



atira**casestory**

# New research management platform for Flanders, Belgium

Authors: Bo Alroe, Bo Gundersen

Date: February 7, 2008

Version: **1.0**

# Content

1. Project description .....	3
1.1. Research exhibition and management platform .....	3
1.2. The FRIS programme .....	4
1.3. Timeframe .....	4
1.4. Preceding work .....	4
1.5. Partner relation .....	4
1.6. Contact information .....	4
2. Technical solution description .....	5
2.1. Data model .....	5
2.2. Ingestion .....	5
2.3. Admin web application .....	5
2.4. Public views .....	6
2.4.1. Public portal .....	6
2.4.2. OAI data provider .....	6
2.5. Business rules and logic .....	6
2.6. Other .....	6
2.7. Technical platform .....	6

# 1. Project description

---

Atira A/S is happy to announce the collaboration with Flemish government authority EWI regarding design, development, implementation and future maintenance of a new national-level research management platform and portal for Flanders, Belgium.

EWI, the "Departement Economie, Wetenschap en Innovatie", is the department for Economy, Science and Innovation under the "Vlaamse Overheid" in Belgium, which again is the government authority for the Flemish-speaking community in Belgium, Flanders.

## 1.1. Research exhibition and management platform

Information about Flemish research Projects, Researchers and Research Organizations will be available from this portal from the beginning, and the solution will support any later addition of similar information about Publications. Importantly, all relations between each of these content types will be intact, providing easy browsing and comprehensive reporting capabilities.

Such information will be provided by all research institutions within EWI's domain; Flemish universities, university colleges and other government research organizations.

The solution will allow these research institutions to supply data to the solution in two ways: Either by upload of XML files or by opening their local systems for scheduled harvesting over the OAI-PMH protocol from the solution's harvesting mechanism. Further, data suppliers can log in to the solution and manage their own data sets; roll-back is an option, among other things.

The data format for submission will be based on CERIF XML but handling specific EWI business rules regarding data validation and ingestion. Once submitted to the solution, data will be in the CERIF2006 format. For more information about CERIF, the Common European Research Information Format, please see [www.eurocris.org](http://www.eurocris.org).

The solution includes two ways of making data available for users, called public views. One is the public portal, the other is an OAI-PHM based data providing mechanism that allows harvesting of data from the solution. Data to both views are CERIF2006, too, and CERIF XML is offered from the OAI provider.

The public portal offers a graphical user interface by which users are offered an array of modern search and filtering options, as well as options for saving results to their desktops.

The ability for EWI to carry out statistical and other analysis at national level is part of the scope, too, and the solution makes data available for EWI for that purpose.

## 1.2. The FRIS programme

EWI has recently defined a program for the Flemish research area, dubbed FRIS: Flemish Research Information Space. The central vision of the FRIS program is to encourage and support research and development in recognition of its central role in the knowledge economy. For more information, download the article "e-FRISiency - an asset for Flanders" (EWI-REVIEW, January 2008, Issue no. 3, p. 23-25).

A mix of existing and new information technology will comprise the vast IT infrastructure, which will be necessary to support the many business processes that underlies the flemish research area. The new solution is going to be a core component in that infrastructure, covering in part FRIS' vision for providing information about available research to stakeholders such as other research organizations, students, private sector businesses and individual citizens.

Particularly, the solution answers to two general trends in european governments' research policies, which are not exclusive for the FRIS program: One is that information about government funded research must be made publicly available. The other is governments' increasing efforts to measure research in terms of productivity and quality for different purposes, e.g. to support future funding allocation decision or to execute incitement programs.

## 1.3. Timeframe

Contracts for this collaboration were finalized in December 2007 and signed in January 2008. The FRIS-RP is expected to go live by June, 2008.

## 1.4. Preceding work

I nearly 2007, this contract was preceded by a contract between the same parties for a smaller, interim research portal with a limited data-set. Information about this interim solution is available at [http://www.atira.dk/en/pure/articles/EWIportal\\_en.html](http://www.atira.dk/en/pure/articles/EWIportal_en.html). The interim portal was developed and went into production in 2007, and it will exit production when the FRIS-RP takes over this summer.

## 1.5. Partner relation

The solution is architected and developed by Atira A/S and formally supplied to THV EDS-Telindus, the consortium for the Flemish government. Contracts were entered into with this party on behalf of EWI.

## 1.6. Contact information

Atira A/S  
Niels Jernes Vej 10  
NOVI  
DK-9220 Aalborg OE  
Denmark  
Telephone +45 96 356 100

THV EDS-Telindus  
Consortium voor de Vlaamse overheid  
Koning Albert II laan 15  
1210, Brussel  
Belgium  
Tel:+32 2 553 05 00

## 2. Technical solution description

---

### 2.1. Data model

CERIF2006 is the data model of choice for this solution. CERIF is the European standard for research registration. For more information, please see [www.eurocris.org](http://www.eurocris.org).

Ingestion is done in CERIF2006 XML, the formal CERIF data exchange format. For the purpose of this solution, a local CERIF XML variant is used for handling a number of EWI-specific business rules. This CERIF XML definition work was done by Atira based on EWI's documentation of the rules. Also, a small application was delivered for supplementary data validation to overcome certain inherent shortcomings of XML schema.

At database level, data is multi-versioned CERIF2006; a project-specific invention devised in order to handle EWI's request for roll-back options and other features depending on history- and versioning ability. However, once data has been successfully added to the system, a pure CERIF2006 representation is used.

This is the case for all public views, which are available in pure CERIF2006 only.

Finally, the solution makes data available as an OAI data provider in CERIF XML.

### 2.2. Ingestion

Ingestion can be handled either by XML file upload or by OAI-PHM based harvesting from the individual institutions' own databases. Either way, data must be represented as CERIF XML.

Each supplier can access a central administrator's application, by which the supplier can manage its own data; roll back of submissions are among the data management options. This application is available for all submitted data sets, no matter if they were uploaded or harvested.

The solution's OAI harvesting mechanism executes based on schedules, which are administered in the admin web application.

### 2.3. Admin web application

Authenticated users can access a graphical admin user interface.

Data providers (appointed employees of the Flemish research institutions) can carry out data validation, administer roll-back and perform similar operations. EWI staff can also access the application, but for different administrative tasks - the administration of data providers being one of them.

## 2.4. Public views

The term describes how data for public access is exposed in views to the database.

In the first version of the solution, this view supports public data exhibition in two different ways: It feeds the public portal and it feeds an OAI data providing mechanism.

### 2.4.1. Public portal

The portal is the central way of making information about Flemish research available to the public. A set of search and filtering features are available, as is number of ways for users to save their results. The retained relations between all content objects becomes a major advantage here, allowing the user to browse effortlessly from researcher to organisation, from organisation to project, and so on.

### 2.4.2. OAI data provider

Data providing allows any external party to retrieve data represented as CERIF XML over the OAI protocol, and industry standard.

## 2.5. Business rules and logic

Business rules and logic in general is handled in two separate cores, advanced and simple. Advanced core handles writing, multi-versioned data sets, roll-backs and similar demanding operations. Opposite to this, simple core handles reading only from the the public views - a much different task, which also agues this architecture.

## 2.6. Other

The description above focuses on how research data is handles in the solution. However, other content and other processes are handled too - among these are user data, news, portal pages and logs.

## 2.7. Technical platform

The FRIS research portal will be realized as a Java application using a number of industry standard frameworks and components. Related to database, those include the Hibernate ORM framework, and the primary structural components are Java and Sun's Java System Application Server in the enterprise edition. Database and transaction configuration is done through the Spring framework, and the primary web interface components are JavaServer Faces, Facelets for view rendering, and the Tomahawk utility components.