

## Consortium



## Acknowledgement

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budget of 19.6 M€) the MINAmI project address the area "Micro and nanosystems" of the Information Society Technologies priorities.



[www.fp6-minami.org](http://www.fp6-minami.org)

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## Micro-Nano integrated platform for transverse Ambient Intelligence applications



A European Integrated Project supported through the Sixth Framework Programme for Research and Technological Development



## MINAml Project

MINAml project addresses challenges related to the implementation of Ambient Intelligence (Aml) applications, where the personal mobile device acts as a gateway. MINAml will expand the open technology platform developed in MIMOSA project and will demonstrate and validate new Ambient Intelligence applications. The centre of interest and the major innovative work in MINAml are focused on the final concrete demonstrators for Aml, based on the development of an innovative state-of-the-art micro/nanotechnology technological platform.

The main technical innovation in MINAml is in the development of:

- Mass-memory RF Tags based on low power innovative technologies
- Event sensitive RF nodes including new-low-cost time reference for time stamping function
- Thin film rechargeable batteries and a wide range of low-cost and low-power nano and micro sensors and

actuators, including, 9D integrated Inertial Measurement Unit and 3D distributed vision system

In MINAml, a global platform taking into account the constraints of integration, industrialisation and compatibility with advanced CMOS platforms will integrate these technologies. MINAml links demonstration, validation & exploitation.

## MINAml Vision

With the MINAml Ambient Intelligence system, the physical environment can be loaded with interesting and context-related information, easily and naturally accessible to the user. Information is in the tags and sensors embedded in physical surroundings and everyday objects, and it can be anything from sensor measurements from the environment or the user itself, to a piece of music or the latest news. The user can wirelessly access this information content by just touching or scanning close tags and sensors with their mobile phone. The phone also enables wireless connection to the internet. As the interaction can be tied to a specific place, object, and time, the user is served with context-related information and services.

### Demonstrators developed in MINAml



**Drugs monitoring and conditioning** aims at developing a smart pill box offering to patients an alert service when their use of medication dangerously differs from the prescription.



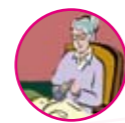
**Health monitoring and homecare** will demonstrate the feasibility of an ultra light EEG data logger that can be downloaded every 24 hours through a passive RFID link.



**Assistive listening device** will show how smart acoustic sensor arrays may help hearing instruments users to focus on relevant audio data (voice recognition, sound localisation).



**Data downloading from passive tags** will demonstrate that people can consume a large amount of offline digital data such as music, videos, games etc. The data is downloaded from a memory tag module to a reader module. Reader technology will eventually be integrated



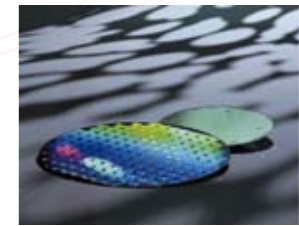
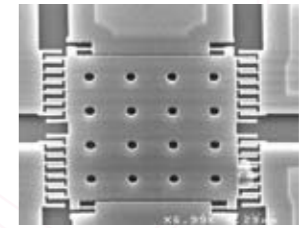
**Ambient sensors for friendly home applications** will explore the feasibility of extracting data from distributed vision sensors and other smart sensors to bring information to users in home centric scenarios such as automation, security and homecare.



**Virtual optical user interface** will demonstrate how small devices such as cell phones will be able to become a gateway to Aml applications where a bigger screen and faster input device may be required. The demonstration will be based on a tiny projection system that activates an optical keyboard and/or a projected touch enabled display.

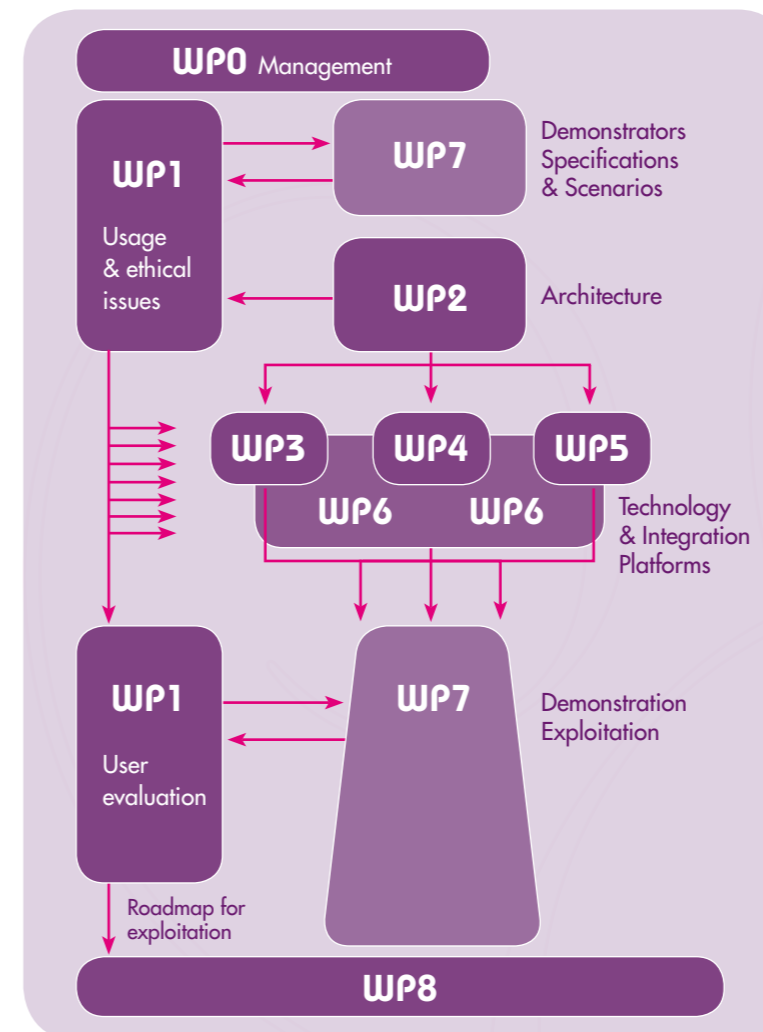
## Potential Impact

EU is confronted with significant changes arising from globalisation and the challenges of new knowledge-driven economy, information and communication technologies have the potential to enhance every aspect of people's lives. In this way MINAml will contribute to the European competitiveness by developing new competitive technologies and components almost "mandatory" to realise the Aml vision. Moreover, the applications developed in MINAml can help not only to modernise the European social model in terms of healthcare, leisure and work opportunities but also to promote and accelerate acceptance of Aml ideas in Europe. Last but not least, MINAml will take a holistic view of Aml, considering not just the technology but the whole of the innovation supply chain from usage and ethical assessment to demonstration and validation of applications.



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## Work Organisation



## Ethical issues in MINAml

Ethical concerns regarding the vision and products of the project as well as the user evaluations carried out within the project are dealt with the two-fold ethical management structure of MINAml.

The project's internal Ethical Committee reviews the user evaluation activities carried out within MINAml with regard to ethical concerns. The Ethical Committee prepares and maintains an ethical guideline document for the user evaluations and deals with ethical problems that may come up during the project work. The ethical concerns which arise and their solutions are reported annually.

An Ethical Advisory Board includes external experts of different fields of ethics. The Ethical Advisory Board identifies and evaluates broader ethical implications related to the project vision, goal, and products. The Board publishes Ethical guidelines for mobile-centred Ambient Intelligence.