SAMPLE DELIVERABLE 15

SOFTWARE APPLICATION <u>BETA</u> VERSION WP4

http://lab.sample-project.eu/
(Deliverable beta web address)

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Project co-ordinator name:	Mrs. Monica Pratesi
Title:	Associate Professor of Statistics - University of Pisa
Organization:	Department of Statistics and Mathematics Applied
	to Economics of the University of Pisa (UNIPI-DSMAE)
Tel:	+39-050-2216252, +39-050-2216492
Fax:	+39-050-2216375
E-mail:	coordinator@sample-project.eu
Project website address:	www.sample-project.eu

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Editors:	8-SM
Authors:	Moreno Toigo (m.toigo@simurgricerche.it) - SM
	Massimiliano Alù (m.alu@simurgricerche.it) - SM
	Massimiliano Passaglia (m.passaglia@simurgricerche.it) - SM
Document editing:	Marta Garro (garro@sample-project.eu), UNIPI-DSMAE
Language revision:	Marta Garro

Summary

1. Abstract

SAMPLE WP 4 deals with the development of a software application that could be used by the Local Observatory on Poverty and Social Exclusion (see WP 3) to monitor Laeken indicators at LAU1 and LAU2 level and to disseminate results to improve the knowledge of the phaenomena and the local social policies. The long-term outcome of WP4 is to improve the understanding of social exclusion processes at a local level by all people working in the field of social policy making.

This document describes SAMPLE's deliverable 15, i.e. the beta version[1] of the software application developed in WP4. It summarizes the main features of the software and the technologies used to develop it. The beta version is released for testing purposes with selected local stakeholders.

To test the application, please visit the website: http://lab.sample-project.eu (user: test, password: test)

2. Overview and background

WP objectives

The aim of WP4 is to develop a software application whose purpose is to give unskilled users (i.e. local policy makers, social workers from the public and private sector) an easy-to-use tool for managing data and indicators at LAU1 and LAU2 level. The software objectives are:

- To give a concrete application of SAMPLE results;
- To support policy-making and its implementation at local level;
- To contribute to the public debate by creating information-rich, easy-to-use, easy-to-understand graphics (able to express the meaning of data without hiding their complexity);
- To share knowledge and improve local capabilities.

The software allows to store and update the raw administrative data locally available (see WP 3), to link them with EU-SILC 2008 oversampling micro-data, in order to estimate indicators using correction models based on Small Area Methodology (see WP3, task 3.3), to disseminate results between local stakeholders, promoting their capabilities of fighting and preventing social exclusion.

2.2 Connections with the other WPs

The activity of WP4 strictly depends from the results of previous project WPs, mainly WP3. The methodologies and the algorithms developed in WP1, WP2 and WP3 will be standardized and integrated in the final application. There is also a strict connection with WP6 (Dissemination) because the software will be the main instrument to share and disseminate SAMPLE results and methodologies (Figure 1).

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[1] In software testing, beta versions of software are usually released to a limited audience outside of the programming team. The software is released to groups of people so that further testing can ensure the product has few faults or bugs.
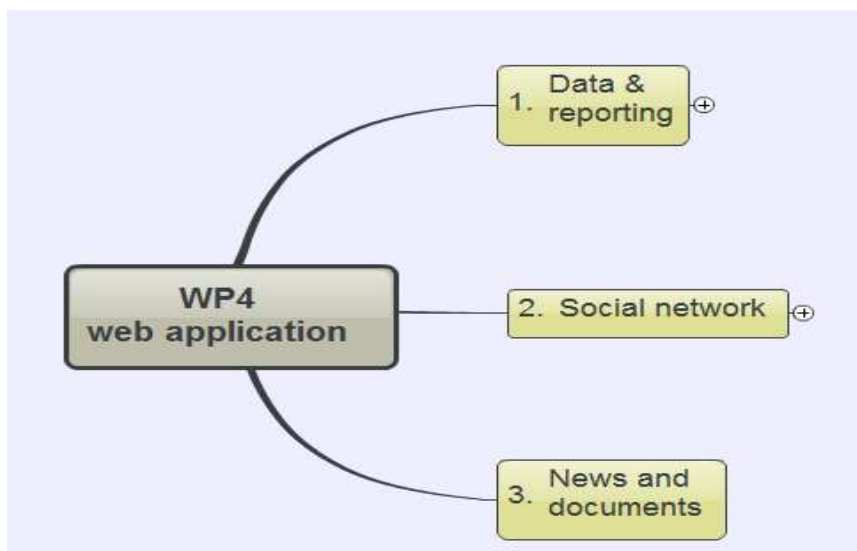
Figure 1- WP4 connections
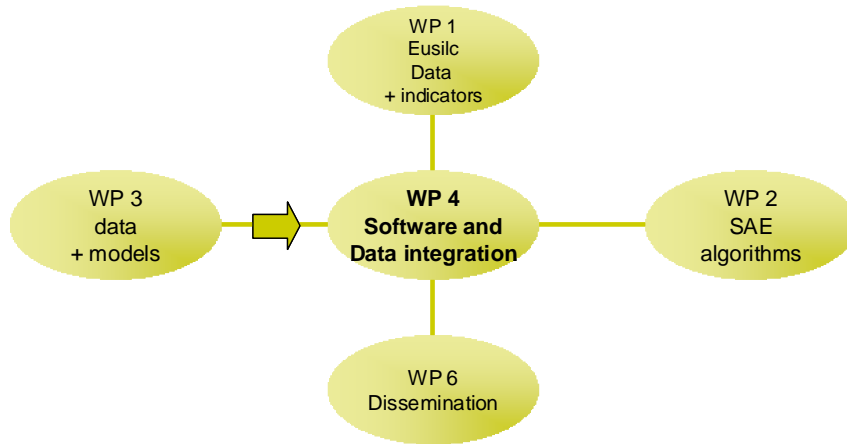
2.3 The application: an overview

The web application (portal) will be the entry point for social inclusion activities in the Province of Pisa. It has three main parts, or modules: the SAMPLE data management and reporting core; a set of social networking tools; a documentation and news section.
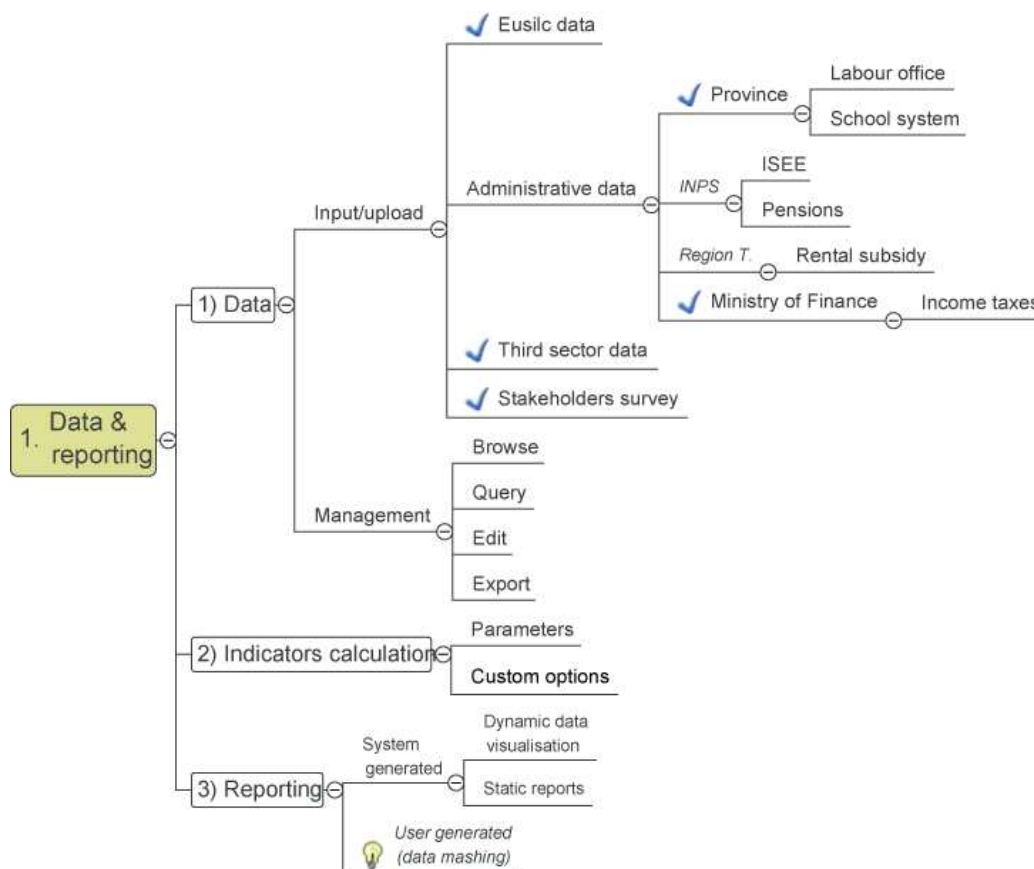
Figure 2- Application modules

The web application, with special focus on its reporting module, has been planned following the most recent trends and best practices in the field of statistical data representation.

We took into account the debate started by the "Open Government Initiative" by President Obama's administration in January 2009 (cfr. www.data.gov, http://sunlightlabs.com).

**Figure 3- Application module 1: Data & reporting (details)**

This figure above shows an overview of the first module of the application, which is the core of the system: the data and reporting module.

A slick web interface allows administrative users to easily load raw statistical data (Eusilc, administrative data and others[2]), and apply R engine calculations by selecting a few input parameters. We implemented the methodologies and the R routines developed in WP 3 for data linkage between EUSILC oversampling data and administrative databases. We obtained two kinds of indicators: 1) indicators from EUSILC survey; 2) unbiased indicators from administrative data.

The calculated data (indicators) will be saved on a MySQL database. This database will be then exposed as a web service with a Google *wire protocol* compliant data source, available for everyone to query it. The recordset served by this data source is extracted at runtime from the Sample Application's database. Our goal is to make data available 24/7 for people to reuse, share, discuss.

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[2] The datasets checked with "✓" have been acquired or are being acquired.

Figure 4- Application module 1: communicating with Google APIs
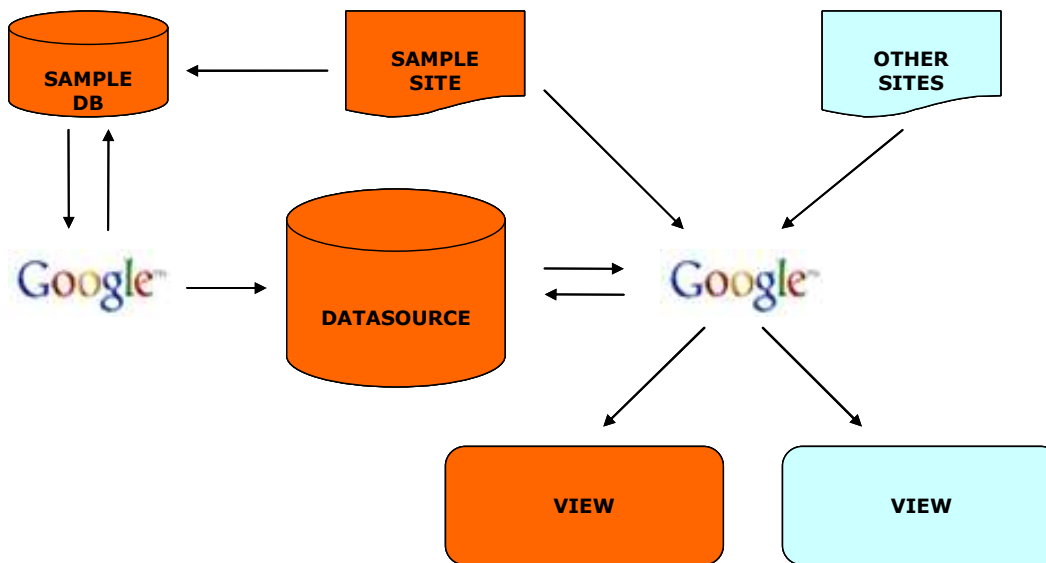
As for the data visualization, again we will be using Google tools to reach the most widespread audience: Google Visualization APIs allows embedding interactive charts, graphs or other graphics on any web page, easily, even by non skilled and non technical users.

Using the available visualization applications, the general public will be able to create reports and dashboards based on the SAMPLE database.

On the front-end, our portal application itself will be using these technologies: we will show our data in interactive graphic visualizations made using the same visualization APIs.

2.4   Potential users and social networking tools

The "social" side of the application is very important. Instead of implementing an unidirectional communication, we will try to let people participate in building the portal and creating information themselves. The application will be based upon a social networking tool, to build upon the involvement and collaboration of local stakeholders. In this perspective, we previously checked their interest in taking an active role in the building of the web portal.

The potential users have been identified during the project development, mainly in WP 1.4 and

WP 3.2. Together with PP-UROPS, we have identified and involved the following categories:

- Health Societies;

- Provincial Coordination of Voluntary Associations,

- Provincial Coordination of Social Cooperatives and of Social Promotion Associations; Poverty Associations;

- Immigrants Associations;

- Operators of offices that perform actions to fight back poverty (house offices, social services, labour unions);

- Caritas' counselling centres.

A survey (online questionnaire) has been carried out upon local stakeholders by PP-UROPS: approx. 700 people involved at various levels in poverty and social exclusion fields have been asked about their opinion on the construction of an Observation System to monitor poverty, vulnerability

and social exclusion. We heard the stakeholders' point of view about the best tools to use to promote the exchange of information on the topic. Some of the respondents agreed to spend some time to test the platform while still in beta. The web application structure and content will be tailored after their suggestions. The testing phase, involving 47 stakeholders who declared to be interested and available, is planned for mid-September. For more details see WP1 (task 1.4) and WP3 reports.

Website registered users will be able to:

- create their own interest groups and blogs inside the portal;
- communicate with microblogging tools (à la Twitter);
- share documentation with team (group) mates;
- upload publicly available documentation;
- discuss and comment (almost) every piece of content (news, topics, graphics and so on..).

Given these foundations, a version two of the platform could allow users to create their own data mash-ups straight inside the application. Even in this first version, people will be able to use third party visualization tools like the above mentioned ones.

When Italy too will adopt a clear policy for open government and open data access, SAMPLE raw data could be made available to the public. Right now there is a number of attribution and privacy related issues preventing us to store and let people get access to this kind of data.

3. Technical aspects

This D15 website is WP4 main software application, an entry point for some software tools allowing users to process and display SAMPLE data (indicators, administrative data libraries, EUSILC data). It will improve the interaction between local policy makers and stakeholders.

The final deliverable will be an application – tested and working at a local level (Province of Pisa) – and an installation package with instructions, freely available for downloading by any interested third party.

At the end of the project, the Province of Pisa will keep on using the application and its data, which will then be moved to an own server.

The SAMPLE website is made of a **public area** (every user can view it) and a **private area**. Access to the latter is limited to registered users only, with a valid user account.

Anonymous users can see most of website contents, yet they won't be able to interact with other community users.

The website primary goal is to make available with an easy interface a wealth of data, mainly related to poverty indicators involving the Province of Pisa.

That is why we implemented the package "*PHP Google Visualization Integration Library*", giving the basic tools to integrate Google graphics and visualizations.

3.1. The basic framework

The whole software application is built on top of *open source* **Drupal** platform (currently we are using version 6.17, with a few contributed modules- activity, guestbook, messaging, notifications, organic groups, tinymce, user relationships, userloginbar - and some more custom modules strictly related to SAMPLE purposes).

Drupal, often described as a "content management system" (CMS), is also a "content management framework" (CMF). In other words, unlike a typical CMS, it is geared more towards configurability and customization. It is very flexible, widely used, and its large user base made it an excellent choice for the foundation our application.

3.2 User roles and permissions

Granular user privileges

By default, the CMS has two user types (roles), "**anonymous user**" and "**authenticated user**". We created three more user types: "**Contributors**", "**Moderators**", and "**Power contributors**", having different access levels and different privileges.

Anonymous users can access only public content, and cannot be involved in any way in the website activities.

Authenticated role is given to users self-registering from the website. Above all, **admin** role grants full privileges to website administration.

Not logged-in users

Use of the website is limited to viewing the different areas and public content (articles, news). In addition, it is possible to view the **Social Networking** area in read-only mode, and view statistical data and graphics using Google technology (Sample engine). As for the Social Networking tools, the following subsections are available as shown in Fig. 5:

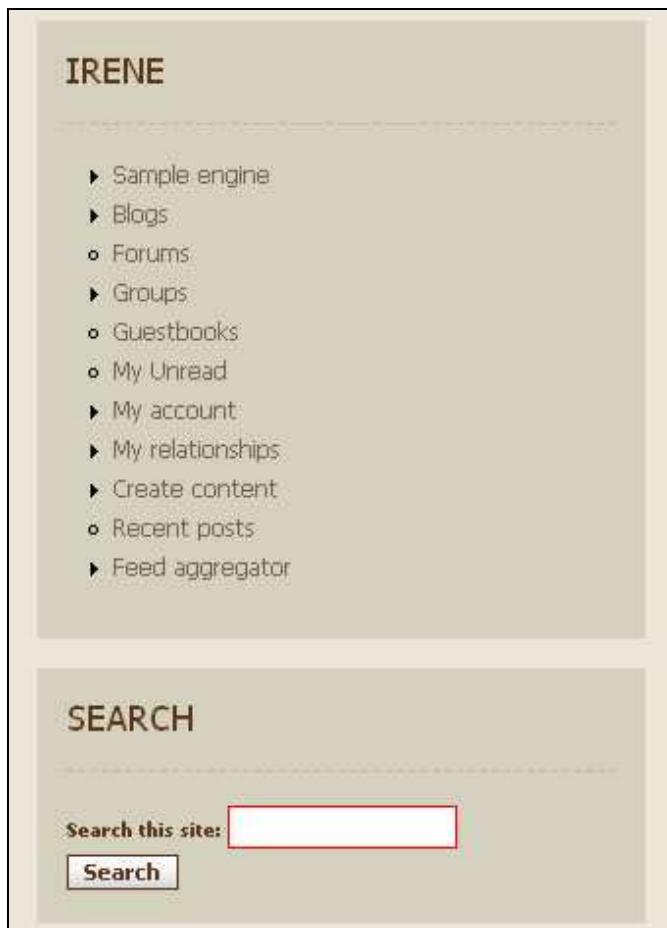- Blogs

- Forums

- Groups

- Guestbooks

Figure 5

Custom **Sample engine** module shows an intro text, then clicking on Graphics users can access indicators visualizations.

3.3   Social networking tools

Logged-in users

Logged-in users may of course browse public content. As for every other Social Network platform, moreover, they can interact with the community using the following tools.

Figure 6

Blogs
- **Authenticated** and **Contributors**
  - Creating a personal blog and writing posts on it.
  - Read-only access to other users' blogs, with commenting options enabled.
- **Moderators** and **Power contributors**
  - Creating a personal blog and writing posts on it.
  - Read-only access to other users' blogs, with commenting options enabled.
  - Edit and delete other users' posts.

Forums
- **Authenticated**
  - Access to all forums, comments/answers enabled.
  - No rights for creating new forums nor editing/deleting existing ones.
- **Contributors**
  - Access to all forums, comments/answers enabled.
  - Ability to create and manage new forums.
- **Moderators**
  - Access to all forums, comments/answers enabled.
  - Ability to create and manage new forums.

- o Editing/deleting other users' forums
- **Power contributors**
  - o Full privileges on all forums. Forum administrators.

Groups

Read access to all groups with comments and answers enabled.

- **Authenticated** e **Contributors**
  - o Manage own groups.
- **Moderators** e **Power contributors**
  - o Manage own groups and other users' groups.

Guestbooks

- **Authenticated, Contributors, Moderators**
  - o Read/write access to website and users guestbook
- **Power contributors**
  - o Manage all guestbooks

My Unread

- Same settings for all roles
  - o Lists all unread messages from personal Blog/Forum/Guestbook

My account

- **Same settings for all roles**
  - o Personal info and preferences

My relationship

- **Same settings for all roles**
  - o Manage friendship and/or follower relationships between users.

Create content

  - o Permissions are managed at node level.
- **Authenticated**
  - o No rights of new node creation.
- **Contributors**
  - o Create and edit personal Book(Wiki), Page, Story.
  - o View and restore previous edits (versioning).
- **Moderators**
  - o Create, edit and delete personal Book(Wiki), Page, Story for all users.
  - o View and restore previous edits (versioning) for all users.
- **Power contributors**
  - o Full rights on every piece of content.

Recent posts

- **Same settings for all roles**
  - o A list, in chronologic order, of all new content piaces (comments, forum posts, new groups…).

Feed aggregator

- **Authenticated, Contributors, Moderators**
  - o Feeds read access.
- **Power contributor**
  - o Feeds administrator.

Comments

Basing on role settings, administrators can choose if comments and answers regarding every node must be approved first by a moderator before being publicly viewable.

3.4   The Sample engine

3.4.1 Permissions and roles

As a starting point, four different roles have been identified. These will be re-defined during the testing phase, in agreement with the Province of Pisa, and finally laid out in D24.

- **Authenticated** and **Contributors**
  View statistical data visualizations, no data creation/loading permissions.
- **Moderators**
  Upload CSV with "Indicatori di programmazione sociosanitaria".
  Upload CSV files with "EUSILC" data, and R routines calculations.
- **Power contributors**
  Upload CSV with "Indicatori di programmazione sociosanitaria".
  Upload CSV files with "EUSILC" data, and R routines calculations.
  Manage lookup tables (Municipalities, AUSL, Regions, Provinces, Zones)
- **Admin**
  In addition to the former, administrators have access to module setup (*Administer → Site configuration → Sample engine module settings*) and execute the following actions:
  - o Define columns for CSV data loading (recordset)
  - o Insert table with raw indicators
  - o Insert table with calculated indicators
  - o Mapping between CSV columns and raw indicators

3.4.2 Sample engine module

By clicking on the "Sample engine" menu, a context-sensitive submenu will be opened, with different choices related to user roles and permissions.

A **Power contributor** will see the following menu items:

- Graphics
- CSV Upload
- Utilities

Graphics

To initialize the widget and create a visualization, users must set search criteria. For some graphic visualization, a few seconds will be needed before the result will be shown.

CSV Upload

This section purpose is to load a new set of indicators. Source file is (mandatory) a CSV (Comma Separated Values) file, following the structure selected during setup.

To load a file, simply press "Select file", choose the file on the local machine, click "Open". Then select "Upload" button to start loading.

The system will inform users about the result of loading process (with appropriate error messages in case of failure).

Figure 7

3.4.3 Utilities

Access to this section is allowed only to Power contributors and Admin users. From here they can manage the static (lookup tables). So far the lookup tables managed in this area are the following:

Regions

ID	integer	autoincrement
NAME	varchar2	
DELETED	integer	

Provinces

ID	integer	autoincrement
ACRONYM	varchar	
NAME	varchar	
REGION_ID	integer	foreign key to Regions table
DELETED	integer	

Areas

ID	integer	autoincrement
REGION_ID	integer	foreign key to Regions table
NAME	varchar	
DESCRIPTION	longtext	
DELETED	integer	

Ausl

ID	integer	autoincrement
REGION_ID	integer	foreign key to Regions table
COD_AUSL	varchar	
NAME	varchar	
WEB_SITE	varchar	
DELETED	integer	

Zones

ID	integer	autoincrement
NAME	varchar	
AUSL_ID	integer	foreign key to Ausl table
DELETED	integer	

Municipalities

ID	integer	autoincrement
AREA_ID	integer	foreign key to Areas table
ZONE_ID	integer	foreign key to Zones table
AUSL_ID	integer	foreign key to Ausl table
PROVINCE_ID	integer	foreign key to Povinces table
ISTAT_CODE	varchar	
NAME	varchar	
ADDRESS	varchar	
ZIP_CODE	varchar	
PHONE	varchar	
ALT_PHONE	varchar	
FAX	varchar	
FREE_CALL_NUMBER	varchar	
WEB_SITE	varchar	
DELETED	integer	

Figure 8
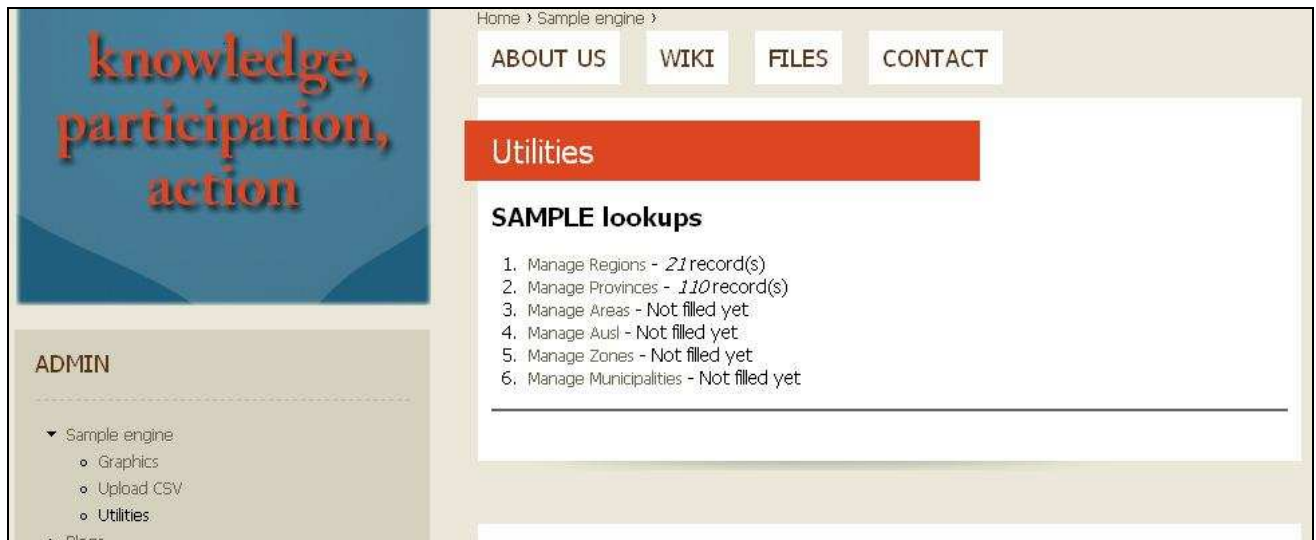
On the first data loading users must comply to the previous sequence, then the wizard-like interface will give on every step useful info and directions to complete the operation without errors.

In some cases (Regions and Provinces, see Fig. 9), the first file loading may be executed by selecting "File insert"; the source of this process is an array shipping with the module itself. New Regions/Provinces can be added selecting "Add".

Figure 9

For all other instances (Aree, AUSL, Zones and Municipalities), the loading is performed using a single CSV file for every type. The dataset is as follows:

Areas

regione, nome, descrizione

AUSL

regione, cod_ausl, nome_ausl, web_site

Zones

nome, id_ausl

Municipalities

id_area,id_zona,id_ausl,id_provincia,istat,nome,indirizzo,cap,telefono,telefono_alt,fax,numero_ver de,web_site

Figure 10

Figure 11

Figure 12