



ICT4LIFE

Final Conference

More autonomy for patients

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Ageing population

Challenges:

- Increasing ageing population in Europe.
- **Dementia** (including Alzheimer's disease and others), remains one of the biggest global public health challenges, estimated at **44 millions** and **set to double by 2030** and **more than triple by 2050**.
- People want to live in their own house, but those suffering from Dementia, Alzheimer's, Parkinson's have difficulties to manage alone and require care.
- Efforts are made at European level to monitor, prevent, treat and manage diseases.

Integrated Care

Continuity of care

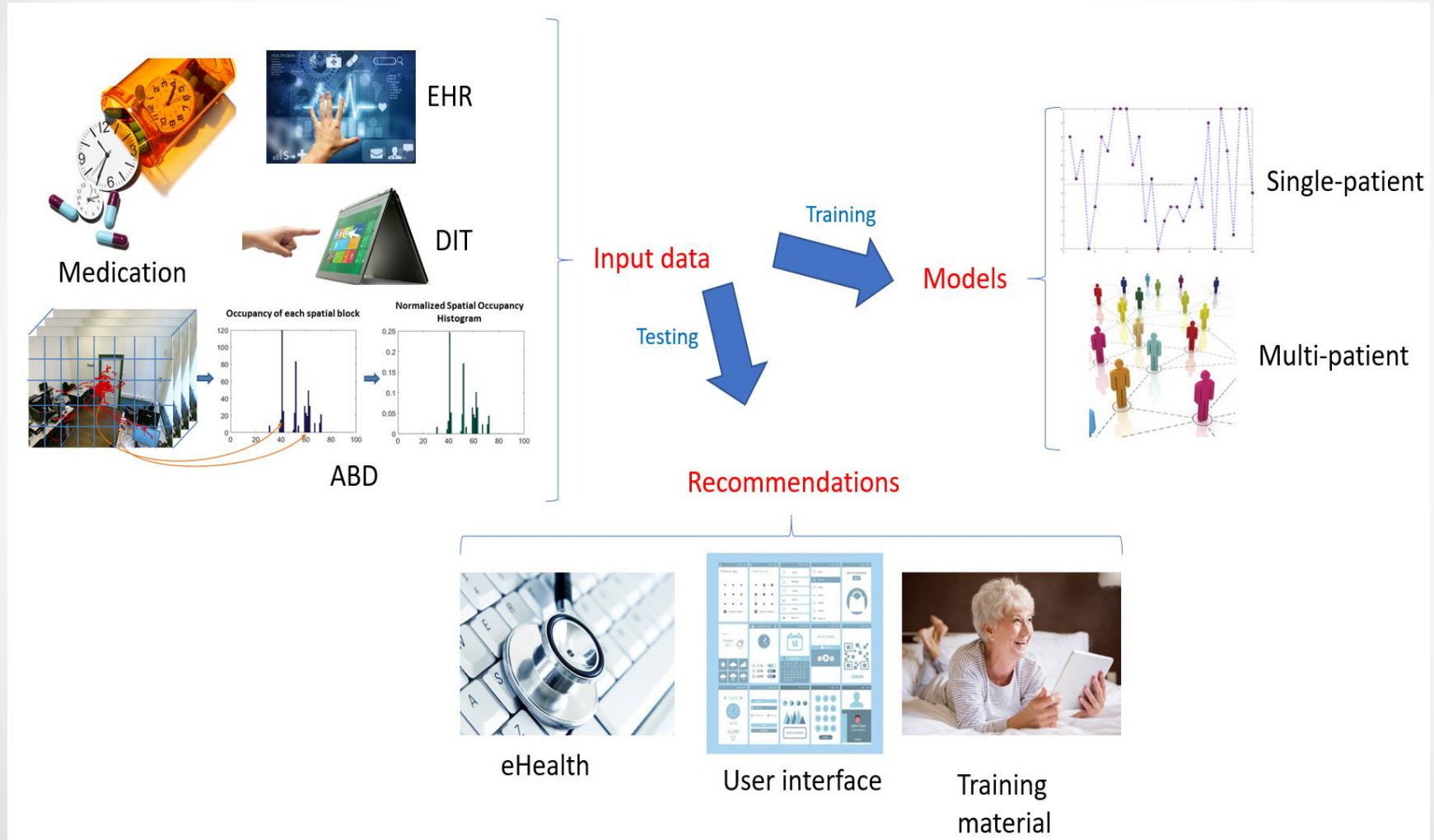
User-centred approach
Empowerment
Cooperation
Communication

Integration of care

Primary & Specialised care
Mental & physical care
Health & Social care
Patient & caregiver involvement



Platform for integrated care



Testing Methodology

- 3 Testing sites
- 3 Pilot Scenarios
- 1 Common Methodology



France

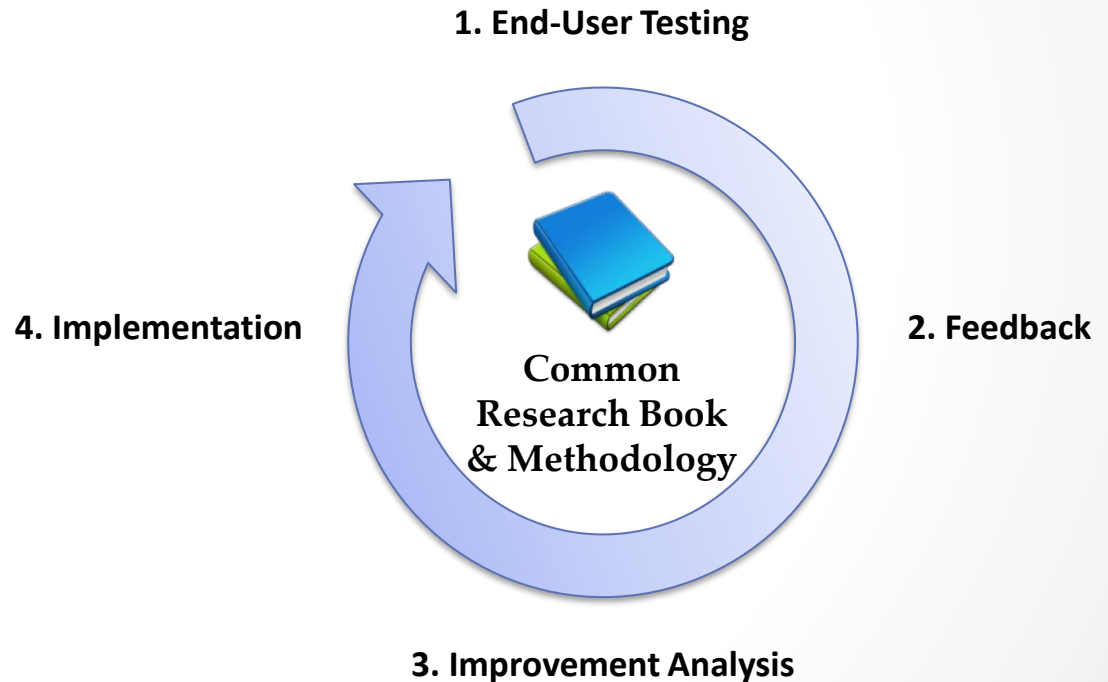


Hungary



Spain

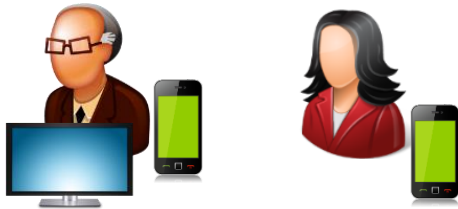
Iterative testing process



Pilot Scenarios



Home scenario



Patient & Caregiver support

Information – Training – Communication
Calendar – Medication – Social Support

Sensor deployment

Security / Abnormal behaviour / Symptoms
3D Cams / binary sensors / wearables

Shared Information

Health & Social Professionals
Knowledge acquired from sensors



Rehabilitation scenario



Patient & Caregiver support

Information – Training – Communication
Calendar – Medication – Social Support

Sensor deployment

Rehabilitation exercise evolution
3D Cameras / Wearables

Shared Information

Health & Social Professionals
Patient therapy evolution



Day-care centre scenario



Care Professionals

Patient specific data and reminders
Patient symptom information

Sensor deployment

Security / Symptom data / Socialization
3D Cameras / wearables

Shared Information

Health & Social Professionals

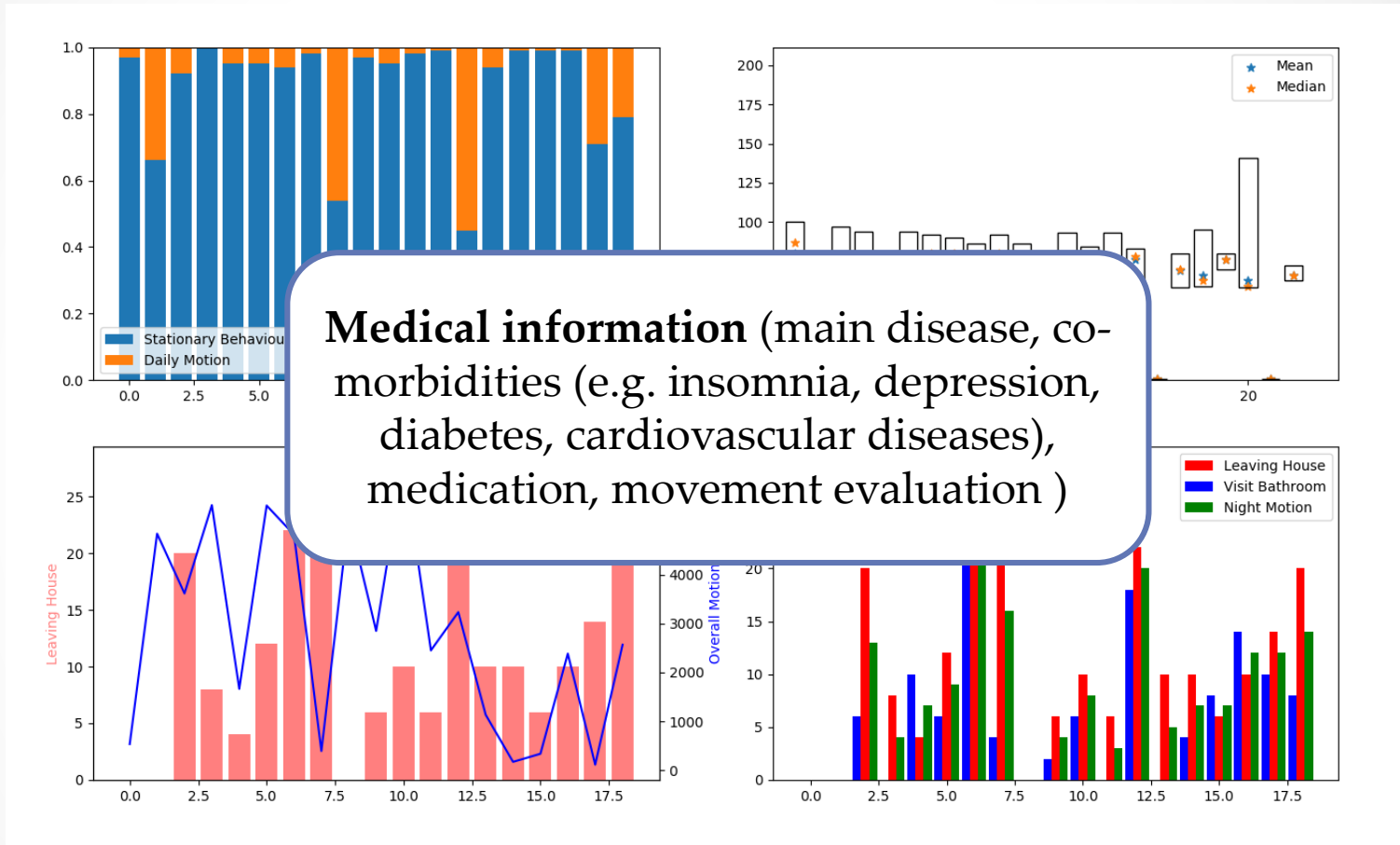


ICT4Life

More autonomy for patients

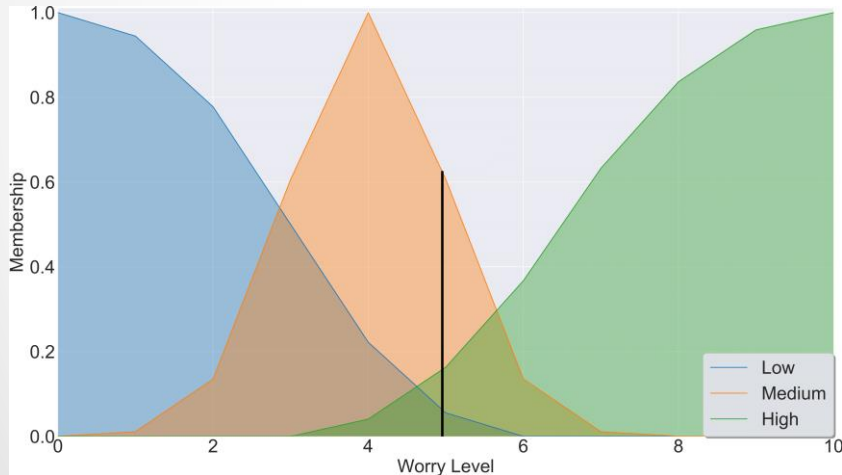
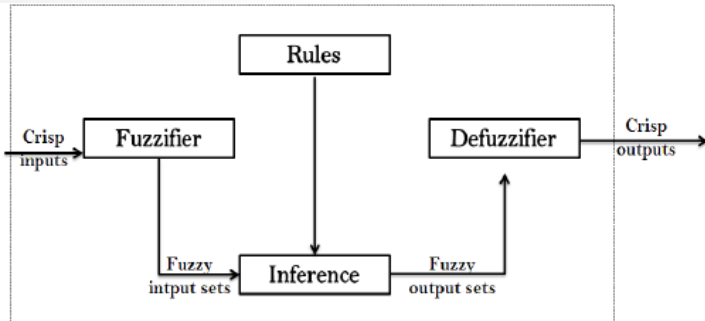


Data Analysis and Fusion



$$P^i(\text{apathy}) = w_a * P^{ABD}(\text{apathy}) + w_h * P^{HM}(\text{apathy}) + w_e * P^{EHR}(\text{apathy})$$

Decision Support Tool



- Example of the worry level indicator for a certain patient regarding the general health condition.
- In this case, $w_l = 4.92$ and therefore this patient obtained a normal result according to the stage of the disease and the system criteria.
- In case the worry level is high, a recommendation is sent accordingly.

Recommendations for Different Stakeholders



Recommendation for the Patient



NOTIFICACIÓN

Notificación - ICT4Life

ICT4Life le permite guardar su información de salud, ponerse en contacto con sus cuidadores, enviar alertas, o incluir recordatorios en su calendario, además de ofrecerle información y consejos prácticos para apoyar su vida independiente.

Para: Juan Pedro

Asunto: ICT4LIFE Symptoms Recommendation

Fecha y hora: 2018/10/08 04:58

Contenido: Hi Juan Pedro! why don't you start doing some activities you always wanted to do? Ask your caregiver or health professional about it. They will help you.

Notifications for Different Stakeholders



Notification for the Caregiver



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Para: Juan Pedro

Asunto: ICT4LIFE Symptoms Recommendation

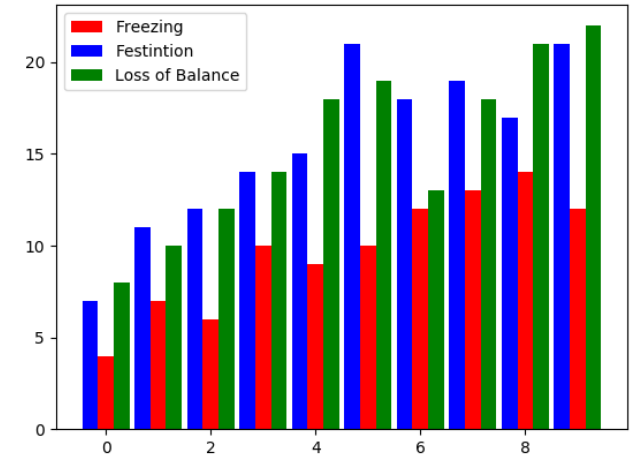
Fecha y hora: 2018/10/08 05:00

Contenido: The system has detected a considerable increase of parkinson events for H.G.M because of an increase in the number of loss of balance events

Recommendations for Different Stakeholders



Recommendation for the Professional



Notificación - ICT4Life

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Para: Juan Pedro

Asunto: ICT4LIFE Symptoms Recommendation

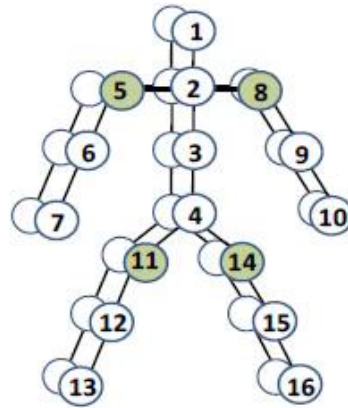
Fecha y hora: 2018/10/08 05:01

Contenido: The system has detected a considerable increase of parkinson events for H.G.M because of an increase in the number of loss of balance events. You may consider to set an appointment with the patient to have more details of the issue

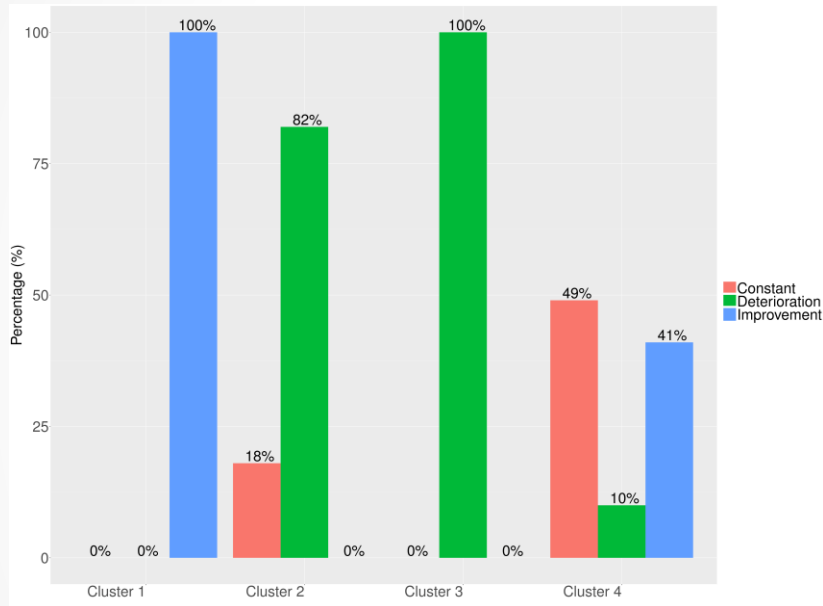
Rehabilitation Scenario

- Group the **patients** into **clusters** reflecting the properties of their motor-skills to create a system capable of:
 - Automatically build up groups for the therapy sessions using automatic exercise evaluations.
- Generate **custom recommendations** for patients and professionals according to their physical status in order to:
 - Optimize professionals' time to prepare exercises for each patient
 - Increase benefits for patients, by offering them a better personalized service.

Movement Evaluation Application using the Kinect Sensor



Experimental Results



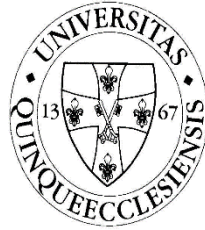
- Percentage of patients who improved, keep constant or suffered from degradation at every evaluation regarding their health status.
- Clustering patients, depending on their health state evolution is important for taking decisions for new patients in the system and finding the factors which affect their disease evolution.
- Establish special measures for patients who display a degradation of their physical, mental or emotional state.

Conclusions

- ICT4Life project demonstrated how technology can be integrated in the daily life of patients for improving their well-being, safety feeling and contributing at timely prevention of health issues.
- Abnormalities or emergency issues are timely detected and the caregivers/professionals are informed using automatic alerts.
- ICT4Life event summarization and analysis, regarding the user's behaviour patterns during weeks/months, support the professionals in the health diagnosis process, inform the caregivers and motivate the patients to make healthy changes.



Q/A?



THANK YOU

