

EUREKA PROJECT FORM

(public document)

	EU
CM:	

1. General Information

1.1 Acronym

WEBAIR

1.2 Umbrella (if applicable):

EUROENVIRON

1.3 Title	Web-based air quality assessment and management	
1.4 Summary	WEBAIR builds a web based real-time multi-media information- and decision support system for urban and industrial air quality assessment and management integrating on-line monitoring and modelling, in support of relevant EU Directives.	
1.5 Main EUREKA Technological Area	<input type="checkbox"/> Medical- & Biotechnology <input type="checkbox"/> Lasers <input type="checkbox"/> Communications <input type="checkbox"/> New Materials	<input type="checkbox"/> Energy Technology <input type="checkbox"/> Robotics & Production Automation <input checked="" type="checkbox"/> Environment <input type="checkbox"/> Transport <input type="checkbox"/> Information Technology

1.6 Budget and Duration		Budget (MECU)	Duration (Months)
	Definition Phase	0.400	6
	Implementation Phase	2.000	30
	Total	2.400	36

1.7 Start Date	01 07 2004
-----------------------	------------

1.8 EUREKA Country (Member) Contribution	Country	Contribution (%)
	Austria	35
	Poland	15
	Russia	
	Cyprus	5
	Morocco	10
	Finland	10
	Portugal	10
	Switzerland	15

1.9 Partners Sought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks	The project invites industries subject to the MIPS Directive or cities subject to the Air Quality Framework Directive as test users of the system. Technology partners sought include manufacturers of monitoring equipment for meteorological data, ambient air quality, emissions, and traffic data.

EUREKA PROJECT FORM

(public document)

2. Project Outline

2.1 Description (approximately one A4 page)

WEBAIR will develop, test, and implement a web-based information- and decision support system for urban and industrial air quality assessment and management in support of relevant EU Directives such as the Air Quality framework Directive for urban conglomerates (96/62/EEC) and major industrial emission sources such as thermal power plants (88/609/EEC) or incinerators (89/429/EEC, 89/369/EEC), and 90/313/EEC on freedom of access to environmental information.

The emphasis is on real-time analysis and multi-media information, and the support of distributed and mobile clients through the Internet. The approach integrates meteorological data and forecasts, air quality and emission monitoring including mobile sources such as traffic, dynamic 3D simulation modelling and forecasting, GIS, expert systems, optimisation, decision support and reporting tools in a unified, modular client/server framework implemented as a range of web accessible application services. WEBAIR is a direct continuation and extension of E!1388 AIDAIR and several EU sponsored RTD projects under Framework 4 and 5, and aims at developing and integrating the proof-of-concept prototypes developed there into commercially viable products through a series of pilot applications.

The basic idea is to offer an integrated set of tools to support regulatory compliance and reporting requirements for and on behalf of cities and industries subject to the above environmental directives. The basic business concept is complete or partial outsourcing of a range of web-accessible application services for distributed and mobile clients. Regulatory reporting as well as public information is the information product derived as an added value service from basic meteorological and environmental data. Value added in public-private partnership, and open access to environmental information as foreseen under (), packaged as attractive, informative, and educational multi-media content for a range of user communities, are key concepts.

Technically, the emphasis is on real-time analysis, combining on-line monitoring and model-based assessment into multi-media information and report for a broad range of consumers, including the general public interested in environmental quality. The support of distributed and mobile clients through the Internet adds an additional business perspective for network and mobile phone operators

The approach integrates a range of real-time and on-line data sources and tools: meteorological data and forecasts, air quality and emission monitoring including mobile sources such as traffic from on-line observations and counts, dynamic 3D simulation modelling and forecasting, GIS, expert systems, optimisation, decision support and reporting tools in a unified but modular client/server architecture implemented as a range of web accessible application services. In addition to real-time monitoring and assessment with on-line publication of the information in real time as well as forecasts, and regular compliance reporting to meet regulatory requirements, the tools will also support strategic analysis of emission control strategies using complex optimisation technologies.

WEBAIR is a direct continuation and extension of E!1388 AIDAIR and several EU sponsored RTD projects under Framework 4 and 5, including SUTRA (Sustainable Urban Transportation under the City of Tomorrow Key Action, and ENV-e-CITY, the

EUREKA PROJECT FORM

(public document)

Environmentally viable electronic City project under the IST eContent programme).

The project aims at developing and integrating the proof-of-concept prototypes developed in these RTD projects into commercially viable products through a series of pilot applications within the framework of a business plan and exploitation and marketing strategy that is one of the auxiliary components of the project.

2.2 Technological Development Envisaged

The technological developments in WEBAIR will focus on a number of specific closely related areas:

- Acquisition and real-time processing of monitoring and observation data; the emphasis is on capture of potentially large volumes of diverse data, efficient storage, quality assurance (plausibility, completeness, consistency) and retrieval in support of real-time processing, integration of diverse data sources including meteorological data and forecasts, air quality monitoring, satellite imagery, emission monitoring, and traffic observations.
- Integration of real-time modelling tools to augment the monitoring data from a few locations into a complete yet detailed spatial coverage of air quality information; in addition to the real-time now-casting and data assimilation, short and medium term forecasts based on meteorological forecasts and dynamic emission models will be run on a regular basis, synchronised with the observation frequencies. Fuzzy scenarios will be used where appropriate.
- Specific research topics will include complex terrain, coastal locations and sea breeze, urban heat islands, behaviour of fine particles (PM2.5) and the explicit treatment of urban structures in dynamic 3D models
- Specific modelling components will include an emission model for traffic linked to real-time traffic observations and meteorological conditions, as well as an optimisation model for more strategic emission control issues.
- Translation of this information into a range of attractive multi-media formats for web access including low-resolution mobile clients with a range of protocols as well as the automatic generation of summary reports over various periods according to the regulatory requirements.
- Testing these components by several teams in the consortium in several case studies and pilot installation under real operational conditions in a number of applications and developing the necessary exception handling and error correcting methods for an automatic but highly reliable assessment and high availability mission critical performance.
- Important development goals for the integrated system include issues of quality assurance, reliability, scalability and response speed, bandwidth requirements and constraints, error and exception handling, ease of use and understanding, and the integration in the institutional structures and processes of client organisations. These Usability issues, closely related to economic feasibility of the proposed set of tools and services, will be the focus of the test case evaluation.

EUREKA PROJECT FORM

(public document)

2.3 Market Application and Exploitation

WEBAIR is designed as an integrated but modular set of application services that can be delivered from a dedicated service provider via the Internet. The business model envisions the tools to be offered as a service for and on behalf major industries and government (from cities to regions to the national level) subject to the respective European Directive and thus potential users of these systems and services, on a subscription basis.

The market for this kind of outsourcing of tools required for regulatory compliance is constituted by about 1,000 cities in geographical Europe subject to the Air Quality Framework Directive (96/62/EEC and daughter Directives), and several thousand industrial plants including thermal power plants and incinerators. A specific sector of the market can be expected in the new member states that are still working on the implementation of EU environmental regulations and Directives.

Initial costs benefit analysis shows that the system, offered as a commercial product can reach profitable operation and break even after the completion of the WEBAIR project within 5 to 7 years, depending on the assumptions on market penetration, provided that the necessary capital for marketing and the initial operational phase can be raised.

EUREKA PROJECT FORM

(public document)

3. Main Participant			
3.1 Organisation Name			
Full Name	Environmental Software & Services GmbH		
Parent Organisation	n/a		
3.2. Organisation Address / Switchboard			
Street	Kalkgewerk		Nr: 1
Postal Code	A-2352	City	Gumpoldskirchen
Province (Region)	Lower AUSTRIA	Country	AUSTRIA
Telephone	+43 2252 63305	Fax	+43 2252 633059
3.3. Contact Person Data			
Last Name	FEDRA	First Name	Kurt
Function	Director	Title	DDr.
Direct Telephone	+43 2252 63305 10	Fax	+43 2252 633059
E-mail	kurt@ess.co.at		
3.4. WWW Home Page			
www.ess.co.at			
3.5 Participant Identification Codes			
BSI codes	GD, MVG		
Nace Codes (SIC '92)	7310		
Type of Organisation	SME, private company		
3.6 Contribution to the Project			
<p>In addition to its role as project coordinator, ESS will act as one of the main developers and systems integrator. ESS will contribute its experience from the precursor project E! 1388 AIDAIR, as well as a number of EU sponsored RTD projects under Framework 4 and 5. For the demonstration cases, ESS will act as the initial Application Service Provider (ASP).</p>			
3.7 Expertise			
<p>ESS has considerable and proven long-term experience in the domain, reflected in successful initiation of and participation in a number of international RTD projects (http://www.ess.co.at/docs/gallery.html), mainly as project coordinator and main developer, including the E!1388 AIDAIR precursor project, as well as a long list of relevant publications in the domain (http://www.ess.co.at/docs/reports.html).</p> <p>ESS also distributes the AirWare software system which is intended as a core component of the WEBAIR developments (http://www.ess.co.at/AIRWARE/).</p>			

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	Gdansk University of Technology
Parent Organisation	

4.2. Organisation Address / Switchboard

Street	Narutowicza 11/12, Gdansk		Nr:
Postal Code	80-952	City	Gdańsk
Province (Region)	Pomorskie	Country	Poland
Telephone	48 58 347 24 55	Fax	48 58 347 18 61

4.3. Contact Person Data

Last Name	ORLOWSKI	First Name	Cezary
Function	Adiunk	Title	Ph.D
Direct Telephone	48 58 347 24 55	Fax	48 58 347 18 61
E-mail	cor@zie.pg.gda.pl		

4.4. WWW Home Page

www.ess.co.at/WEBAIR/
--

4.5 Participant Identification Codes

BSI codes	GD, LIP, MX
Nace Codes (SIC '92)	8030
Type of Organisation	University

4.6 Contribution to the Project

A major contribution of the Polish team will be the case study with a large volume of environmental data for a well defined location, compiled in close cooperation of Gdansk University of Technology and the Institute of Meteorology and Water Management of Gdynia. The pilot case will initially serve the regional institutions of the agglomeration of Three-Cities of Gdańsk, Sopot and Gdynia and the Voivodine Office in Gdańsk, an institution that has been assigned to supervise and prepare the development strategy for the Province. The Polish case study can be considered a reference case for other new member states of considerable market potential. For methodology, TUG will primarily contribute fuzzy set technology for air quality assessment tasks, and also work on multi-language extension of the system.

EUREKA PROJECT FORM
(public document)

4.7 Expertise

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	ATLANTIS CONSULTING CYPRUS LTD
Parent Organisation	N/A

4.2. Organisation Address / Switchboard

Street	M. Karaoli			Nr: 8
Postal Code	CY-1095	City	Nicosia	
Province (Region)	Nicosia	Country	Cyprus	
Telephone	+357-22-660482	Fax	+357-22-660516	

4.3. Contact Person Data

Last Name	PANAYIOTOU	First Name	CHARALAMBOS
Function	Managing Director	Title	Mr.
Direct Telephone	+357-22-660482	Fax	+357-22-660516
E-mail	atlantis@logos.cy.net		

4.4. WWW Home Page

www.atlantisresearch.gr (www.ess.co.at/WEBAIR/)

4.5 Participant Identification Codes

BSI codes	BLB.L
Nace Codes (SIC '92)	74
Type of Organisation	Limited Company

4.6 Contribution to the Project

The contribution of Atlantis Consulting Cyprus Ltd will be to implement and test the system in a major industry, specifically the Dekelia Electricity Power Station. The local project has two specific aims:

- 1) Evaluate and adapt the dispersion modelling tools (steady state, diagnostic wind field with multi-puff, and dynamic 3D Eulerian models) under coastal weather conditions.
- 2) Facilitate now-casting with optional data assimilation and scenario analysis capabilities together with monitoring data analysis in terms of the specific needs of the electricity industry.

EUREKA PROJECT FORM

(public document)

--

4.7 Expertise

ATLANTIS Consulting Cyprus Ltd is a private company specializing in environmental management, impact assessment, and air pollution modeling.

ATLANTIS has a very successful record having been involved in numerous large projects (both as coordinator and participant) for the government of Cyprus and for private organizations, including participation in three Life-Third Countries Projects, in FP6 Research Projects and in National Research Projects.

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	ORDECSYS
Parent Organisation	

4.2. Organisation Address / Switchboard

Mr. Organisation Address : Switzerland			
Street	Place de l'étrier		Nr: 4
Postal Code	CH-1224	City	Ch^ne-Bougeries
Province (Region)	Geneva canton	Country	Switzerland
Telephone	+41223482046	Fax	+41223482083

4.3. Contact Person Data

Last Name	Haurie	First Name	Alain
Function	Director	Title	Prof. Dr.
Direct Telephone	+41763869420	Fax	+41223482083
E-mail	contact@ordecsys.com		

4.4. WWW Home Page

www.ess.co.at/WEBAIR/
--

4.5 Participant Identification Codes

BSI codes	MYM
Nace Codes (SIC '92)	73
Type of Organisation	Sàrl registered in Geneva, Switzerland

4.6 Contribution to the Project

ORDECSYS will bring its expertise in the design and implementation of large scale optimization systems in the context of decision support for environmental management. In particular ORDECSYS will implement oracle-based optimization techniques that permit a coupling between techno-economic planning models, traffic models and air pollution simulation models.

4.7 Expertise

ORDECSYS is a company that offers services in the following domains:

- Industrial economics
- Logistics
- Environmental management

EUREKA PROJECT FORM

(public document)

- Decision support systems
- Risk management
- Technology based training

ORDECSYS can manage research and development contracts for SMEs or larger organizations. ORDECSYS is connected through a network of collaborative agreements with complementary corporations in the field of OR, Decisions and Systems, that are active in France, Canada and USA.

Currently ORDECSYS is particularly active in the domains of:

- risk management in strategic planning
- option contracts in supply chain management
- energy-economy-environment (E3) modeling.
- activity analysis and economic impact assessment

ORDECSYS is also the gateway to ACCPM which is a powerful convex optimization suite particularly well adapted to logistics and risk management applications. For more details visit <http://www.ordecsys.com>

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	GEMAC/Department of Environment and Planning
Parent Organisation	University of Aveiro

4.2. Organisation Address / Switchboard

Street		Nr:	
Postal Code	3810-193	City	Aveiro
Province (Region)		Country	Portugal
Telephone	+351 234 370200	Fax	+351 234 429290

4.3. Contact Person Data

Last Name	Borrego	First Name	Carlos
Function	Full Professor	Title	Professor
Direct Telephone	+351 234 400800	Fax	+351 234 382 876
E-mail	borrego@ua.pt		

4.4. WWW Home Page

http://www.dao.ua.pt/gemac/

4.5 Participant Identification Codes

BSI codes	GD, MVG
Nace Codes (SIC '92)	73
Type of Organisation	Research Institute (governmental)

4.6 Contribution to the Project

The contribution of the UAV to the project will be focused on the development of operational modelling tool for quantification of mobile source emissions. The model will integrate on-line traffic counting data and provide the road traffic emissions for the real-time air quality assessment.

4.7 Expertise

UAV has considerable and long-term experience in the field of air quality assessment including emission and air quality modelling. UAV has participated in a number of international RTD projects under Framework 5 and 6, including SUTRA (Sustainable Urban Transportation) project.

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	Finnish Meteorological Institute
Parent Organisation	Air Quality Research

4.2. Organisation Address / Switchboard

Street	Sahaajankatu			Nr: 20 E
Postal Code	00880	City	HELSINKI	
Province (Region)		Country	FINLAND	
Telephone	+358 9 19291	Fax	+358 9 19295403	

4.3. Contact Person Data

Last Name	Kukkonen	First Name	Jaakko
Function	Deputy Director	Title	Prof.
Direct Telephone	+358 9 1929 5450	Fax	+358 9 1929 5403
E-mail	Jaakko.Kukkonen@fmi.fi		

4.4. WWW Home Page

www.fmi.fi
--

4.5 Participant Identification Codes

BSI codes	AK, EI
Nace Codes (SIC '92)	73
Type of Organisation	Research Institute (government)

4.6 Contribution to the Project

Meteorological data, including forecasted and pre-processed data. Mobile weather services. Web tools/applications for processing meteorological data. Tools for air quality modelling.

4.7 Expertise

FMI has considerable and proven long-term experience in the meteorological and air quality modelling but also in developing weather services utilizing the modern technology (SMS,MMS,WAP) [<http://www.fmi.fi/products/weather.html>] .

EUREKA PROJECT FORM

(public document)

4. Other Participant

(If there are more "other participants", please duplicate this page.)

4.1 Organisation Name

Full Name	HassanII Mohammadia University, Faculty of Sciences and Technology Mohammadia (UH2M-FSTM)
Parent Organisation	N/A

4.2. Organisation Address / Switchboard

Street	Hay Yasmina		Nr:
Postal Code	146	City	Mohmmadia
Province (Region)	Casablanca	Country	Morocco
Telephone	21223314705/08	Fax	(212)23315353

4.3. Contact Person Data

Last Name	Benhachmi	First Name	Mohammed karim
Function	Teacher-Researcher	Title	DDr
Direct Telephone	21266696067	Fax	(212)23315353
E-mail	m.benhachmi@univh2m.ac.ma , benhachmikarim@menara.ma		

4.4. WWW Home Page

www.ess.co.at/WEBAIR/

4.5 Participant Identification Codes

BSI codes	LIP
Nace Codes (SIC '92)	8030
Type of Organisation	Research Institute (governmental)

4.6 Contribution to the Project

UH2M-FSTM will act as co-developer of the system, and in particular will provide their expertise in Mathematical modelling tools, multi-criteria optimization approaches and tools and the integration of simulation and optimization modelling as well as support a case study application for the city of Casablanca and Cimenteries. UH2M-FSTM will also coordinate the Moroccan consortium, with emphasis on urban GIS and information systems, integration with multimedia interface and scientific visualisation tools, including animated display data and

EUREKA PROJECT FORM

(public document)

models results, 3D GIS, hypertext/hypermedia capabilities and remote access through WWW browsers.

4.7 Expertise

The University Hassan II-Mohammedia, Faculty of Sciences and Technology (UH2M-FSTM). It is located about 25 kilometres from Greater Casablanca which is the centre of Moroccan industry and economy. The (UH2M-FSTM) is widely known at the national as well as at the international level for its high quality education. The air, environment fields and information systems constitute especially an active group.

Research areas include development and applications of experimental technology for engineering and science especially for Air quality , Computer Aided Design, Computer Assisted Software Engineering including Object Oriented Design and Implementation, Artificial Intelligence and Expert Systems especially using low-cost micro-computers.

Industrial experience highlights a program of continuing education incorporating environmental software for engineers and computational Air Monitoring.

The Department of Chemical Engineering and the Environment has organized successfully many advanced courses and workshops on Environmental Management and Monitoring for industrial participants.

EUREKA PROJECT FORM (public document)

5. Project Identification Codes			
5.1 Keywords	Air pollution	Air quality control	Decision Support System
5.2 BSI Codes	GD, MVG		
5.3 NACE Codes (SIC'92)	73		

6. Relationship with EU Programmes	
6.1 Is your project related to any EU programme(s)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks	Yes, but none currently ongoing. WEBAIR builds on the results of a number of EU RTD projects from the Telematics, Esprit (HPCN) ,IST (eContent), and EESD (City of Tomorrow) frameworks, aiming to further develop and integrate the results of these projects into a commercial product.

The participants signing below intend to co-operate within the project as described in this form with the aim realising the technical developments as set forth under point 2 and formally apply for EUREKA status to this project. In addition the participants have or intend to put in place, a formal collaboration agreement.

They undertake to provide their respective National EUREKA Office with updates of this form whenever significant change occurs, or at least once a year as well as a brief final report when finishing the project. They also agree to provide information on the exploitation of project results on a periodic basis.

They agree to include in any project related PR material, the EUREKA logo, the EUREKA number and acronym of the project.

Co-signature of main participant	
Organisation name	
Full Name	Environmental Software & Services GmbH

Name of PERSON signing			
Last Name	FEDRA	First Name	Kurt
Function in Organisation	Director		
Signature	<i>It is not possible to sign this form electronically!</i>		