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OP8. Breakthrough Technologies in Professional Dementia Healthcare

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eHealth and Ambient Assisted Living (AAL) technologies (smart, IT&C based devices and services) → one of the golden answers to population aging and ‘Alzheimer’s Crisis’ .



eHealth and AAL outcomes:

- **Improvement of the quality of life of old people** (especially for those with special physical and mental needs), of their **(in) formal caregivers** and of their **families**;
- **Dependent patients to remain as long as possible in their own homes** in security and eventually under continuous monitoring;
- **Delayed hospitalization/institutionalization**;
- **Lowering of health and social care costs**;
- **Facilitation of more effective healthcare policies design.**



Challenges faced by eHealth and AAL applications addressing people with special mental needs -1

Intelligent AAL applications for physically impaired elders are nowadays boosting;

- ❑ demographic variables (age, sex, level of education) additively interfere with various mental impairments;
- ❑ the huge individual variability of cognitive (frequently associated with physical) symptoms/needs → huge variability of assistance needs → end-user profiling is more difficult;
- ❑ intelligent assistive devices must be flexible, self-adaptable to an unstable patient profile,



Challenges faced by eHealth and AAL applications addressing people with special mental needs -2

- device personalization as interfaces and guides is more difficult;
- Human (end-user) – machine interaction (non-compliance, even anxiety) is more difficult to be managed;
- Ethical aspects are more complex.



Lessons learned from two EU-FP6-IST funded projects -1 :

- SHARE-IT - 3 Aml prototypes based on inner and environmental sensors and afferent software, for physically and/or cognitively (mild to moderate dementia) impaired people;
- K4CARE - eHealth software based on case profile and care staff ontologies, and the elaboration of formal intervention plans, personalized on patient's needs.



Lessons learned from two EU-FP6-IST funded projects -2:

- ❑ the huge individual variability of cognitive symptoms require the definition of:
 - a **suitable battery of patient assessment scales** (Gorel-Brane scale proved remarkable) for end-user profiling,
 - **'clusters' of needs** able to facilitate platform's flexibility and self-adaptability;
- ❑ end-user compliance and machine :
 - friendly, easy-to-use **communication interfaces and tutorials,**
 - end-user **careful previous preparation** for the contact with the machine;
- ❑ the **cooperation with patient's associations representative** seemed mandatory, even from the project proposal preparation phase;
- ❑ **ethical aspects and patient consent** still requires sustained improvement.
- ❑ among the demographic variables, **user's low education level is critical;**



Lessons learned from two EU-FP6-IST funded projects -3 :

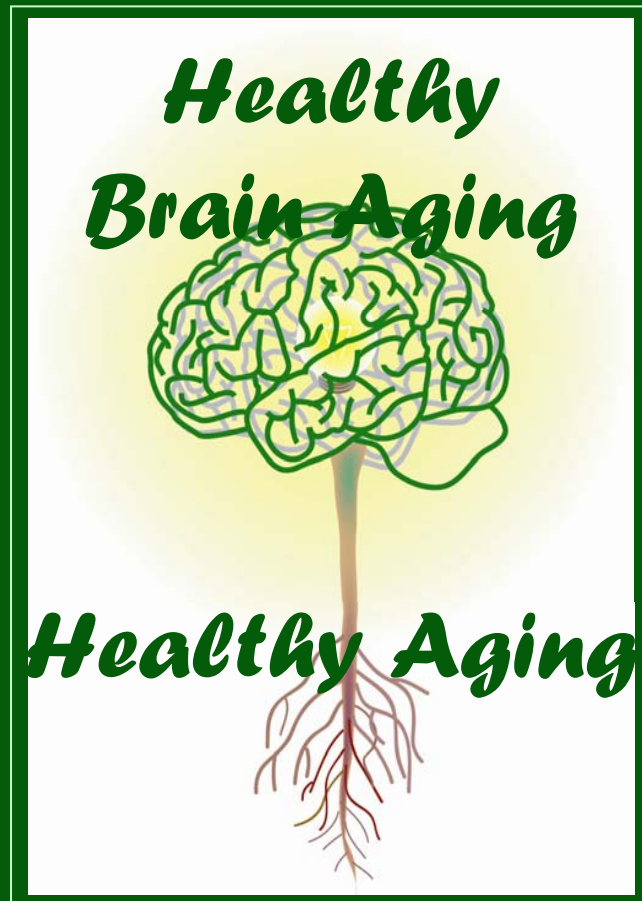
The development of AAL applications targeting cognitive patients still requires sustained **multidisciplinary research**, mainly addressing:

- (a) the **design of patient-specific assessment and monitoring tools**,
- (b) the **creation of flexible, adaptive devices with user-friendly interfaces** capable of
- (c) **sustaining patient and caregiver oriented education.**

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**Thank you for attention
and your feedback**

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