Abstract – This paper presents the collaboration component of the EDUSAN System, developed in the frame of a Research of Excellence (Ceex) 2005-2008 (PC-D03-PT00-300 - A Complex Integrated System for Health Education and Disease Prevention–EDUSAN). This collaboration component is applying to the institutions involved in the Health Education and Diseases prevention at local, regional and national level.

1. INTRODUCTION

The EDUSAN project finds a place among the thematic fields - ICT meeting societal challenges – in the frame of Research of Excellency Programme (CEEX 2005), aiming to improve the capacity of preventing diseases, to facilitate an early diagnosis and to realize a health information web-space for knowledge.

Inside EDUSAN system, the Collaboration subsystem for the institutions involved in the health education and diseases prevention is organized on a database structure with specific tables and includes a web-based interface, providing the facility of experiences and training offers exchange, listing the partnership proposals and the main national and international health programs. The system interface includes links to the database interrogation scripts and to the specific forms for adding, modifying and deleting database records, under the users’ authentication process.

2. INVOLVED ELEMENTS AND DATA TYPES

The main beneficiaries of the data presented through this system are the institutions involved in the health education and diseases prevention and also any citizen who wants to inform himself, accessing the public data on the web site.

In term of the rights access to the system functions, the users are split into two categories:
- unauthenticated users – any person who want to access the public system resources;
- authenticated users – the agents of the institutions involved in the health education and diseases prevention which have access to view the database information and also to add, modify and delete the records specific to their institution. The system administrators have also the rights on the administration interface in order to validate the record data.

On the data representation mode in the system, the data are grouped as following:
- authentication data – user name and password for the agents of the institutions involved in the health education and diseases prevention;
- identification data – a) the identification data of the contact persons for each institution (name, surname, function, e-mail address, etc.); b) the identification data of the institutions (name of the institutions, type, address, phone, fax, e-mail, web page etc.).
- specific data (for each module). This type of data is represented by text information which represents: calls for experiences exchange, training offers, partnership proposals, information related to the national and international health programs, etc.

3. ARCHITECTURAL MODEL AND COMPONENT TABLES

The architectural model of the Collaboration subsystem was developed in the designing phase and built around of those 4 specific modules: Experiences exchange, Training, Partnerships, Health Programs (figure 1) [1].

Each sub-module presented in the architectural model must include information recorded into a table with a common structure, as following:

<table>
<thead>
<tr>
<th>Table 1. The &quot;Anunturi&quot; table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calling data</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The mentioned table fields should contain the following information:
- *Call_code* - a unique value for each call added into the table;
- *Institution_code* - similar with that one from the "Inscriere institutie" form, the field value precisely showing to what institution the call belongs;

1 Valahia University Targoviste, Electrical Engineering Faculty, Science of Systems, Informatics and Automatics Department, Targoviste, Romania, Phone: +40-245-217683. Authors e-mails: gmasaduc@yahoo.com, mihaibizoi@yahoo.com, ggorghiu@yahoo.com
- **Publication_date** - the date when the call was record into the database;
- **Expiring_date** - the call expiring date;
- **Call** - a detailed call description;
- **Observations** - optional information related to the call.

**Figure 1. The architectural model of the Collaboration Subsystem**

The information updating process will belong to the institutions agents who can be authenticated to the system based on the data filled in the registration process of the institution.

The data recording and updating from the table should be made through the “Anunturi” - Calls form, the same for all four sub-modules.

The registration procedure of each institution should be realized through the “Inscriere institutie” – Institution subscribing special form associated to the table with the same name, which allows the registration of a new institution in the institutions table, in order to fill in the specific data into the calls table.

Also, the authentication process of the institution must be made through a particular form associated to the "Autentificare institutie" – Institution authentication table.

The tables’ structure is presented below:

<table>
<thead>
<tr>
<th>Table 2 The &quot;Inscriere institutie&quot; Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution data</strong></td>
</tr>
<tr>
<td>Institution_code</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Phone</td>
</tr>
<tr>
<td>Email</td>
</tr>
</tbody>
</table>

| Function | Password | Confirm_password | Institution_code |

The data form contains two different parts. The first part includes the fields related to the institution information as following:
- **Institution_code** - a value which uniquely identifies each registered institution; this field can be found also in the Anunturi table structure;
- **Institution_name** - the institution name registered in the database;
- **Type** - the institution type;
- **Address** - the institution address;
- **Phone and Fax** - the phone and fax number for the institution contact;
- **Email** - the institution e-mail address used for communication;
- **Webpage** - the URL address of the institution.

The second part of the form contains the fields for the authenticated users, the agents of the institutions involved in the health system which will have access to the database in order to do all the necessary actions to maintain the information specific to their institution: to add, to modify and to delete records.

The fields of the second part are the following:
- **User_name** - the name used by the institution agent to connect to the public health system with direct access to the database information;
- **Function** - the function name occupied by the agent within the institution;
- **Password and Confirm_password** - the same string used by the agent to connect to the system;
- **Institution_code** - a value which uniquely identifies each institution; this field is the same in the Anunturi -Calls table.

4. **THE DATABASE STRUCTURE**

The Collaboration subsystem was implemented on a MySQL server. The subsystem specific data are recoded in a relational database on this server. The database tables contains information related to the public health institutions which populates and will continue to populate the database with data, through the agents designated by their institutions, and also information about training offers, collaborations and partnerships proposals, health programs.

The database is organized in several tables:
- **Oferte (Offers)** – the list of the training offers;
- **Parteneriate (Partnerships)** – the list of collaborations and partnerships offers;
- **Programe (Programs)** – the list of national and international health programs;
- **Institutii (Institutions)** – contact information of the public health institutions;
- **Inregistrari (Registrations)** – buffer table for users’ registration;
- Users\_info – contains additional information related to the users;
- Users – users list;
- Users\_Groups – necessary for the authentication system;
- Groups – necessary for the authentication system;
- sessions – temporary records the authenticated users sessions.

Figure 2 presents the database tables list using the MySQL Query Browser [2].

The Instituții (Institutions) table provides the contact information of the public health institutions involved in the data uploading and updating processes, on the collaboration subsystem database.

The training offers are recorded on the Oferte (Offers) table. These offers are represented like calls of the institutions.

The Parteneriate table records the collaboration partners searching offers published by the public health institutions.

The additional users’ information is recorded on the Users\_info table.

The edusan.ssai.valahia.ro website also provides a list of national and international public health programs. These programs are recorded on the Programe table.

5. THE WEB INTERFACE

The Web Interface of the Collaboration subsystem implements the architectural model of the subsystem having in view all the features presented: involved elements, data types and forms [3].

The CollaborationSubsystem and its interface can be explored at http://www.edusan.ssai.valahia.ro (Figure 4).

The first page of the web interface allows the access to the main functions of the subsystem: Experience exchanges, Training, Partnerships, Health programs, named according to the sub-modules names. The links through the subsystem functions are specified in the main menu, on the left side of the page.
Figure 4. The homepage of the Collaboration subsystem

A link to a page which contains links to the web sites of a part of the public health institutions is listed in the main menu.

In the horizontal menu, on the top of the page, are displayed three links:
- **Prima pagina (First page)** - this link is accessible from any page of the website and points to the first page of the interface;
- **Info** – opens a page that offers information about subsystem like: the designation, the context of the subsystem developing, the development team and a contact e-mail address for suggestions and comments.
- **Platforma de colaborare (Collaborative platform)** – access the page of BSCW (Basic Support for Cooperative Work) platform. This platform can be accessed using the specific link from the page: **Schimb de Experienta (Experience exchanges)**.

On the top of the page can be accessed the included search engine through the **Cauta institutie (Institution search)** field, which allows to search the contact information of the public health institutions involved in database updating (registered institutions).

On the left side of the page, under the main menu, are positioned the fields which give the possibility to the registered institutions, through their agents, the authentication to the system. The unregistered institutions which want access to the system functions can use the link **utilizator nou (new user)** to go to the registration page. The system users who want to signalize problems or transmit suggestions or comments to the system administrator must access the link **webmaster@ssai.valahia.ro**, link that will open an e-mail compose page with the default e-mail management software (e.g. Microsoft Outlook) of the user computer.

The access to the website information is available to those two users’ categories presented at the beginning of this work: the **un-authenticated users** and the **authenticated users**.

6. CONCLUSIONS

The EDUSAN Collaboration Subsystem is implemented on a stable hardware / software architecture, the application being accessed over Internet in optimal conditions without errors or functioning deficiency. For using this system, only the web browser is sufficient. It is not necessary to install any dedicated application.

The Collaboration Subsystem provides the necessary for experiences exchange between the public health institutions (through a collaboration platform), training offers presentation, partnership proposals promoting and the main health education programs presentation.

The institutions involved in the public health system and also the citizens who want to learn more about different components specific to health education and diseases prevention can become the beneficiaries of the information presented in the frame of this system, by accessing the specific web page through the EDUSAN web site ([http://edusan.ici.ro/edusan](http://edusan.ici.ro/edusan)) and than by the **“Colaborări instituţii”** menu, or directly at [http://edusan.ssai.valahia.ro](http://edusan.ssai.valahia.ro).

The access to the main subsystem functions (Experiences exchange, Training, Partnerships, and Health Programs) can be realized from the home page of the subsystem.

Acknowledgments

This work was supported through Project Ceex 2005 -2008-PC-D03-PT00-300: **“A Complex Integrated System for Health Education and Disease Prevention–EDUSAN”**, financed by the Romanian Ministry of Education - the National Authority for Scientific Research. We thank all the Project partners for their cooperation and work.

References: