articles or papers have been published yet. On the other hand, the **UdG** had the opportunity to mention and make DiCoMa known through a local program broadcast.

3.2. Dissemination & Exploitation

3.2.1. Dissemination: communication, papers, seminars, workshops, courses, etc.

ISL actively contributed to the creation of the DiCoMa website[1] in order to disseminate the results and to publish the news that will become available throughout the project.

Answare has developed a section in its web[2] about this project.

3.2.2. Standardisation

There has not been any activity related to this topic during the reporting period.

3.2.3. Patent applications

There has not been any activity related to this topic during the reporting period.

3.2.4. Fast exploitation

There has not been any activity related to this topic during the reporting period.

3.2.5. Start-ups/Spin-offs

There has not been any activity related to this topic during the reporting period.

3.3. Compliance with plans

3.3.1. Milestones & Deliverables

WP	Milestone or Deliverable title	Planned (FPP) delivery date (YYYY/Qx)	Status	Actual or expected delivery date (YYYY/Qx)	Short comment or comment N°

[1] http://dicoma.eu

[2] http://web.answare-tech.com/index.php?option=com_content&view=article&id=8:dicoma&catid=14:rdi-portfolio&Itemid=107

WP	Milestone or Deliverable title	Planned (FPP) delivery date (YYYY/Qx)	Status	Actual or expected delivery date (YYYY/Qx)	Short comment or comment N°
All	M0 Kick-off (T0)	2011/Q4	✔	2011/Q4	
1	D1.1. Specification of the UCD-Process (Final report on UCD process methodology including lessons learned)	2013/Q1		2013/Q1	
1	D1.2. Scenario Description	2012/Q2	Late	2012/Q3	
1	D1.3. Use Cases	2012/Q4		2012/Q4	
1	D1.4. Requirements Definition	2012/Q4		2012/Q4	
1	D1.5. High-Level-Design documentation	2013/Q1		2013/Q1	
1	D1.6. Functional Architecture	2013/Q1		2013/Q1	
1	D1.7. Evaluation Report	2012/Q4		2012/Q4	
2	D2.1. User interface technologies, including the technologies related with mobile devices.	2012/Q4		2012/Q4	
2	D2.2. User interface definition related to use cases	2012/Q4		2012/Q4	
2	D2.3. User interface techniques and sequence diagrams, integrating the capabilities for the selected mobile technologies.	2012/Q4		2012/Q4	
2	D2.4. First version of the prototype: proof of concepts	2013/Q1		2013/Q1	
2	D2.5. Second version of the prototype: operational interface	2013/Q2		2013/Q2	
3	D3.1. High Level Design	2012/Q3		2012/Q3	
3	D3.2. Detailed Design	2013/Q1		2013/Q1	
3	D3.3. Prototypes passed unit test and are ready for integration and validation	2013/Q3		2013/Q3	
4	D4.1. Data and domain ontology	2012/Q4		2012/Q4	
4	D4.2. Final data format specification	2012/Q4		2012/Q4	
4	D4.3. Final data storage definition	2012/Q4		2012/Q4	
4	D4.4. Data storage sub-system, data acquisition and gateways tested	2013/Q2		2013/Q2	
4	D4.5. Final design of the information services	2013/Q1		2013/Q1	
4	D4.6. Final implementation of the information services	2013/Q3		2013/Q3	
4	D4.7. Security services final specifications	2013/Q1		2013/Q1	
4	D4.8. Final implementation of security services	2013/Q4		2013/Q4	
4	D4.9. Results from middleware evaluation	2012/Q3		2012/Q3	
4	D4.10. Middleware architecture definition	2012/Q4		2012/Q4	
4	D4.11. Middleware solution customization	2013/Q1		2013/Q1	
4	D4.12. Release of interfaces to middleware solution	2013/Q2		2013/Q2	
1-4	M1 Specifications draft – WP's1,2,3,4	2012/Q4		2012/Q4	
5	D5.1. Design Document Identification of communication requirements and functionalities	2013/Q1		2013/Q1	

WP	Milestone or Deliverable title	Planned (FPP) delivery date (YYYY/Qx)	Status	Actual or expected delivery date (YYYY/Qx)	Short comment or comment N°
5	D5.2. Specifications Unit and Integration Test Specifications	2013/Q1		2013/Q1	
5	D5.3. Specifications System and Acceptance Test Specifications	2013/Q2		2013/Q2	
5	D5.4. Design Document Prototype Architecture	2013/Q2		2013/Q2	
5	D5.5. Design Document Integration and Validation Plan	2013/Q2		2013/Q2	
5	D5.6. Prototype System	2014/Q1		2014/Q1	
5	D5.7. Document Validation Report	2014/Q2		2014/Q2	
5	D5.8. Results Outcomes of Tests	2014/Q2		2014/Q2	
1-5	M2 Specifications freeze – Entire project	2013/Q1		2013/Q1	
5	M3 Integration starts (requires readiness from WP1-WP4)	2013/Q2		2013/Q2	
5	M4 Validation starts(requires successful integration)	2013/Q4		2013/Q4	
6	D6.1. Report on performed standardization activities	2014/Q2		2014/Q2	
7	D7.1. Project management and quality assurance manual, A Handbook describing the project management and quality assurance procedures	2012/Q1	✔	2012/Q1	
7	D7.2. Internal collaborative web-based platform operational	2012/Q1	✔	2012/Q1	
7	D7.3. Project progress reports submitted to ITEA2 Office	2013/Q1		2013/Q1	
7	D7.4. Project presentation at ITEA2 Symposium	2012/Q4		2012/Q4	
8	D8.1. Internal communication platform	2011/Q4	✔	2011/Q4	
8	D8.2. External presentation	2012/Q1	✔	2012/Q1	
8	D8.3. Dissemination plan (organization of publications) and Exploitation plan (detailed description of expected results for exploitation)	2012/Q4		2012/Q4	
All	M5 Study of crisis mgmt functions and procedures	2013/Q4		2013/Q4	
All	M6 Final reports (project ends)	2014/Q2		2014/Q2	

3.3.2. Workplan

The consortium's plan is in line with the work plan included in the change request and the committed deliverables have been completed for this reporting period.

The beginning of this report is characterized by the **kick-off meeting** of the project that was held in Girona in mid December 2011 with representatives of all countries attending the meeting. The work plan was reviewed and the leaders for the different work packages were officially appointed. Once the consortium overall composition was totally definitive, the PCA was signed by all project partners.

A **handbook** was produced for the entire consortium which includes information about project management and functions and responsibilities for each of the roles. **Templates** were also created for presentations, deliverables, meeting minutes, etc., which are available on the project website.

Progress on the different project activities is discussed in audio conferences at least once every 15 days among members of each national consortium and at least once every month among all consortium members. This is obviously apart from any other meetings and/or conferences that the WP leaders deem appropriate for conducting the activities in their respective packages. In addition, workshop meetings will be carried out every six months in order to follow the project progress. The next workshop is scheduled to be in Turkey on September 3rd- 4th, 2012.

The **Spanish** subconsortium work was evaluated by the Ministry of Industry, Energy and Tourism of Spain in March 2012. The results are still pending, but they should be published by October 2012. There has not been any evaluation yet of the **Israeli** subconsortium work as they started the project on the first of May 2012. In **Finland**, each partner will prepare periodic reports to the national authority, Tekes. The first report will be submitted in December 2012. Regarding the **Turkish** subconsortium, reports and technical documents are going to be sent to the national authorities at the beginning of October 2012 and probably the evaluation will take place in November or December of this year.

A **first change request** for the project was issued in February 2012. The main changes were the following: the German, French, Belgian and Greek subconsortiums did not obtain funding for the project and decided to leave the consortium. In Spain, the company Creativ IT had severe financial problems, so it is no longer part of the consortium. The research institute IDEG did not accept the conditions of the funding given by the Ministry of Industry and therefore decided to withdraw from DiCoMa. In Israel, the company RUNCOM decided to withdraw from the project. In Turkey, the company C2Tech decided to withdraw from the project. Following the comments from the PA's, there is one new addition to the consortium, NETCAD. In Finland, the following companies decided to withdraw from the project: Goodmill Systems, Special Code and Sunit. The impact on the project of the German and French subconsortium withdrawal was significant, since they had a considerable participation in the project, both in terms of budget and person years (around 37%). In addition, they were leaders of several work packages and tasks. The burden will fall on the whole project, but it will be particularly acute on WP1, WP2 and WP6, since these were the work packages where the German and French subconsortiums were concentrating their efforts. Significant reduction in the number of deliverables has been made as well as in the scope of these WPs. Finally, it is important to note that there has been a significant modification in the start and end dates of the project, due to the delay obtaining the funding by all the national subconsortiums.

In this **reporting period**, most of the efforts have been focused on WP1, as explained on the Technical progress section. With respect to WP3, preliminary study of the requirements for the user interfaces of Control Support Systems has been done as well as an extended survey of algorithms that are already in use today in Decision Support Systems (DSS) and regarding Data Mining / Post Mortem Analysis. Regarding WP5, an state of the art analysis of wireless narrow band communication technologies has been performed as well as an study of the needs of communication systems and supporting architectures.

As far as tasks associated with **dissemination** are concerned, the project has been presented in national meetings and conferences by Finnish partners. The DiCoMa web site was created to disseminate the results and news that will become available throughout the project. The first publication of DiCoMa has been a Project Profile prepared for ITEA2: Information Technology for European Advancement. This brochure describes the features and main objectives of the project.

4. Exploitation Perspectives

Answare R&D lines include control systems (monitoring & control, decision support, resources planning and optimization) and Geospatial Information Systems. Answare develops such systems for big players involved in disaster management at European level. Answare intends to offer new services and applications to its customers and to provide consultancy and development to final customers and big integrators. The participation into the DiCoMa project fits in the strategy of the company to share with other top key players in mobility the R&D risks associated to the ambitious goals of the project.

University of Girona and DeustoTech. At this point exploitation activities have not been defined.

ATHENA GS3 Security Implementations Ltd. is a leading global security systems integrator and software developer, providing end-to-end solutions for governments, the public sector and private organizations worldwide. Athena's experiences in prevention of both natural disasters, as well as dealing with some of the worlds' most sophisticated terrorists will be very useful for dissemination and exploitation of DiCoM'a results. Athena GS3 will use its considerable field experience to enhance the DiCoMa System. Athena GS3 will also act to interest its customers in the DiCoMa system.

The DiCoMa project will offer **Indra Software Labs** the possibility to apply its extensive knowledge in the development of software applications, into the combined effort of creating a brand new solution in the crisis management field. The participation on this project will enable Indra Software Labs to gain access to state of the art solutions and technologies that can be used to monitor and control different crisis scenarios, thus enhancing the company knowledge in this area. Taking advantage of the project technical results, Indra Sofware Labs will increase its solutions portfolio for the software development technologies market. Last but not least, the DiCoMa project will represent a great opportunity to establish long term partnerships and working relationships with the companies, universities and other organizations participating in the project.

The DiCoMa project will offer **Mattersoft** the possibility to present its expertise in the development of software applications on new application area. Vast experience in critical real-time data collection, position information handling of large vehicle fleets and critical reliability mobile communication can be merged into the joint consortium effort of creating a new ground breaking solution in the crisis management field. The participation on this project will enable Mattersoft to gain access to state of the art solutions and technologies, thus increasing knowledge of the company in this field. Carefully planned utilization of the project technical results, Mattersoft will widen its solutions portfolio considerably to a new market segment. Moreover Mattersoft seeks new technical, strategic and commercial companionships within the consortium, both companies and academic institutions.

CVC-UAB. The advances in the study of the human behaviour analysis from an image sequences could aid to develop their next generation video surveillance systems with added features to adapt to the environment and increased robustness. The results of this project will be disseminated as follows:

- The scientific results for human behaviour understanding using multiple cameras will be presented and published in journals, at national and international conferences, in tutorials and other related events.
- Companies active in video surveillance will present the results of the project in world-wide security exhibitions such as IFSEC (Birmingham), or SICUR (Madrid).
- The developed techniques and applications will be disseminated in the form of tutorials at conferences and in master's courses and trainings.

FMI has authority role in Finland within the area of weather related measurements, forecasts and warnings. In this perspective FMI will evaluate the possibilities to enhance operative methodology based on DiCoMa systems and findings. Operative systems are also expected to be supplemented with natural disaster forecasting methods studied within DiCoMa project. FMI will disseminate the project results

through publications in journals, presentations at conferences and through incorporation of advances in its lecture notes.

Institut de Geomàtica will exploit the results of DiCoMa in established cooperation with the local authorities responsible for disaster management (application), in further scientific qualification of personal and scientific publications (science) and as the foundation for advanced UIs for GIS (pre-commercial development) that will form the basis for future product developments in collaboration with industry and public authorities.

Concerning dissemination, the **University of Seville** usually publishes the results of its research in international journals and transactions, mainly of the IEE and IEEE societies. Its members also participate in different conferences and symposia where the results of this project will be disseminated.

Due to the nature of the institution, the exploitation of results will be made by means of its participation in future research projects and contracts with industrial partners.

The **Universitat Politècnica de Catalunya (UPC)** will research and develop security mechanisms in the cloud. The UPC will disseminate its work during the project in top level journals and conferences, and by means of different M.Sc. and lectures all over the world. The expertise and knowledge gained by the UPC as a result of the project will let future engineers from the UPC a better education in the cloud computing field.

Oulu University of Applied Sciences (OUAS). OUAS will primarily disseminate project results in the form of publications on conferences, seminars, workshops and/or journals. Besides this, OUAS will exploit the results of DiCoMa in established cooperations with the local authorities responsible for disaster management.

VTT will participate on dissemination of the results by attending to DiCoMa workshops and seminars. The developed DiCoMa techniques and applications will be disseminated in the form of conference and journal papers. At exploitation level, VTT is going implement a command and control centre (C3) for managing the disaster control information. C3 includes control systems with information gathering and exploitation, data delivery and monitoring. VTT will integrate results and prototypes with its Finnish industrial cooperation partners.

Deusto aims to deploy prototypes in local agencies such as Ertzaintza (Autonomic Police from Basque Country, Spain) or at Firemen Department from Biscay.

DiCoMa results will boost **UdG** ongoing research in the fields of smart grids crisis management, emergency services coordination and optimal resource allocation. Experience in this project will increase our technology transfer capabilities and will ease the constitution of a spinoff which we are considering to set up.

5. Plus/Minus Report and risks

5.1. Past period

+/-	Description	Impact description	Action
	Organisational		
-	The German, French, Belgian and Greek subconsortiums did not get funding. In the Spanish subconsortium Creativ IT and IDEG left the consortium. In Israel, the company RUNCOM decided to leave the project. In Turkey, C2Tech abandoned the project but there was a new addition to Dicoma:NETCAD. In the Finish subconsortium, the following companies withdrew from the project: Goodmill subsystems, Special Code, Sunit and Sec Control.	SIGNIFICANT global impact on the project, since the budget and the person years have been reduced. German and French subconsortiums had a considerable participation in the project, both in terms of budget and person years (around 25% in the case of German Subconsortium and around 12% in the case of French Subconsortium). In addition, German cosortium were overall project leaders. Regarding the impact on the project of the Belgian and Greek withdrawals is low. Belgian partners had moderate participation and Greek partners had a minor participation. Regarding Spanish, Turkish, Israeli and Finish partners withdrawals, the impact to the project will be low in the case of the Spain and Turkey, and moderate due to the abandons of Finish and Israeli partners	Change in overall project leadership. Indra Software Labs has volunteered to take on this leadership. Decrease in the project scope, including a significant reduction of deliverables to compensate for the subconsortiums and partners withdrawals,. FPP CR1 was prepared to describe in detail all these issues(modifications to the project overall structure, WP and task leaderships, effort balancing between tasks and work packages, etc.).
+	Consortium communication.	Project is running under control and project progress is discussed among members.	It is planned to continue with this communication policies.
+	Project management structures have been created.	There is a structure to support the management activities, created since the project proposal was written.	No actions are needed.
+	Project handbook is available.	Templates for documents and information of the project management structures.	The handbook is available to all the project partners.
	Overall Progress		
	Work scheduled started as planned in FPP CR1	Most of the scheduled tasks started on time	None for the moment.
+	The project web portal is available. http://innovationenergy.org/dicoma/	There is a centralized server to manage and disseminate the project.	All partners have an account to access the project private areas to share documents.
	Demonstrators		Not applicable in this period.
	Work Packages		
-	WP1	German Consortium left the consortium and had strong efforts in this WP.	Change leadership. Mattersoft has volunteered to take on this leadership. Reduction in the number of deliverables, removing the intermediate ones, stepping down from 29 to just 6 final deliverables. Task 1.6 was dropped.

+/-	Description	Impact description	Action
-	WP2	French Consortium withdrawal implies a significant decrease of burden in WP2 "User Interface Techniques"	Answare Tech takes the leadership of this WP. Some actions have consisted on dropping some of the activities included in the scope of the package, such as the research to be done on advanced techniques for interaction and information visualization or some of the research to be done on ergonomic and cognitive aspects
-	WP3	Decrease of efforts due to several partners withdrawals from subconsortiums.	The scope of the tasks is reduced but effort has been done to limit this reduction only to the direct impact of the elimination of partners and reduction of allocated person years. Reduce the number of deliverables (from 18 to 3), dropping the intermediate ones.
-	WP4	Decrease of efforts due to several partners withdrawals from subconsortiums.	Drop some of the research lines included in the scope of the package, such as the development of agent based services or the implementation of soft data fusion services. Reduce the number of deliverables (from 20 to 12), dropping the intermediate ones.
-	WP5	The impact on the project of RUNCOM(Israeli) withdrawal will be somewhat significant, since their participation in the project was not trivial. In particular, they were especially active in WP5, where they had concentrated most of their efforts.	Concentrate on Tasks 5.2 and 5.3, leaving only minor activities for Task 5.1. Reduce the number of deliverables (from 12 to 8), dropping the intermediate ones.
-	WP6	French Consortium withdrawal implies a crucial decrease of burden in WP6 "Process interoperability& Standarization". Man-hours in this WP6 corresponded to French partners.	Indra SW labs assumes the leadership of this WP. WP6 scope is proposed to be totally modified. The scope now is limited to follow the most important international standards development, providing guidelines to apply the standards in practice and positioning the project outcomes with regard to these standards as well as the existing standards. Reduce the number of task (form 6 to 1) and the number of deliverables (from 11 to 1) dropping the intermediate ones

+/-	Description	Impact description	Action
	WP7 Leader: Indra Software Labs	Belgium partners were supposed to lead this WP and they did not get funding.	Indra SW labs assumes the leadership of this WP. Slight decrease in the project scope, which will be partially compensated by the rest of the members of the consortium, by taking on some of the chores initially intended for Belgian members. Reduce the number of deliverables (from 5 to 4), dropping the intermediate ones.
	WP8 Leader: Mantis	Decrease of efforts due to several partners withdrawals from subconsortiums.	Drop some of the activities included in the scope of the package, such as the organization of external DiCoMa workshops and the creation of a DiCoMa working group to support the exchange of information with other projects Reduce the number of deliverables (from 4 to 3), dropping the intermediate ones.
+	Work packages scheduled started as planned in FPP CR1.	Most of the scheduled tasks started on time	None for the moment.

5.2. Upcoming period

For the next period the following risks have been identified:

Risk Type	Description	Actions
Organizational	Task delay	Identify bottlenecks and check tasks dependencies to minimize their impact over the project
Technical	Too many requirements	Prioritize requirements based on their relevance in DiCoMa workshop planned for September 2012 in Turkey.
Technical	Complex operational environments	Reach a consensus on what operational guidelines are critical and really needed. Produce an initial set of guidelines and then follow them.

6. Manpower[3]

PARTNER			2011	2012	2013	2014	TOTAL
Answare	ESP	Spent	0,13	1,00	0,00	0,00	**1,13**
		Planned	0,10	3,00	3,30	0,20	**6,60**
Athena GS3	ISR	Spent	0,00	0,77	0,00	0,00	**0,77**
		Planned	0,00	3,90	6,60	2,60	**13,10**
Centre de Visio per Computador	ESP	Spent	0,00	0,00	0,00	0,00	**0,00**
		Planned	0,20	0,50	0,50	0,10	**1,30**
Finnish Meteorological Institute	FIN	Spent	0,00	0,03	0,00	0,00	**0,04**
		Planned	0,00	0,50	0,20	0,00	**0,70**
INDRA	ESP	Spent	0,00	10,20	0,00	0,00	**10,20**
		Planned	0,00	21,75	17,72	0,48	**39,95**
Infotripla Ltd	FIN	Spent	0,00	0,07	0,00	0,00	**0,07**
		Planned	0,00	0,23	0,22	0,06	**0,51**
Mantis	TUR	Spent	0,00	2,52	0,00	0,00	**2,52**
		Planned	0,00	6,20	6,10	3,70	**16,00**
Mattersoft	FIN	Spent	0,08	0,54	0,00	0,00	**0,64**
		Planned	0,00	1,03	1,03	0,57	**2,63**
Mobisoft	FIN	Spent	0,07	0,54	0,00	0,00	**0,61**
		Planned	0,50	1,56	1,01	0,00	**3,07**
Netcad	TUR	Spent	0,00	1,60	0,00	0,00	**1,60**
		Planned	0,00	9,20	2,90	3,80	**15,90**
Oulu University of Applied Sciences	FIN	Spent	0,00	0,14	0,00	0,00	**0,14**
		Planned	0,00	0,50	0,10	0,10	**0,70**
SAVOX	FIN	Spent	0,00	0,00	0,00	0,00	**0,00**
		Planned	0,20	0,30	0,20	0,00	**0,70**
University of Deusto Tech	ESP	Spent	0,00	0,05	0,00	0,00	**0,05**
		Planned	0,00	0,50	0,50	0,60	**1,60**
University of Girona	ESP	Spent	0,00	0,12	0,00	0,00	**0,12**
		Planned	0,00	0,50	0,70	0,00	**1,20**
University of Seville	ESP	Spent	0,00	0,20	0,00	0,00	**0,20**
		Planned	0,00	1,00	0,70	0,00	**1,70**
University of Technology in Catalunya	ESP	Spent	0,00	0,05	0,00	0,00	**0,05**
		Planned	0,00	0,40	0,40	0,00	**0,80**
VTT Technical Research Centre of Finland	FIN	Spent	0,00	0,40	0,00	0,00	**0,40**
		Planned	0,00	0,40	0,60	0,60	**1,60**
	Total	**Spent**	**0,28**	**18,23**	**0,00**	**0,00**	**18,51**
		Planned	**1,00**	**52,50**	**42,32**	**12,24**	**108,06**

[3] A detailed how-to document for the ITEA 2 Community website can be downloaded from http://www.itea2.org/call_documents.