



# ADMIRE

## Advanced Data Mining and Integration Research for Europe

European Commission  
Information Society and Media



**ADMIRE will advance the state of the art in distributed data integration and data mining on large-scale enterprise systems. ADMIRE will develop a flexible service-oriented “data architecture”, introducing new capabilities in the merging of different sources of information, and enabling researchers and analysts to ask – and answer – new kinds of questions in science and business intelligence.**

### At a Glance

#### Project:

ADMIRE – Advanced Data Mining and  
Integration Research for Europe

#### Project coordinator:

The University of Edinburgh (GB)

#### Partners:

University of Vienna (A)  
Universidad Politécnica de Madrid (E)  
Ústav informatiky, Slovenská akadémia vied (SK)  
Fujitsu Labs of Europe (GB)  
ComArch S.A. (PL)

#### Duration:

3 years

#### Total cost:

€4,346,077

#### Programme:

Seventh Framework Programme  
Theme ICT-1-1.2

#### Further information:

<http://www.epcc.ed.ac.uk/admire>

### Understand the Challenge

Today’s growing wealth of digital data in Europe is poorly exploited. Advances in storage, pervasive computing, digital sensors and instrumentation have led to massive growth in the volume of data collected and the number and complexity of data repositories. This growing wealth of data has an increasing potential to yield great benefits to citizens, science and business as it contains vital hidden knowledge.

Typically, to extract that knowledge requires data mining over combinations of data from multiple data resources. Today, designers, diagnosticians, decision makers or researchers who need such knowledge face difficult hurdles. To extract information from heterogeneous and distributed sites they have to specify, in great detail, the sources of data, the mechanisms for integrating them and the data mining strategies for exposing the hidden gems of information. Consequently, with the current state of the art, most of that hidden knowledge remains undiscovered.

### ADMIRE the Solution

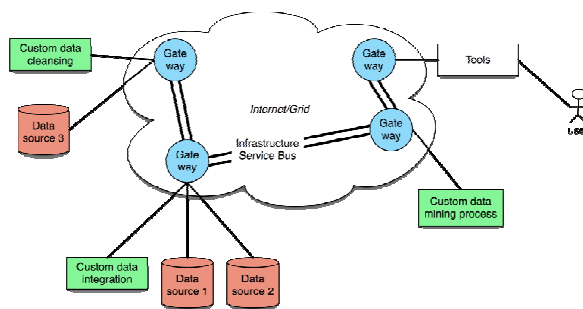
ADMIRE will accelerate access to, and increase the benefits that can be gained from, data exploitation for the European citizen and economy. It will achieve this by delivering consistent and easy to use technology for extracting information and knowledge. To cope with complexity, change and heterogeneity of services, data, and processes, an abstract view of data mining and integration will be provided.

This will provide power to users and developers of data mining and integration processes.

## ADMIRE the Details

### THE ADMIRE INFRASTRUCTURE

The ADMIRE infrastructure will enable a set of gateways connected together over the Internet and Grid. The gateways communicate with one another using ADMIRE-developed standard representations over the Infrastructure Service Bus. Each gateway provides a core set of data mining and integration services, which can be driven using a high-level language as shown below.



ADMIRE's High Level Architecture

### DEMONSTRATING THE IMPACT

ADMIRE will develop a high-level language and tools that allow dynamic mapping of abstract, data-intensive processes onto a service-oriented architecture, thereby integrating the underlying components.

The proposed approach to integration will have a wide impact on enterprise-scale systems and will provide much commercial advantage as it allows a flexible and standardised way of process development and maintenance by service component composition. This will result in an increase in reliability of service-based process enactment and vastly improve the potential exploitation of data-handling processes developed to run across distributed, dynamically assembled, evolving data services.

### ACCELERATING ACCESS TO DATA

ADMIRE will accelerate realisation of the benefits that can be gained for the European citizen and economy from today's burgeoning wealth of digital data. ADMIRE will take a radical approach to data mining and data integration, building on and integrating four key ingredients: data mining, data integration, semantic grid technologies, and an advanced, industry-produced *Infrastructure Service Bus*

(*ISB*). This integration allows the production of consistent and easy to use technology for extracting information and knowledge from distributed and heterogeneous sources of data.

### REAL-WORLD SCENARIOS

ADMIRE will explore two detailed data-intensive scenarios to test the technology:

1. Flood modelling and simulation, and
2. Customer Relationship Management.

The *flood modelling and simulation application* is a cascade of meteorological, hydrological and hydraulic models, which together allow users to predict flood hazards based on meteorological forecasts. ADMIRE provides an excellent opportunity to advance the model, and provide additional analytical tools which will speed up the simulation process and allow users to take better-informed decisions in controlling the workflow and data management within the application.

The *Customer Relationship Management application* provides support to "front office" business processes including sales, marketing and service. Each interaction with a customer is generally added to a customer's contact history, and staff can retrieve information on customers from the database as necessary. Through integrating the CRM application with ADMIRE the application will be extended from a tool primarily for sales operatives to an analytical tool for managers, allowing them to respond more quickly and accurately to customer needs.

### ADMIRE in Summary

Europe leads the world in its use and development of advanced service-orientated business solutions. By focussing on advanced data mining and integration, ADMIRE will advance the state of the art on such enterprise systems by showing how an integrated approach will deliver significant new capabilities with which to address the next generation of digital data challenges.



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