Nanomonitor Web Portal Current Status

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NanoMONITOR – 1st Stakeholder´s Day

The NanoMONITOR web portal has two specific objectives:

1. To store, manage and elaborate data

2. To disseminate knowledge to the scientific community, the stakeholders and the general public.

In order to clearly identify the functionalities of the NanoMONITOR monitoring system the needs of the industry and stakeholders were taken into account To this end a dedicated questionnaire was sent to the targeted audience of the project, including manufacturers and importers, downstream users, stakeholders and policy makers.

The results of the questionnaire were analysed in depth in order to establish the list of functionalities and features of the software that will be taken into account. The software functionalities were developed on the basis of the information gathered and consecutive discussions and analyses by the consortium members,.
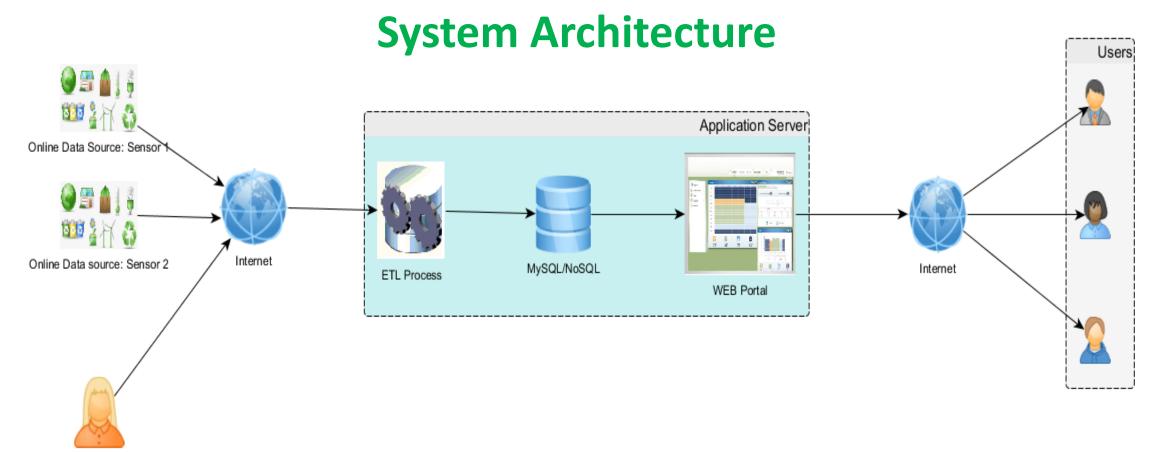
The project's requirements describe an infrastructure :

- accessible over the Web and user friendly,
- with pluggable computational modules,
- making use of processed data from various environmental sensors, to be used by whoever is involved to the relevant analysis,
- not limited, scalable and expandable.

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System Architecture

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A classic ETL (Extract, Transform, Load) methodology is applied and implements the following operations:

- **Extract** the data from the sources (acquired either by polling on specific intervals external sources, or by receiving regularly the relevant information)

- **Convert** the data into a single format appropriate for storage into the central database of the Nano-monitor system.

- **Validate** data to confirm if the data pulled from the sources have the correct/expected values in a given domain

Data sources

❑ There will be 2 methods to receive sensor data.

❑ Both methods push data TO the data repository server.

Method 1: Real time (MAIN)

❑ JSON data is pushed TO the server for processing from each sensor

Method 2: Off-line mode

❑ CSV data are pushed to the server by an operator (an authenticated user).

- The portal uses Oracle's MySQL™ RDBMS Community Edition.

- MySQL is the world's most popular **open source database**.

- It is supported by a huge and active community of open source developers.

- The portal can be either standalone or accessed via another portal
- No special knowledge will be required from the end-user.
- It provides basic tools for the estimation/elaboration of values such as concentrations, forecasts or historical data.
- It supports standard formats (including GIS formats) in order to facilitate data exchange and use.
- All various stations are presented on a map directly in the home page (like the site World Air pollution http://aqicn.org/map/europe/), while a main menu structure containing various selections has been developed. The user can focus on a specific area and select information for the stations displayed.
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❑ the Nano Monitor Portal comprises:
- ➢ Databases
- ➢ Import of data from sources
- ➢ Presentation of data
- ➢ Export of presented data
- ➢ Statistical models
- ➢ User roles
- ❖ URL:
  http://demo.msensis.com/nanomonitor

❑ The Administrator Portal comprises:
- ➢ Administration of user and roles
- ➢ Administration of stations
- ➢ Administration of metrics

Administrators

Administration Console

You are logged in as msensis

| Users | Stations | Metrics ▾ | | | | ⮕ Log out |

Name	Username	Role	Email	Last Visit Date	Actions	
All Greek Stations	all_gr	Data Provider	all_gr@msensis.com	09/12/2016 16:55:32	Edit	Delete
Michalis Data	michalis_data	Data Provider	m.lilos@msensis.com	23/12/2016 14:46:05	Edit	Delete
Michalis Stake	michalis_stake	Stakeholder	m.lilos@msensis.com	08/02/2017 14:28:03	Edit	Delete
msensis	admin	Administrator	m.tsagkaris@msensis.com	01/03/2017 14:11:23	Edit	
Test Admin	testadmin	Administrator	testadmin@msensis.com	26/09/2016 17:13:56	Edit	Delete
Test Data Provider	testdata	Data Provider	testdata@msensis.com	13/12/2016 14:47:52	Edit	Delete
Test Stakeholder	teststake	Stakeholder	teststake@msensis.com	07/12/2016 16:21:48	Edit	Delete

Add new user

❑ Users - roles

➤ Administrator (manages and sees everything)

➤ Data provider (sees all of owned)

➤ Stakeholders (sees everything)

➤ The general public sees the default presentation and does not logg in as a users.

❑ Station

➤ Defines each station parameters. Mandatory for the import process

❑ Station

➤ **Categories** define new data stream

➤ **Metrics** define the datagram for a given category
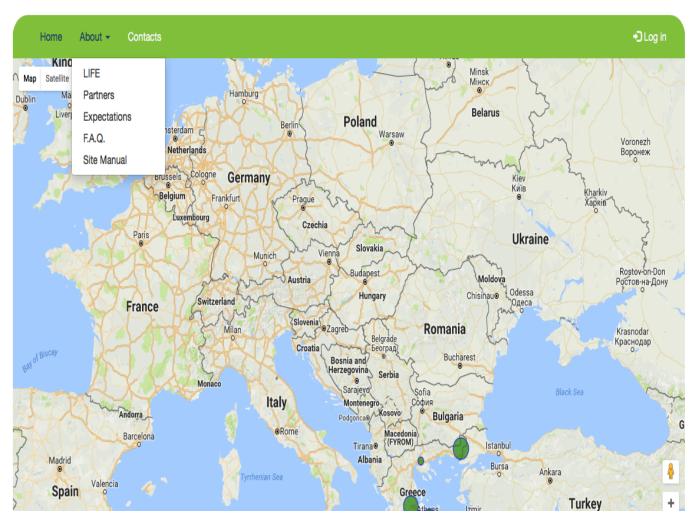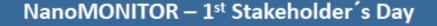
□ Home page shows a map displaying all stations available

□ Public users (not logged-in) can click on a station and see public data

□Authenticated users can login/logout
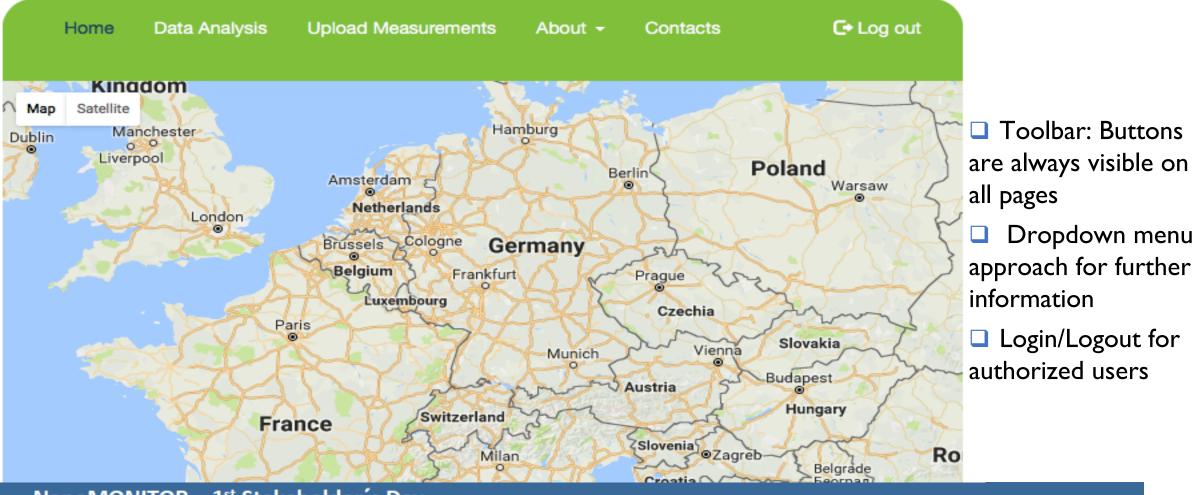
□ Each role defines what each user can see

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Public access

Home   Data Analysis   Upload Measurements   About ▾   Contacts   ⏻ Log out

- ❑ Toolbar: Buttons are always visible on all pages
- ❑ Dropdown menu approach for further information
- ❑ Login/Logout for authorized users

For the needs of NanoMONITOR Web Platform, analytical tools offer customized and adapted reports. An indicative list includes among others:

- Data Analysis

- Exposure Risk

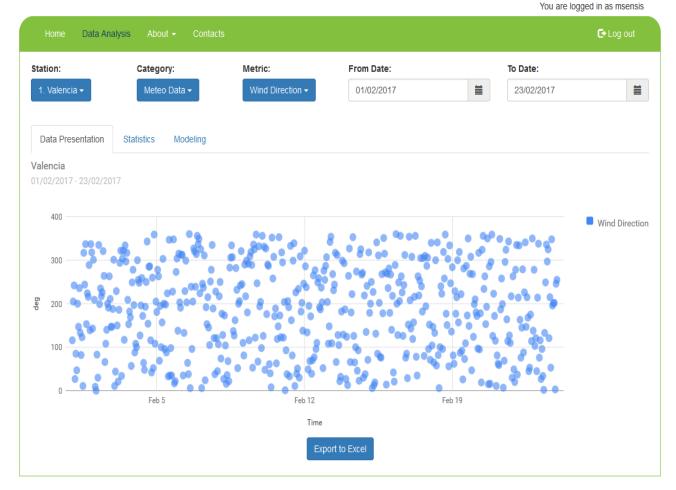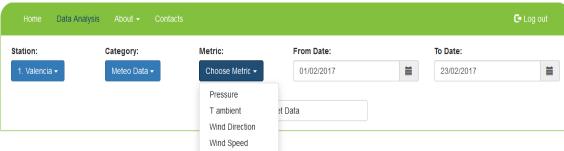- Simulation tool (e.g. future projection of concentrations)

Data Presentation [1]

- ❑ Data selection
  - ➢ Station
  - ➢ Type of Information (Category, metric)
  - ➢ Time frame
- ❑ Data presentation:
  - ➢ Graph
  - ➢ Table
- ❑ Export data in CSV (according to role)

Modelling

You are logged in as msensis

Home   Data Analysis   About ▾   Contacts   ⏻ Log out

Station:
1. Valencia ▾

Category:
Meteo Data ▾

Metric:
Wind Direction ▾

From Date:
01/02/2017

To Date:
23/02/2017

Data Presentation   Statistics   Modeling

Percentile
P: 2   Calculate >>   0.68

Correlation
Category: Meteo Data ▾   Metric: T ambient ▾   Calculate >>   1

Covariance
Category: Air Quality Data ▾   Metric: PM10 ▾   Calculate >>   2

Forecast
Category: Air Quality Data ▾   Metric: CO ▾   Wind Direction Value: 0,0000   Calculate >>   3

❑ Predefined statistical models are available

❑ The user can select the parameters and perform the calculations

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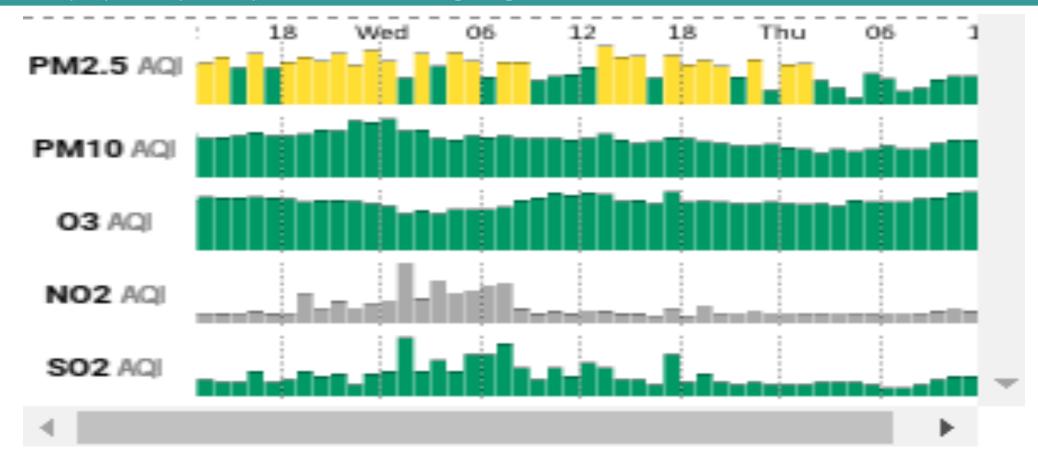NanoMONITOR is partly funded by the European Commission Life+ with grant agreement LIFE14 ENV/ES/000662

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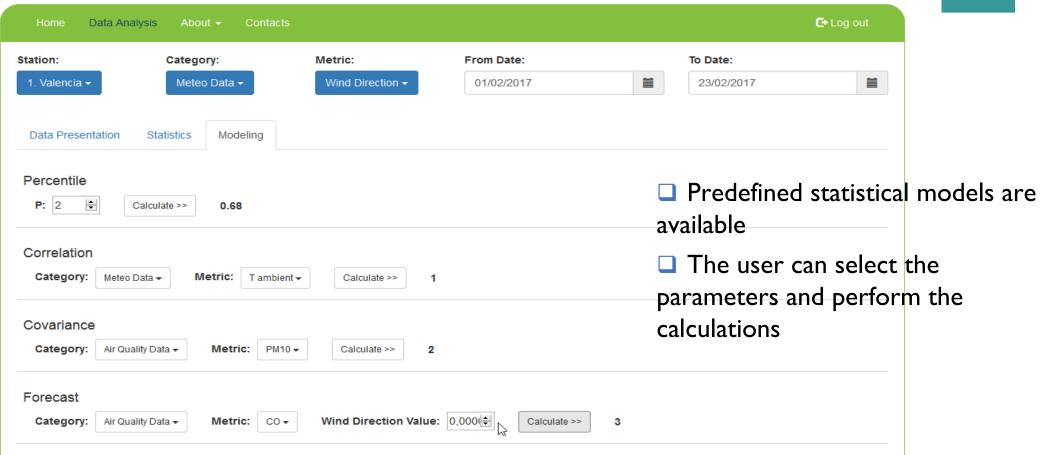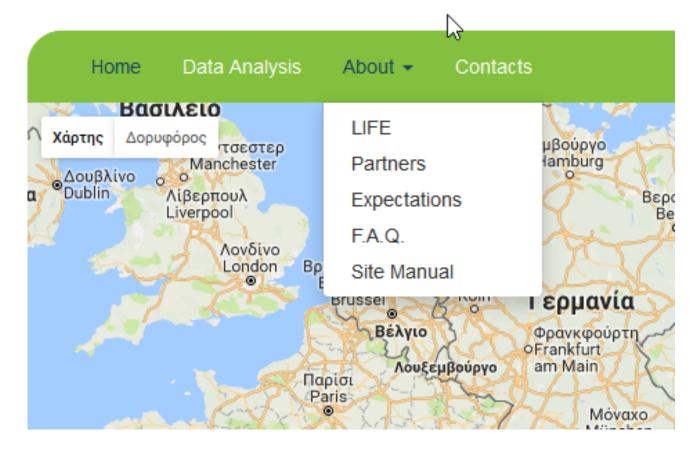
❑ Detailed information on the project and the portal

❑ More information can be added

Still to be done ...

❑ Define data repository: who, where etc.

❑ Need to finalise data sources format

Thank you for your attention!