Aerobiological Information Systems and allergic respiratory disease management AIS LIFE (AIS LIFE LIFE13 ENV/IT/001107)

Annual meeting

Vienna _ Austria
19-20 of June 2015

UNIVERSITÀ DEGLI STUDI FIRENZE
DISPAA DIPARTIMENTO DI SCIENZE DELLE PRODUZIONI AGROALIMENTARI E DELL'AMBIENTE

DIPARTIMENTO DI BIOLOGIA UNIVERSITÀ DI PISA

IFC CNR ISTITUTO DI FISIOLOGIA CLINICA CONSIGLIO NAZIONALE DELLE RICERCHE

MEDICAL UNIVERSITY OF VIENNA

RNSA RÉSEAU NATIONAL DE SURVEILLANCE AÉROBIOLOGIQUE

UPMC SORBONNE UNIVERSITÉS

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Aerobiological Information Systems and allergic respiratory disease management_AIS
(AIS LIFE LIFE13 ENV/IT/001107)
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MUW Actions in Project

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- Action A1: Set up of an Integrated Information System (IIS) in 3 countries (France, Italy, Austria)
- **Action A2: Set up of an enhanced personalized Pollen Information system (PPI) in France and Italy, in combination with an in depth QOL survey** (main responsibility MUW)
- Action B1: Implementation of IIS and PPI in three countries (enrolment, randomisation, educational intervention)
- Action B2: Health assessment of Allergy Patients
- **Action C1: Monitoring of the long-term implementation of Aerobiological Information Systems** (main responsibility MUW)
- Action C2: Validation and comparison of the effectiveness of the two Aerobiological Information Systems
- Action D3: Stakeholder Involvement Activities
- Action D4: Target Audience / General Public Awareness Raising
- Action E1: Overall project operation

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Action A2:
Set up of an enhanced personalized Pollen Information system (PPI) in France and Italy, in combination with an in depth QOL survey

1. The symptom module, a symptom diary (the PHD)
2. The forecast module (DEX)
3. The classification module (Pollen Application)

1. The symptom module, a symptom diary (the PHD)

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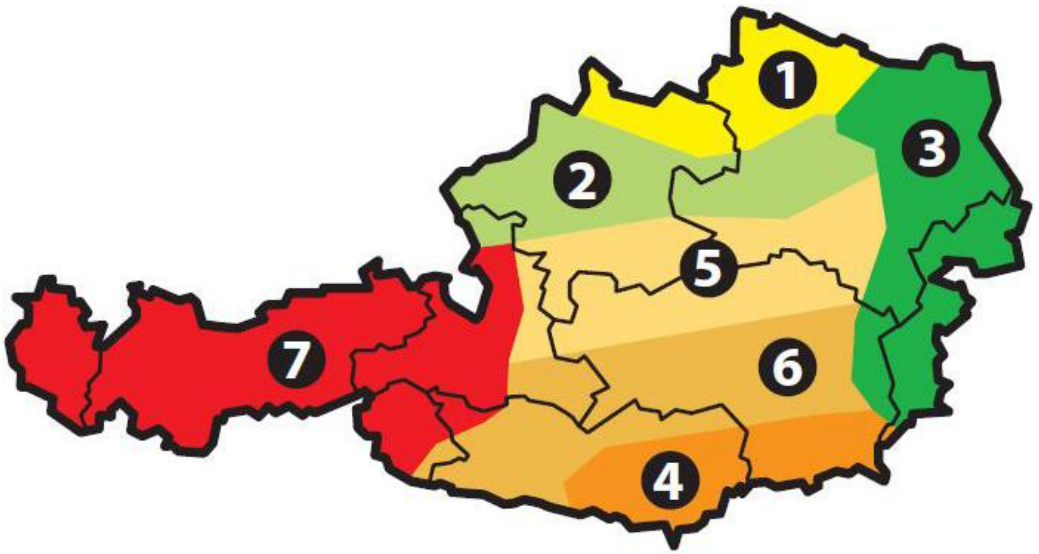
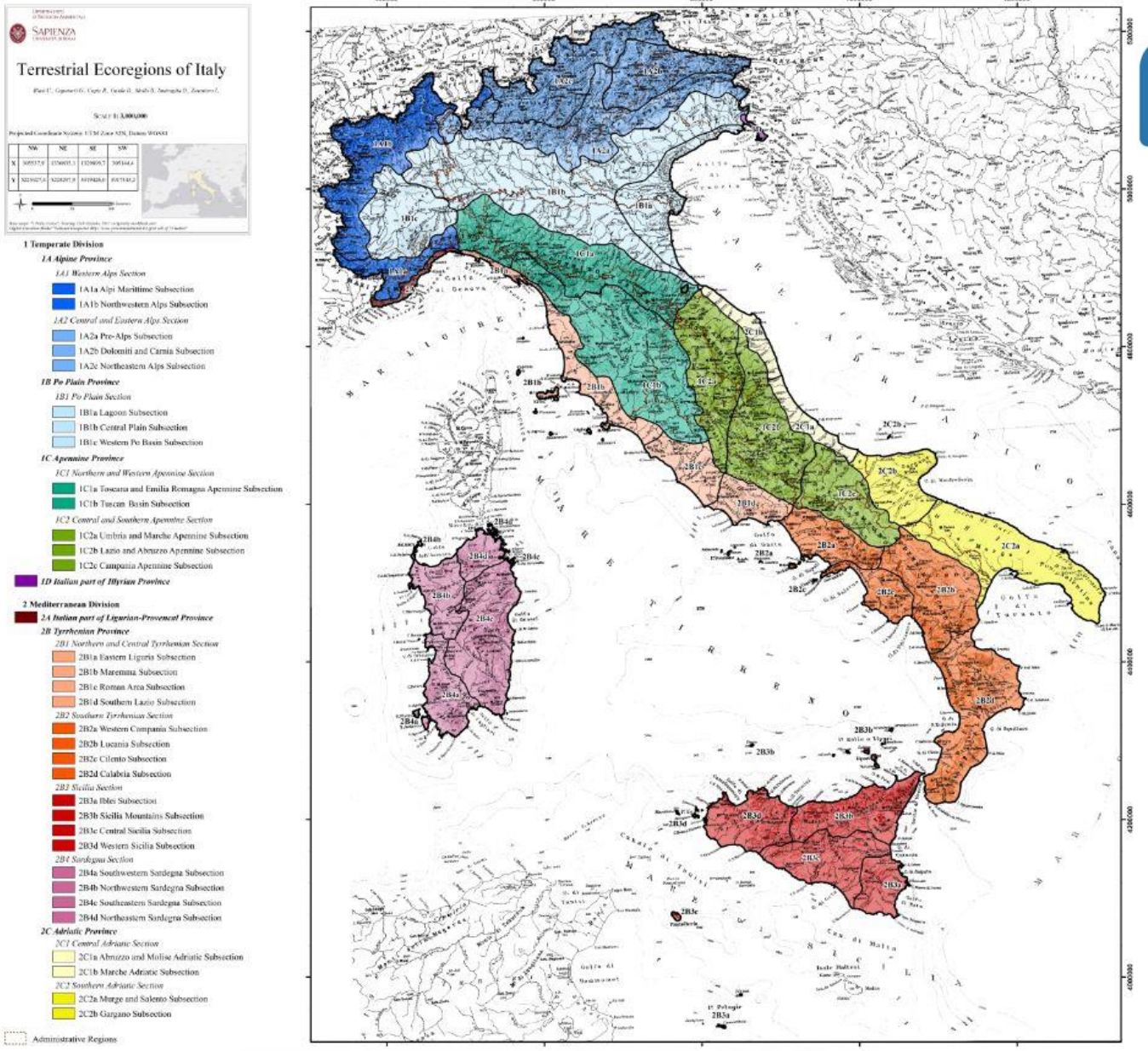
- **Establishment of reasonable biogeographical regions in Italy and France.**

- The definition of biogeographical regions in three countries (Italy, France and Austria) and their implementation in the PHD allows a better assessment of the vegetation influence on the pollen allergic sufferers in particular regions of interest (**Tuscany, Paris, Lyon and Vienna**).

- For set up of PPI in Austria are defined 7 biogeographical regions.

Legend:
1. Bohemian Massif (AT1)
2. Danube Valley and pre-Alpine valleys (AT2)
3. Pannonian lowlands (AT3)
4. Illyrian basins (AT4)
5. Northern limestone Alps (AT5)
6. Alpine valleys – east (AT6)
7. Alpine valleys – west (AT7)





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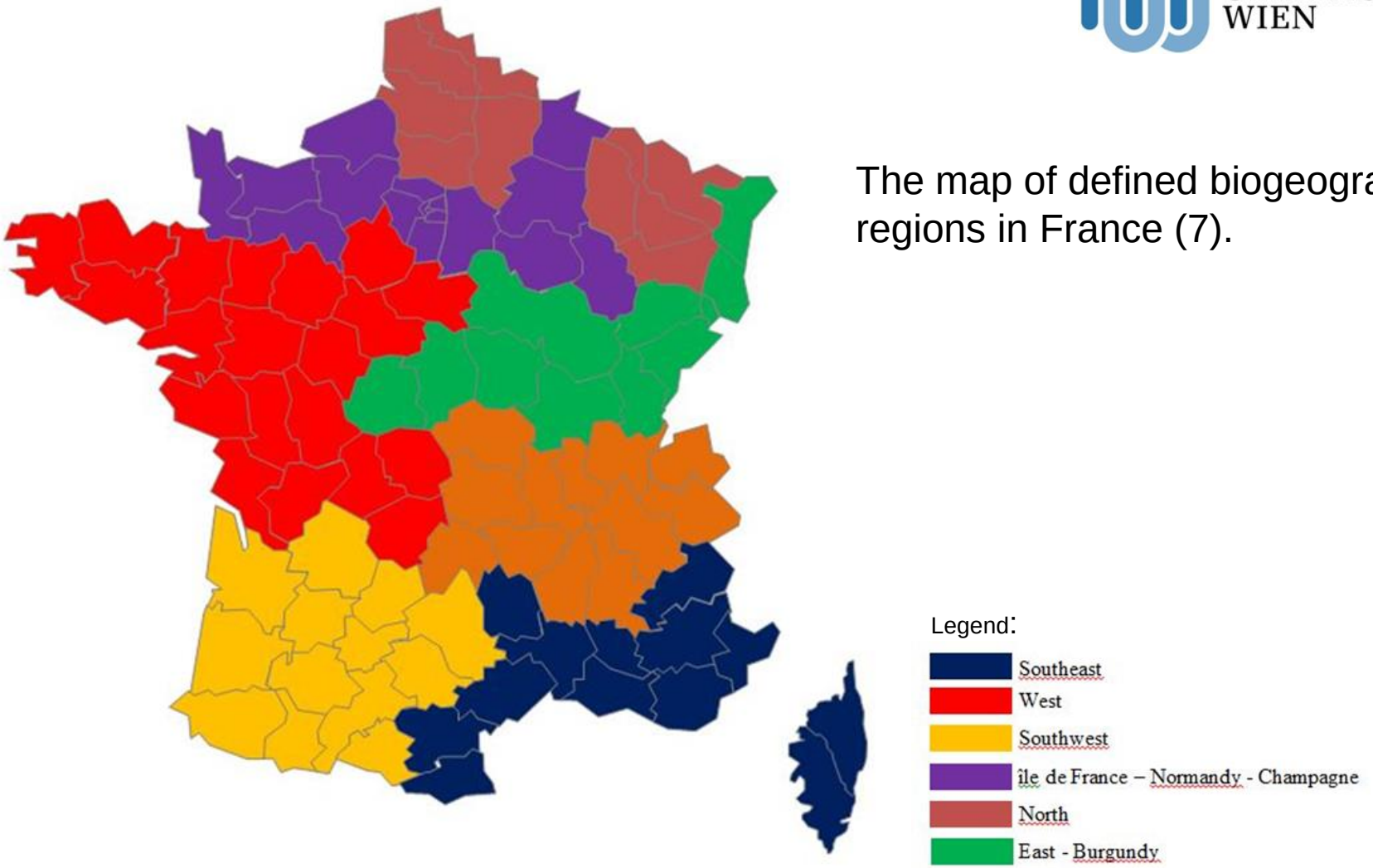
The map of defined biogeographical regions in Italy (13).



The map of defined biogeographical regions in France (7).

1. The symptom module, a symptom diary (the PHD)

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- **Assignment of pollen traps to the established biogeographical regions.**

For the purposes of the project is established continuous aerobiological monitoring in four cities (Pisa, Paris, Lyon and Vienna). All traps are registered in the EAN database (https://ean.polleninfo.eu/Ean/) and linked to the appropriate biogeographical region.

Table 1. The list of pollen traps in Italy, France and Austria.

Country/city	Pollen trap	Longitude	Latitude	Sea level
Italy/Pisa	Pisa 2	10° 23' 42.4" E	43° 43' 06.0" N	4.0
France/Paris	Paris (Pasteur)	02° 18' 39.9" E	48° 50' 26.3" N	53.0
France/Lyon	Lyon (Gerland)	04° 49' 29.5" E	45° 43' 38.9" N	173.0
Austria/Vienna	Wien	16° 21' 22.5" E	48° 14' 56.0" N	209.0

1. The symptom module, a symptom diary (the PHD)

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• **Translation of the PHD into the respective countries´ languages Italian and French.**

Translation of the PHD is done in Italian and French and implemented in the PHD.

• **Establishment of a list with post codes Italy/France and assignment to the biogeographic regions.**

The lists of the postcodes for Italy (13377) and France (38593) are established by GeoPostcodes and linked to appropriate biogeographical regions. The number of linked post codes in Austria is 17172.

• **Defining of pollen and spore thresholds in three countries (Italy, France and Austria).**

Based on previous experience of project beneficiaries, the pollen and spore thresholds have been defined separately for Italy, South of France, North of France and Austria. The concentrations of 11 pollen types and one fungal spores (Alternaria) are expressed in grains per cubic meter and presented in five risk categories: absent, low, medium, high and very high.

The categorization is based on severity of allergen pollen/spore to cause allergy reactions and presence of the allergen taxon in certain regions.

1. The symptom module, a symptom diary (the PHD)

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- **Set up of logo and start page for app.**

Logo of the project, start page and favicon are prepared by INSERM.
Problem: During the action, we have received these documents in unsuitable form for programing.

- **Activation of PHD.**

Importing of post codes, regions, and translation into the PHD and beta test and activation of the PHD is done by programmer company SciCon.

2. The forecast module (DEX)

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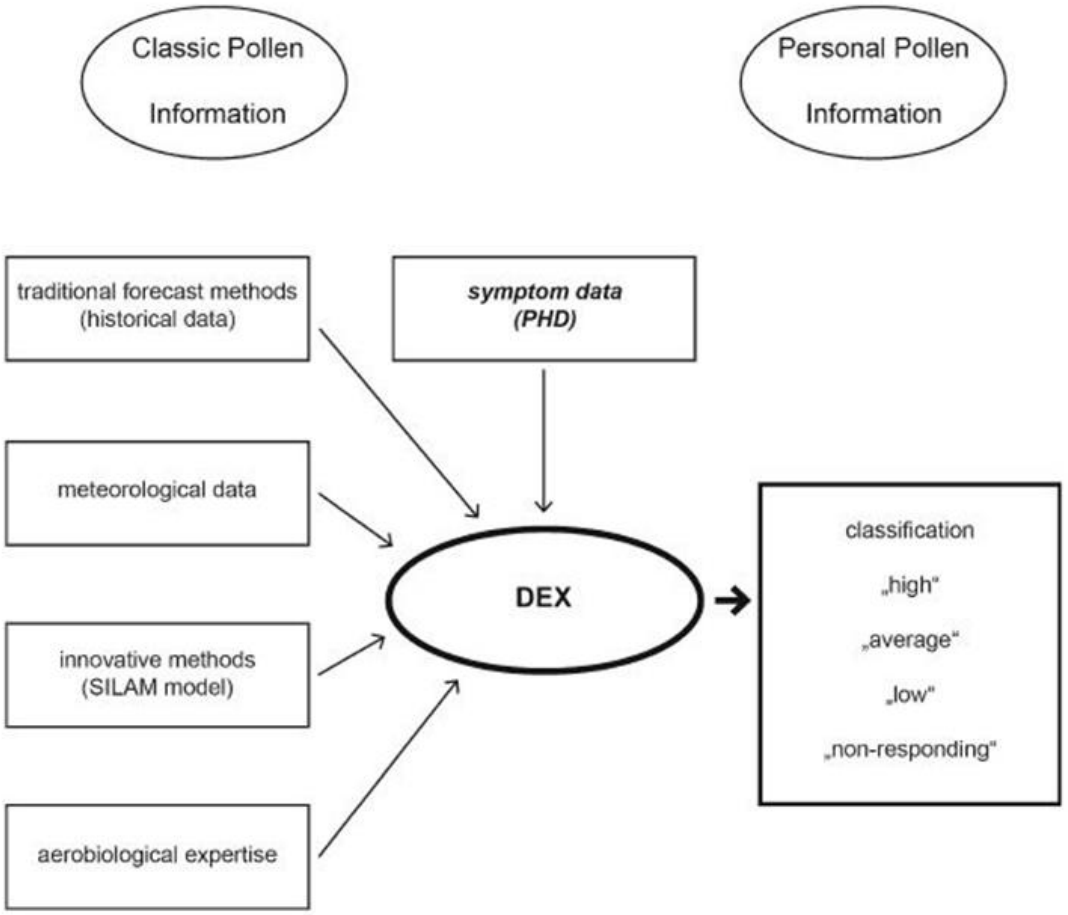

Fig. 1 Block diagram of PPI pillars: classic pollen information made up of traditional forecast methods (historical data), meteorological data, innovative forecast methods (SILAM model), and aerobiological expertise processed in the data exchange (DEX) interface (*bold*). Only the inclusion of the key feature, the symptom data (*bold italics*), is required to receive PPI. The classification in "high," "average," "low," and "non-responding" categories is also performed within the DEX interface

• Kmenta M., Bastl K., Jäger S. and U. Berger. (2014). Development of personal pollen information – the next generation of pollen information and a step forward for hay-fever sufferers. International Journal of Biometeorology 58(8), 1721-1726.

2. The forecast module (DEX)

Establishment of the Forecast module (DEX) is summarized as follows activities:

- Construction of a country page in the DEX system.
- Establishment of user rights.
- Establishment of a forecast register for aeroallergens.
- Registration of locations and regions - importing of postcodes and biogeographical region into the DEX system.
- Establishment of an input mask for locations and regions.
- Programming a gateway to the smartphone application and web page.
- Programming of the smartphone application and web page.
- Beta test and activation.

3. The classification module (Pollen Application)

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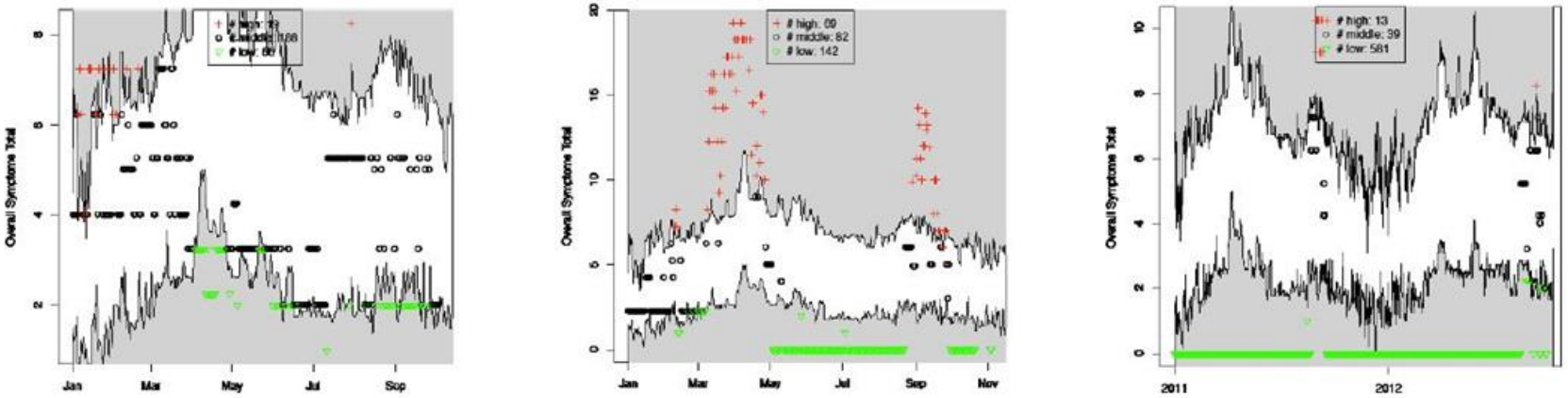
The classification module includes calculation, assignment and adaptation of the forecast for each individual user based on their location and region. Calculations are based on entering of symptoms from users in the least 5 day and are updated every day (sliding window technology).



The PPI Background of statistical classification (example: Austria).

All activities applied for establishing the Personalised Pollen Information System are done by programing company SciCon.

Deliverable A2.1: The concept of start screen and the architecture of the app VERSION LIGHT NO PPI

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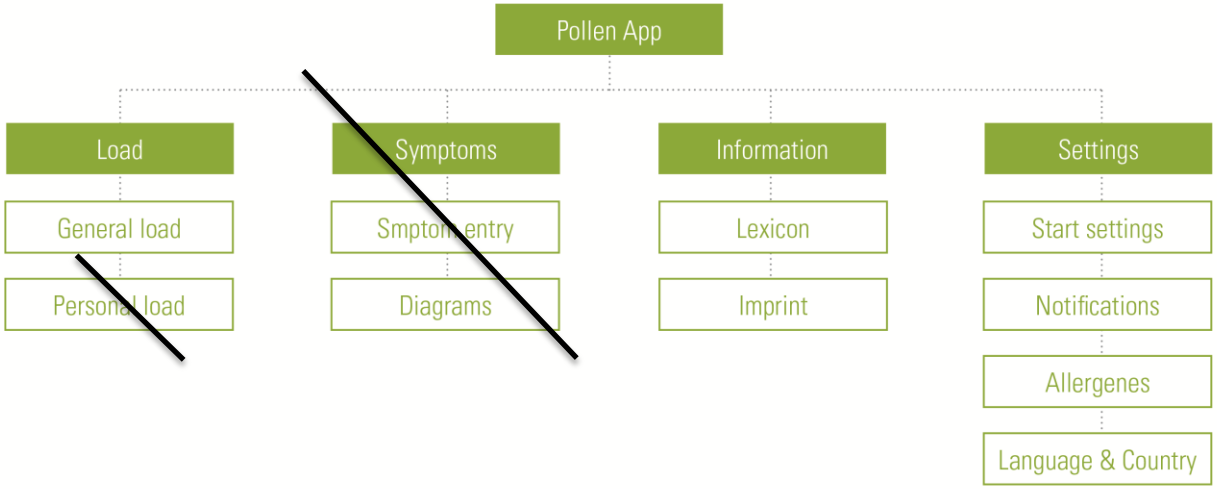

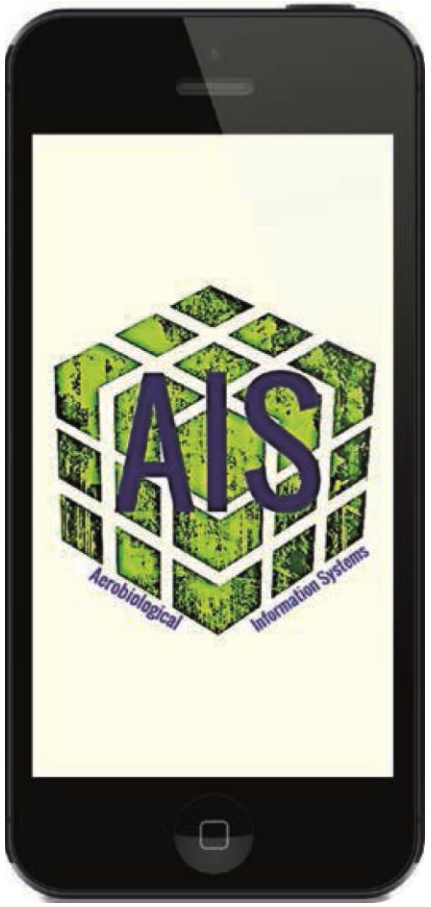

Deliverable A2.1: The concept of start screen and the architecture of the app VERSION WITH PPI

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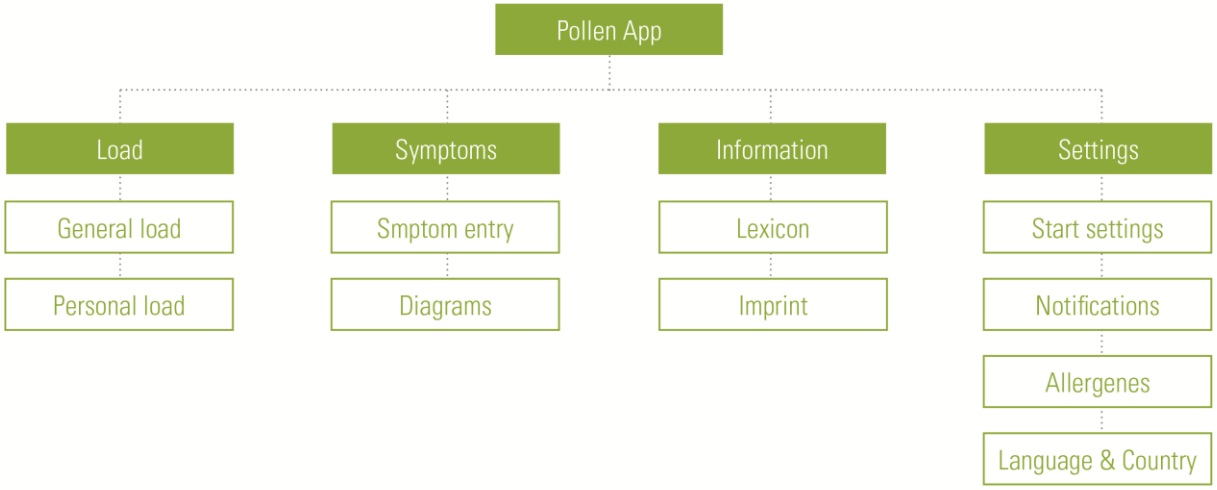

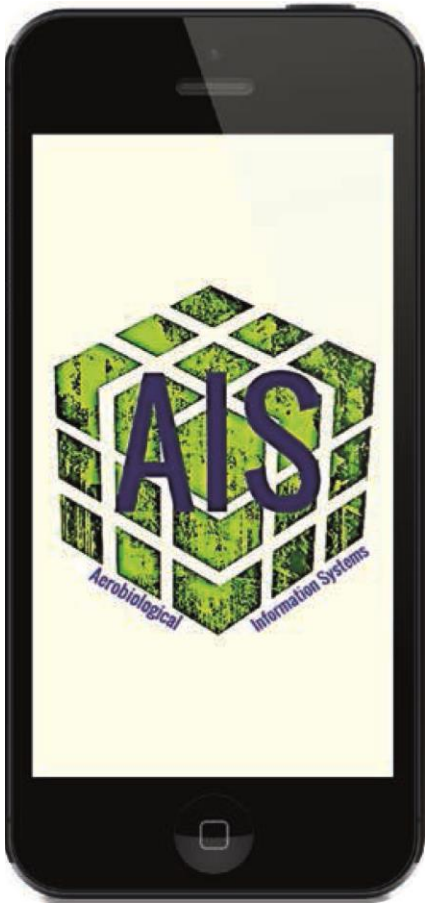

The App will be finished and ready to be downloaded till the end of June.

Action C1:
Monitoring of the long-term implementation of Aerobiological Information Systems

Update:

1. We made a proposal for collecting of weather parameters, chemical and ultrafine particles (?).
2. We made a proposal for Weekly bulletin (part of the Action A1).
3. Set up of polleninfo.org page (www.polleninfo.org) – a common aerobiological international network to provide information about pollen loads across Europe.


polleninfo.org
Welcome to the cooperative European community of health science providers!
Choose your country:
country

Action C1:
Monitoring of the long-term implementation of Aerobiological Information Systems

Next steps:

1. Acceptance of the final file for collecting of weather parameters, chemical and ultrafine particles (?) and Weekly bulletin.
2. Preparation of material for the use of EAN database (for Italy) and DEX system (for Italy and France).
3. We will make a proposal for collecting of data necessary for evaluation and improving the developed services of the Aerobiological Information Systems.

The system will measure:

- user acceptance
- user perception
- improvement of the quality of life (QoL) of users
- decrease of symptoms load
- decrease of socio-economical costs of users
- increase in knowledge about the effect of the interaction between pollen and chemical pollutants on allergies
- reduction in energy consumption / emissions thanks to reduced medication use
- reduction in water consumption

4. After activation of PPI in every of three countries, we will start monitoring of data in three countries.

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Thank you for your attention!