What is wrong with AAL?

Challenges & Chances

Dirk Elias, Director

Center for Assistive Information and Communication Solutions

Fraunhofer Portugal Research, FhP AICOS
Overview

1. What is wrong with AAL?
2. Market Window & Reality Check
3. Yes, we can! But what?
What is wrong with AAL?

Simplified Answer:

It does not happen until now!

Why?
What is wrong with AAL?

Integration of the available technologies already provide most of the products and services needed!

Significant amounts of R&D funding have been spent on EU and national levels

Lab tests, Living Labs and field trials have been conducted and in general showed ‘usefulness’ and ‘value’

Already today there is a huge potential market (you could even call it a mass market!)

**BUT:**
Existing AAL products and services have had no or only limited commercial success in the market.
What is wrong with AAL?

Some potential reasons for current problems:

Before we start to develop a mass market product and related services, we should know the problem...

...and bring it down to a common denominator!

To do so, we should know who is involved...

...what the stakeholders want...

...and who pays the bill?
What is wrong with AAL today?

Some views from major stakeholders:

What the gerontologists say…

(taken from my colleague Alejandro Rodriguez, ABAT, Spain)
1.- The elderly population is VERY different and their physiology largely unknown.

2.- Vital signs contribute 10% to the medical diagnosis, while clinical interview contribute 90%.
• Past medical history.
• Current treatments.
• Functional status.
• Mental (cognitive and affective) status.
• Social factors.
• Current complain / disease
  – Onset, duration, types of symptoms…
• Physical exam.
  – Vital signs (HR,RR,T,BP)
  – Head and neck exam
  – Heart exploration
  – Lung exploration
  – Abdominal exploration
  – Limbs exam
  – Neurological exam…
• Lab-work / other test.
• Past medical history.
• Current treatments.
• Functional status.
• Mental (cognitive and affective) status.
• Social factors.
• Current complain / disease
  – Onset, duration, types of symptoms…
• Physical exam.
  – Vital signs (HR, RR, T, BP)
  – Head and neck exam
  – Heart exploration
  – Lung exploration
  – Abdominal exploration
  – Limbs exam
  – Neurological exam…
• Lab-work / other test.
CAALYX: whole information

- Pain level
- Functional state
- Depression symptoms
- Past medical history
- Baseline situation
- Treatment
- Subjective general state
- Sensorial dysfunction
- Deposition frequency
- Urinary symptoms
- Sleep disturbances
- Nutrition
- Blood pressure
- Blood oxygen saturation
- Weight
- Heart rate
- Temperature
- Respiratory rate
- Mobility and falls
- CARETAKER SITE
- SENSORS
What is wrong with AAL today?

Some views from major stakeholders:

What the gerontologists say…

What the demands of end users are…
What is wrong with AAL today?

**Social Interaction**
More persons will be physically separated from their families than in the past

**Personal Safety**
Need for independent living also with increased age is a consequence

**Health & Chronic Conditions**
Support outside of doctors offices and hospitals

**Ease of Use**
The ICT experience of a large part of the current generation of elderly people is limited to phones and televisions
What is wrong with AAL today?

Some views from major stakeholders:

What the gerontologists say…

What the demands of end users are…

What for the social security and health care systems matters…
What is wrong with AAL today?

Social security and health care systems in Europe are heavily heterogeneous

Few commonalities today are:

• Lack of money and human resources

• Demographic development
  (one day we all face the problem)

• Broadband access becomes a commonality

• Some e-health aspects
  (e.g. limited interoperability of electronic patient records)

• AAL widely is still seen as R&D topic
  (we need an answer, but only far in the future...)

________________________

AAL4ALL / Kick-Off

Fraunhofer

Health Cluster Portugal

AICOS

Polo de Competitividade da Saude
What is wrong with AAL today?

Some views from major stake holders:
What the gerontologists say…
What the demands of end users are…
What the social security and health care systems offer…
What the technical challenge is…
What is wrong with AAL today?

- **Monolythic & Stand alone**
  - Solution A Manufacturer X
- **Incompatible & Expensive**
  - Solution B Manufacturer Y
- **NOT FUTURE PROOF**
  - Solution C Manufacturer Z

AAL4ALL / Kick-Off
What is wrong with AAL today?

Which company is best in all aspects?
- A reasonable common denominator from a large amount of requirements from a magnitude of stakeholders needs to be defined.

- Focus needs to be on the ‘aging and elderly’ PERSON not sensors!

- Policy makers suffer from the ‘Boiling Frog Syndrom’

- Technically only an integrated ECOSYSTEM will be able to provide a sustainable mass market AAL solution
Market Window & Reality Check
Market Window & Reality Check

Threat (source Peter Wintlev-Jensen, DG-INFSO):

*up by 4-8% of GDP (2025)*
Some questions the product marketing will need to have answers for:

- When is the right time to give an answer to the threat?
- How long will it take to formulate and implement ‘the answer’?
- What is the market volume and how much will it cost to address it?
- Who are my potential partners and competitors?
- Which customer mix I will face (governmental, institutional, private)?
- How much are they willing to pay?
Market Window & Reality Check (source INE)
## Market Window & Reality Check (source Worldbank)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M+F</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;65</td>
<td>17%</td>
<td>17%</td>
<td>18%</td>
<td>19%</td>
<td>20%</td>
<td>22%</td>
<td>24%</td>
<td>26%</td>
<td>28%</td>
<td>29%</td>
</tr>
<tr>
<td><strong>MALE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;65</td>
<td>14%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
<td>23%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td><strong>FEMALE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;65</td>
<td>19%</td>
<td>19%</td>
<td>20%</td>
<td>21%</td>
<td>23%</td>
<td>25%</td>
<td>26%</td>
<td>28%</td>
<td>30%</td>
<td>32%</td>
</tr>
</tbody>
</table>

+4-8% GDP!
### Market Window & Reality Check (source INE, Portugal 2007)

<table>
<thead>
<tr>
<th>residence</th>
<th>MF &gt;65</th>
<th>M &gt;65</th>
<th>F &gt;65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norte</td>
<td>13%</td>
<td>13%</td>
<td>17%</td>
</tr>
<tr>
<td>Centro</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lisboa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alentejo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algarve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Açores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madeira</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(sources CCDRA, EC-European Policy Committee)

<table>
<thead>
<tr>
<th>GDP Alentejo (2004)</th>
<th>9,722 B (6.7% GDP nat.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-8% GDP in Alentejo</td>
<td></td>
</tr>
<tr>
<td>389-778M</td>
<td></td>
</tr>
</tbody>
</table>

No numbers for LTC from PT

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>M Alentejo</td>
<td>M Alentejo</td>
</tr>
<tr>
<td>Health Care (PT)</td>
<td>6,70</td>
<td>651,37</td>
<td>6,60</td>
</tr>
<tr>
<td>Pensions (PT)</td>
<td>11,10</td>
<td>1,079,14</td>
<td>16,00</td>
</tr>
<tr>
<td>Long-Time Care (EU10-PL)</td>
<td>0,30</td>
<td>29,17</td>
<td>0,50</td>
</tr>
<tr>
<td>Long-Time Care (EU15)</td>
<td>0,90</td>
<td>87,50</td>
<td>1,20</td>
</tr>
<tr>
<td>(SE)</td>
<td>3,80</td>
<td>369,44</td>
<td>4,90</td>
</tr>
</tbody>
</table>

Reforms a required (reduction of overall cost, implementation of efficient long-time care concept to decrease costs), but even a region like Alentejo is a significant m.
(source Peter Wintlev-Jensen, DG-INFSO)

Opportunity:

- Wealth and revenues in Europe of persons over 65 is over 3000 B
- Smart homes market will triple between 2005 and 2020
- Early patient discharge by tele-health: reduced cost of 1,5 B p.a. (DE)
- Tele-care technology at home: Empowerment of elderly and efficiency gains of 25% (UK)
What to do and when?

Simplified Answer:

Develop a **reliable framework** based on a ‘**primary care standard**’ and related business cases in order to facilitate industrial R&D investments. **Now!**
Defining a ‘Primary Care Standard’ is an

On behalf of the Health Cluster Portugal (HCP) Fraunhofer AICOS is driving the development of a national project called ‘AAL4ALL’ in Portugal

Although designed to be a national project, it would be very useful to embed the activity in an European context, given that also other member states decide to act in the same direction.

Some details on AAL4ALL…
AAL4ALL – What is it about?

A truly ‘Interdisciplinary Task’:

Public Institutions
Industry, User Organizations
R&D Institutions

Most important task:

‘Public Primary Health Care Standard’ for AAL-Solutions

Business model first:

business driven interfaces

Avoid reinventing wheels:

of the existing standards with market relevance

technical reuse

Fraunhofer AICOS
AAL4ALL – A Project for Portugal / Interested Parties
• **Portugal faces strong threats, especially in Alentejo and Centro** (Predicted national average of 2025 exceeded in 2007 already)

• **Early implementation and deployment** of a publicly available AAL-solution for all citizens will be a strong and **industry mobilizing** advantage when addressing **international markets**

• **Benefit for national social security system!**

• **Available Portuguese ICT infrastructure** is very good and a strong asset available for an **economic implementation** of the services

• **Limited size of the country is a benefit** for the introduction of a new technology (CAPEX and time) in general, **hot-spot areas** that require solutions exist already today (e.g. Alentejo) and can **become the proof of concept** (also with regards to the RoI)
What can we do about it IN EUROPE?

Are there similar activities in other countries in Europe? (please have a look at

http://aal4all.projects.fraunhofer.pt/aal_questionary_final_verteilt.pdf )

Even with heterogeneous Social Security & Health Care standards we have to find some common minimum denominator for a ‘Public Primary AAL Care Standard’ to be able to create mass market solutions for in- and outside of Europe!

This would even support the idea of ‘roaming’ (Tourism, Act on free movement of (elderly) workers, change of senior residence, etc)

Which EU program would be the right platform to find out (AAL-JP, FP7???)

AAL4ALL / Kick-Off

Fraunhofer

Health Cluster Portugal