



# AALIANCE2

European Next Generation  
Ambient Assisted Living  
Innovation Alliance

# **AALIANCE2 Roadmap**

## **A positive perspective**

**September 11, 2014**  
**AAL Forum, Bucharest**

**Dr. Filippo Cavallo**

*AALIANCE2 Project Manager*

*Scuola Superiore Sant'Anna*

*The BioRobotics Institute*

*Pisa, Italy*

[filippo.cavallo@sssup.it](mailto:filippo.cavallo@sssup.it)



AALIANCE2 is a Coordination Action funded by the European Programme  
FP7-ICT-2011.5.4 (Project reference: 288705)



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European Next Generation  
Ambient Assisted Living  
Innovation Alliance

# AALIANCE2 ROADMAP AND SRA 2014



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AAL Forum 2014  
Bucharest, Romania  
September 09-12, 2014

## Next Generation European Ambient Assisted Living Innovation Alliance

Funding scheme: Coordination Action (CA), FP7-ICT-2011.7

[www.aaliance.eu](http://www.aaliance.eu)

### Consortium

1. Scuola Superiore S. Anna, IT
2. OFFIS, DE
3. Deutches Telekom Ag, DE
4. Tunstall, UK
5. Tecnalía, ES
6. Age Platform, BE
7. VanMorgen, NL

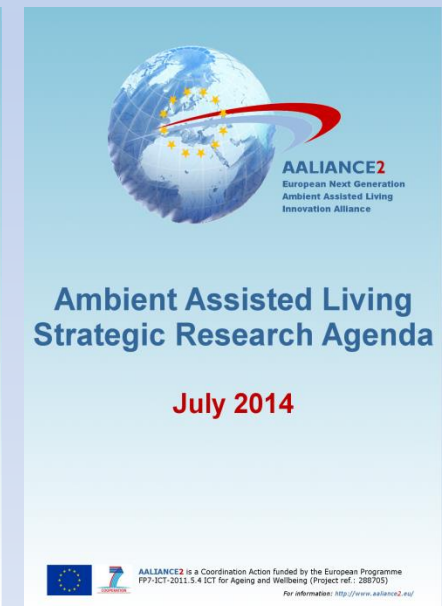
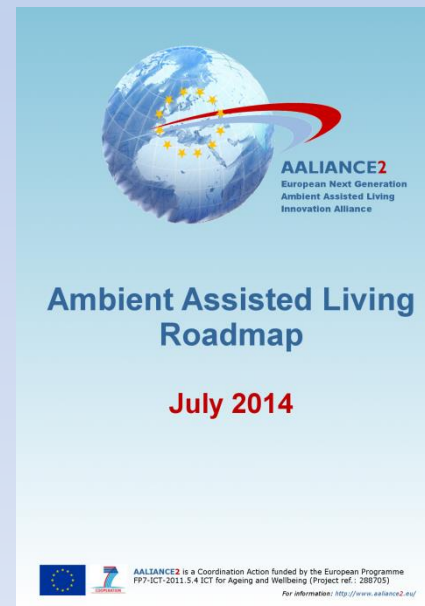
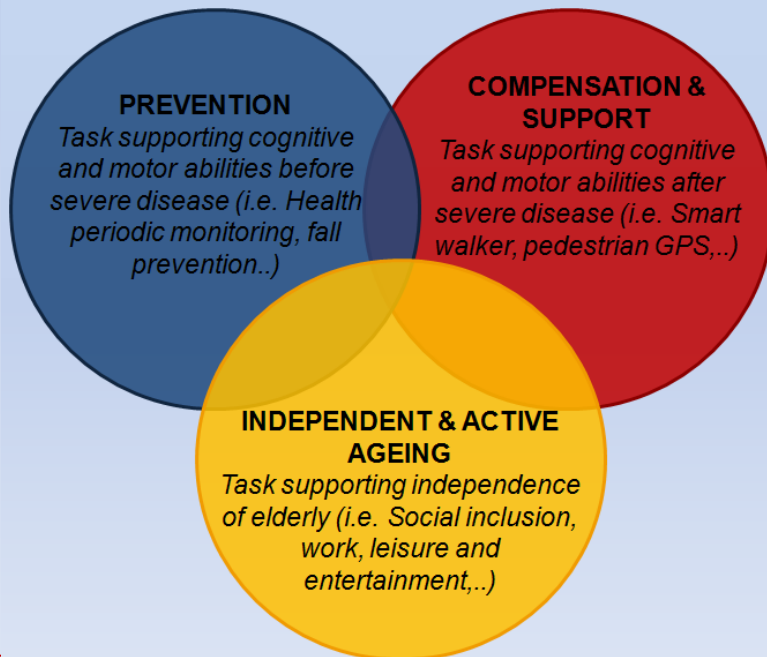
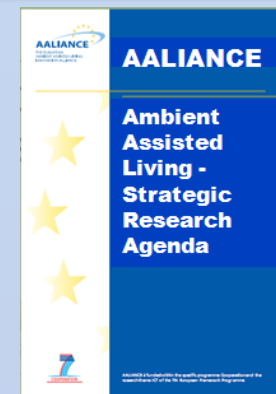
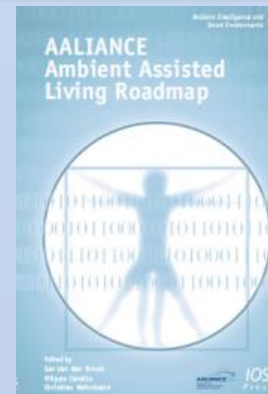
- Investigating the **current SoA and market developments** in AAL in **Europe, North America and Asia**, addressing possible **Business models**;
- Further developing the **AALIANCE2 AAL Roadmap and Strategic Research Agenda** for future technologies and applications;
- Addressing **standardisation** issues and initiating corresponding standardisation activities;
- Enhancing the **sustainable network of AALIANCE** involving the major AAL Stakeholders;

# AALIANCE 2010 -> 2014

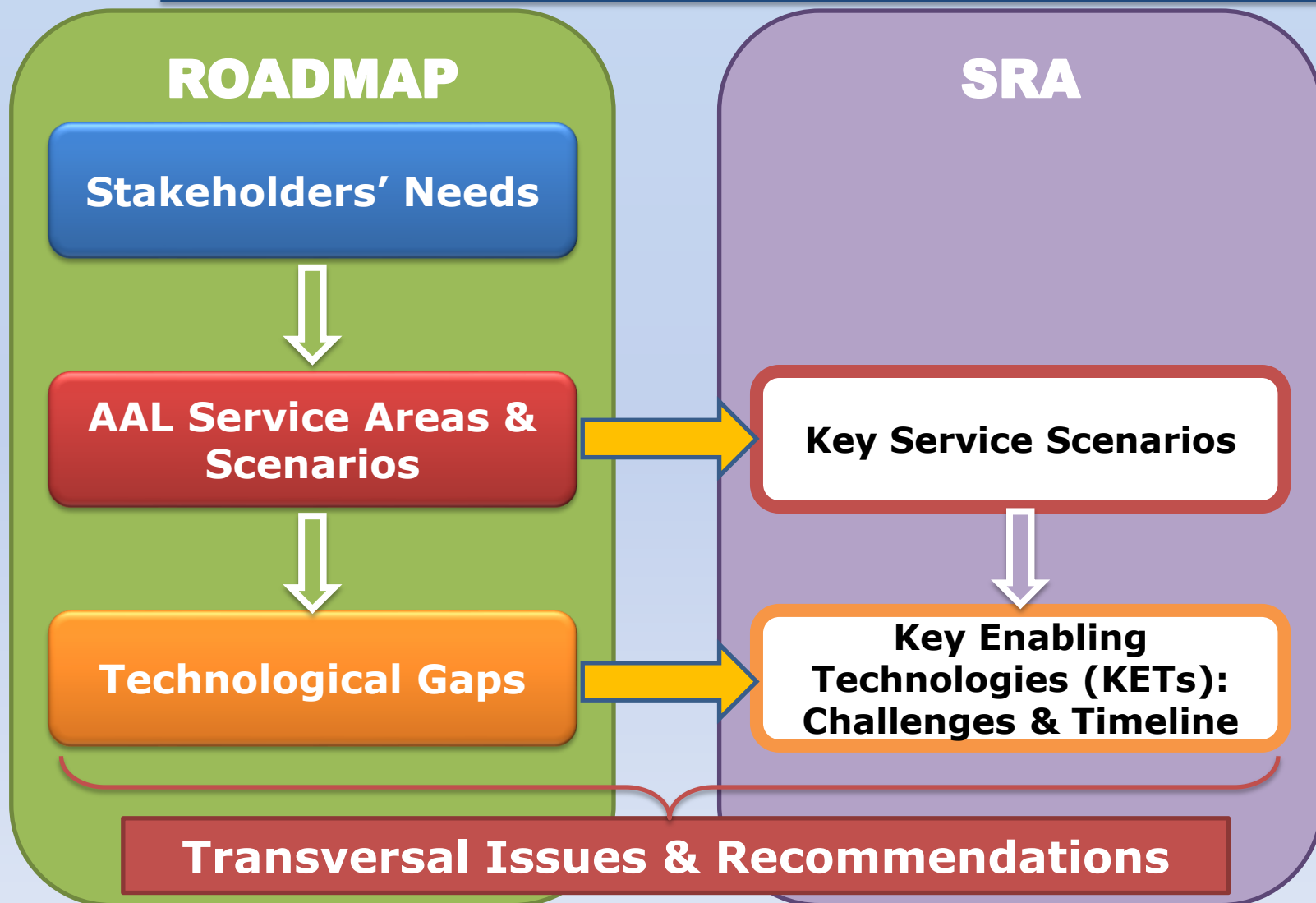
**Ageing well (@home, @mobile)  
PERSONAL AUTONOMY AND WELL-BEING**

**Ageing well in one's social environment  
PARTICIPATION**

**Ageing well in one's working environment  
ACTIVE AND PRODUCTIVE AGEING**



# Roadmap and SRA 2014: Workflow



# AALIANCE associate followers



3 Exhibitions  
(AAL Forum  
2013, ICT  
2013, ForItAAL  
2013)

Questionnaires  
(130+  
stakeholders)

Online survey  
(40+  
stakeholders)



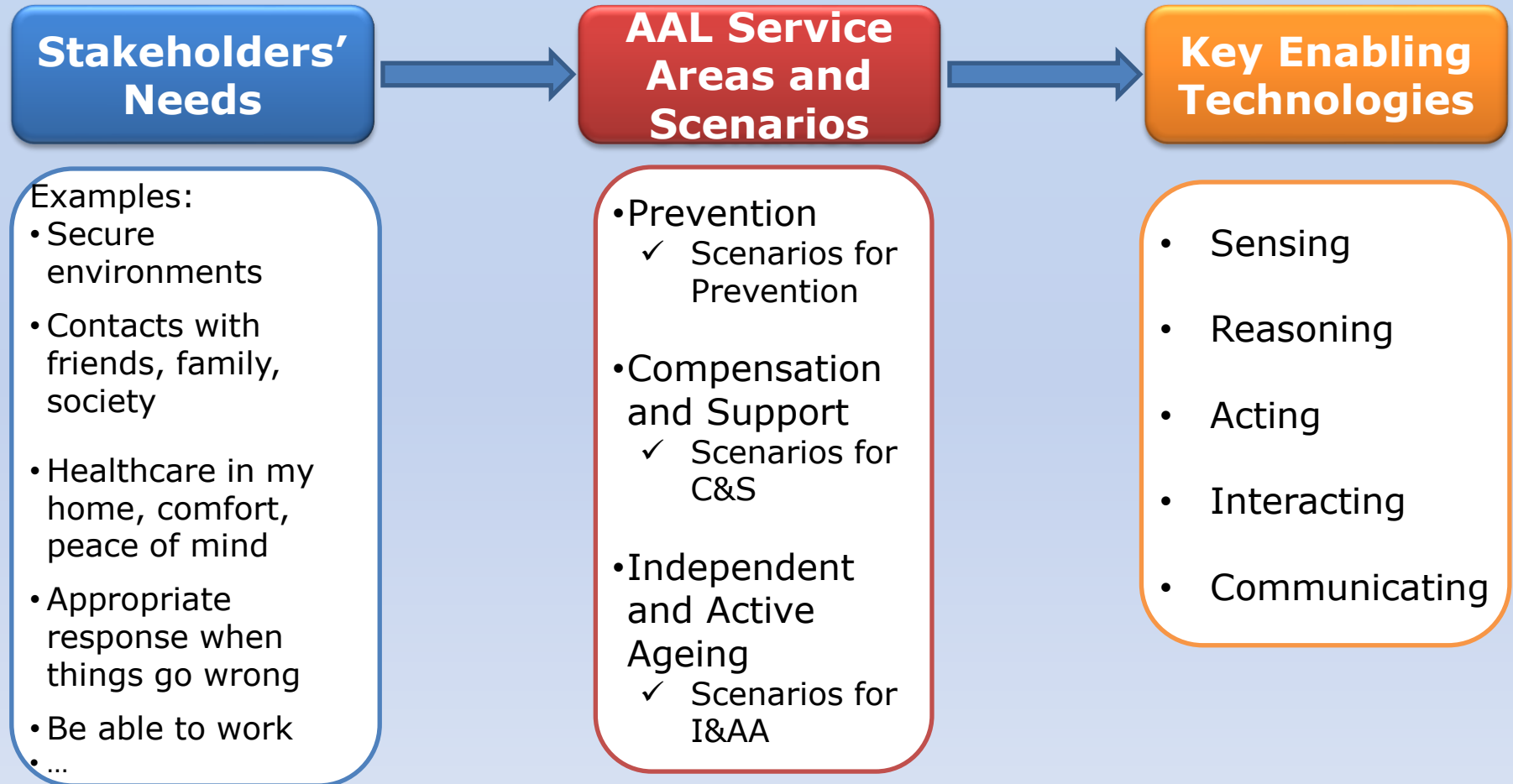
1 Conference  
(Brussels,  
March 2014)

7 workshops in  
Europe  
(200+  
stakeholders)



2 Workshop in  
US – Stanford,  
JP –  
Waseda/ATR

**User needs  
&  
Recommendations**





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## We are talking about...

### WHAT?



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## Some of their roles in the society

WHAT?

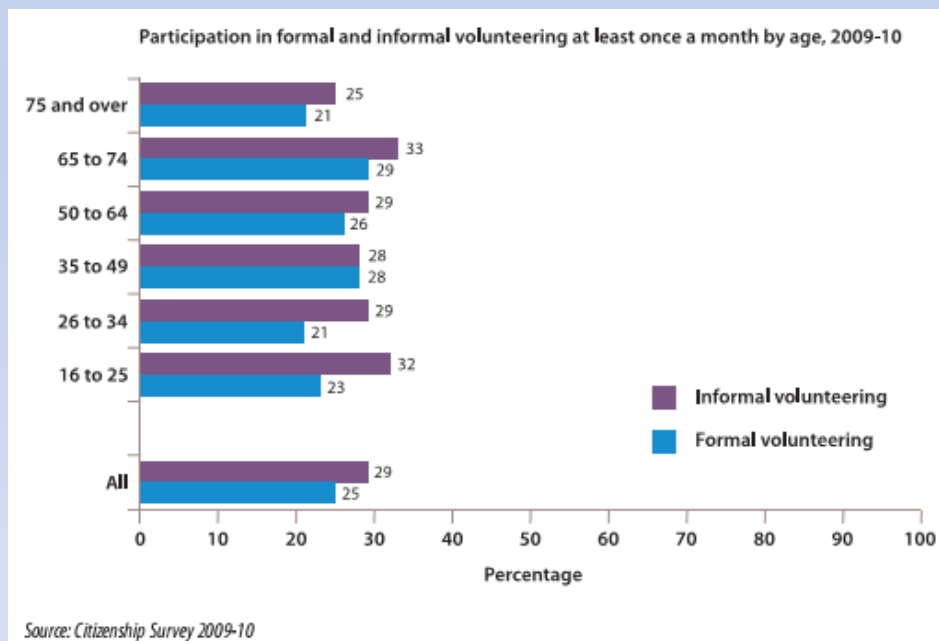


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# Older people usually contribute to society (volunteer)

1. Charitable giving, caring for family members and civic engagement of all types;

- informally, outside their immediate families;
- formally, through groups and organizations.



**There is clear evidence from scientific studies that volunteering benefits health**

# Customs

- Old people handed down customs, traditions, experience and wisdom from generation to generation.



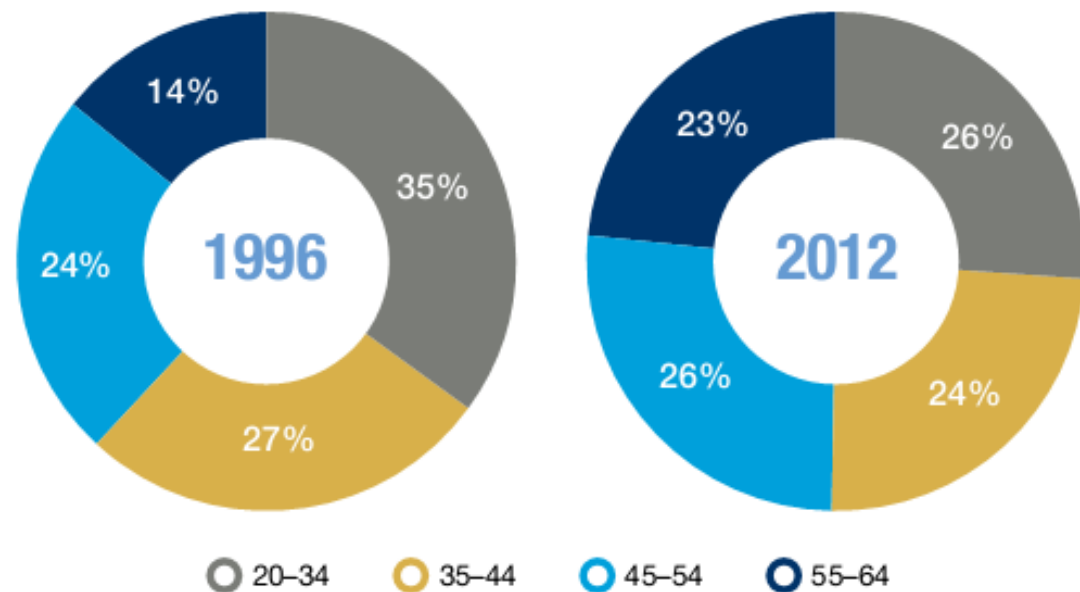


# Longevity economy (1)

- People in their 50s and 60s start businesses at nearly twice the rate of those in their 20s, because they have the capital, the credit, and, often, a wealth of experience that younger workers lack.

They already inject some \$4.6 trillion a year in spending on consumer goods and services, including health care,

**Fig. 4: Composition of new entrepreneurs by age group**  
% of new ventures, by age group of founder



Sources: Oxford Economics and Fairlie (2013)

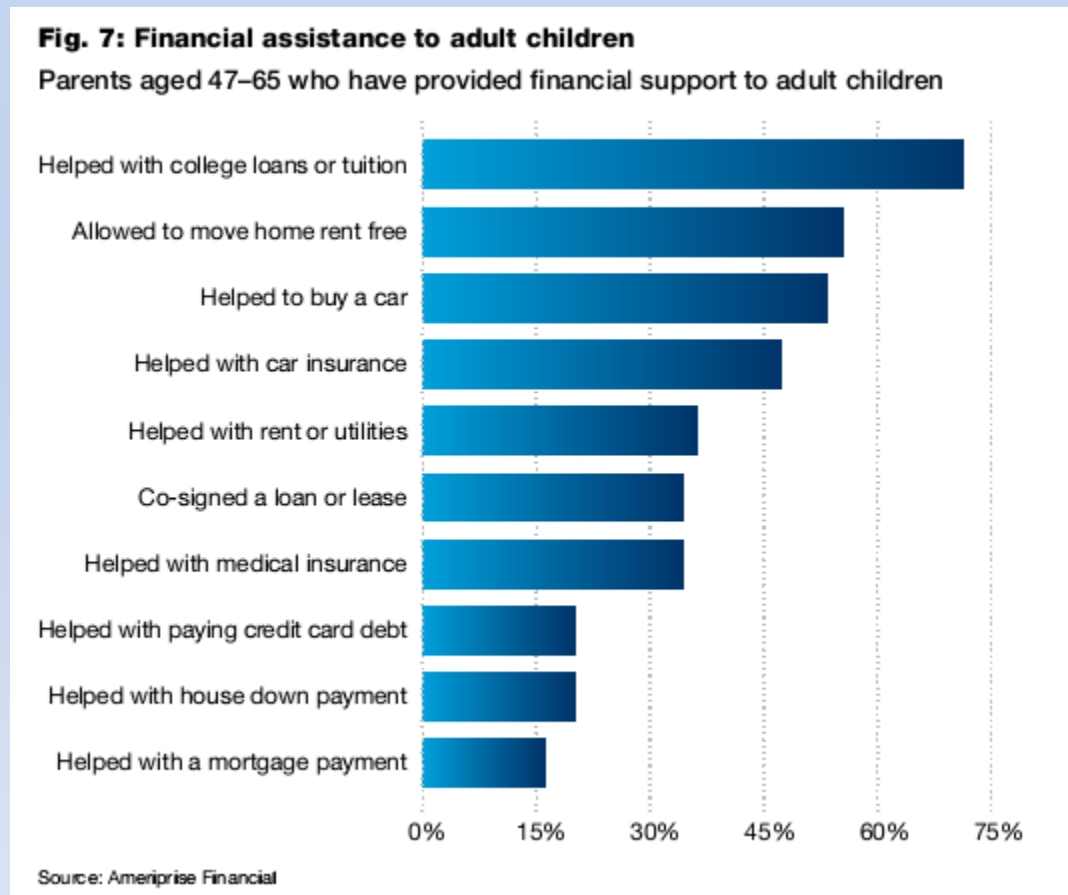
# Grandparents and grandchildren

- Older grandparents (those aged over 65) are usually asked raising their grandchildren



# Longevity economy (2)

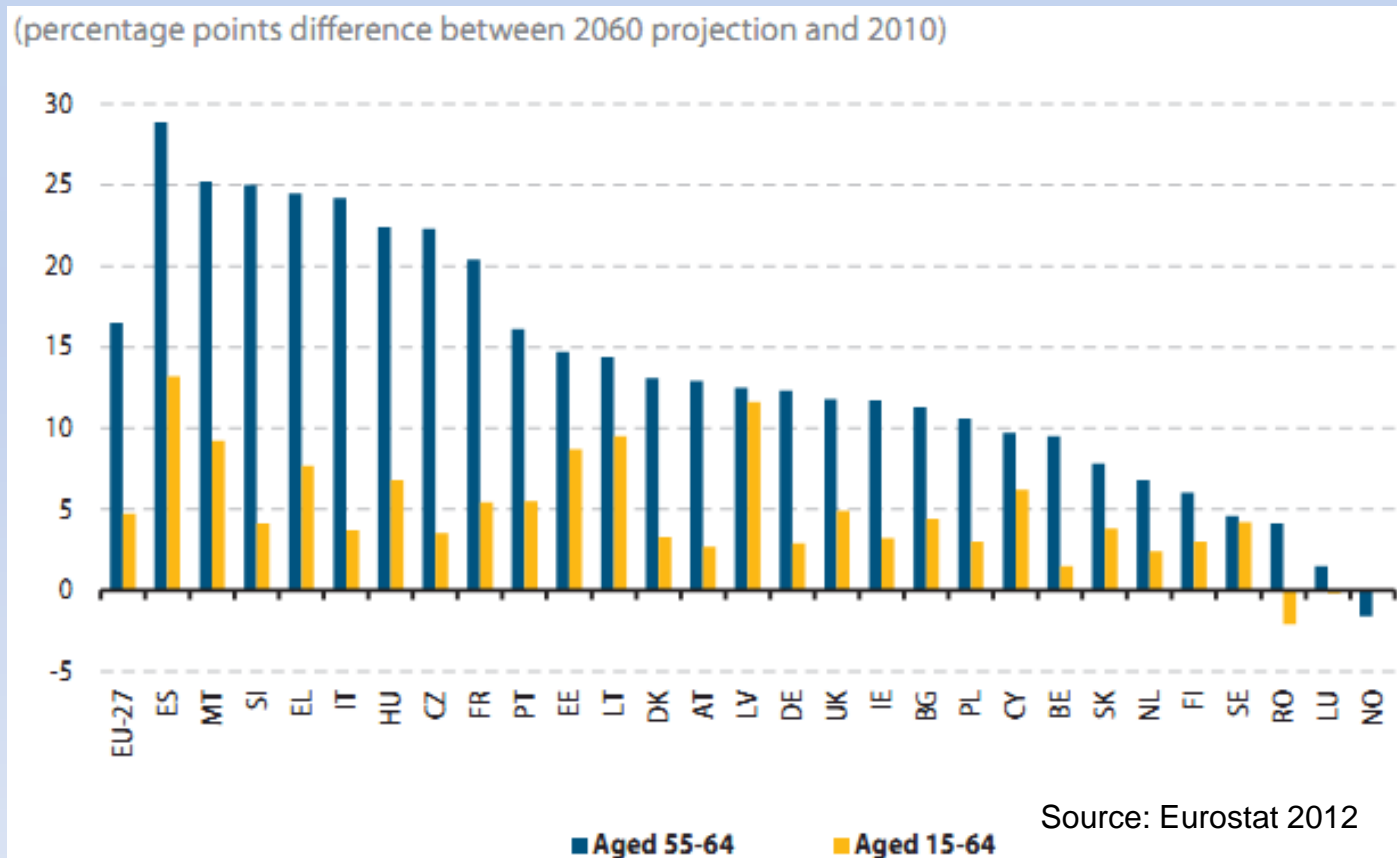
- Provision of some form of financial support to their adult children





# Older people contribute to society (work longer)

Projections for changes to the employment rate between 2010 and 2060



# Socially active

1. Active ageing is an important opportunity for society because healthy and active older citizens can **continue to contribute** to the growth and welfare of the communities in terms of support to their children and grandchildren, voluntary work, consumption and purchases, work, etc.





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**The presence of old people in the  
society is first of all an  
opportunity**



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## The good thing???



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# There are a lot of elderly people

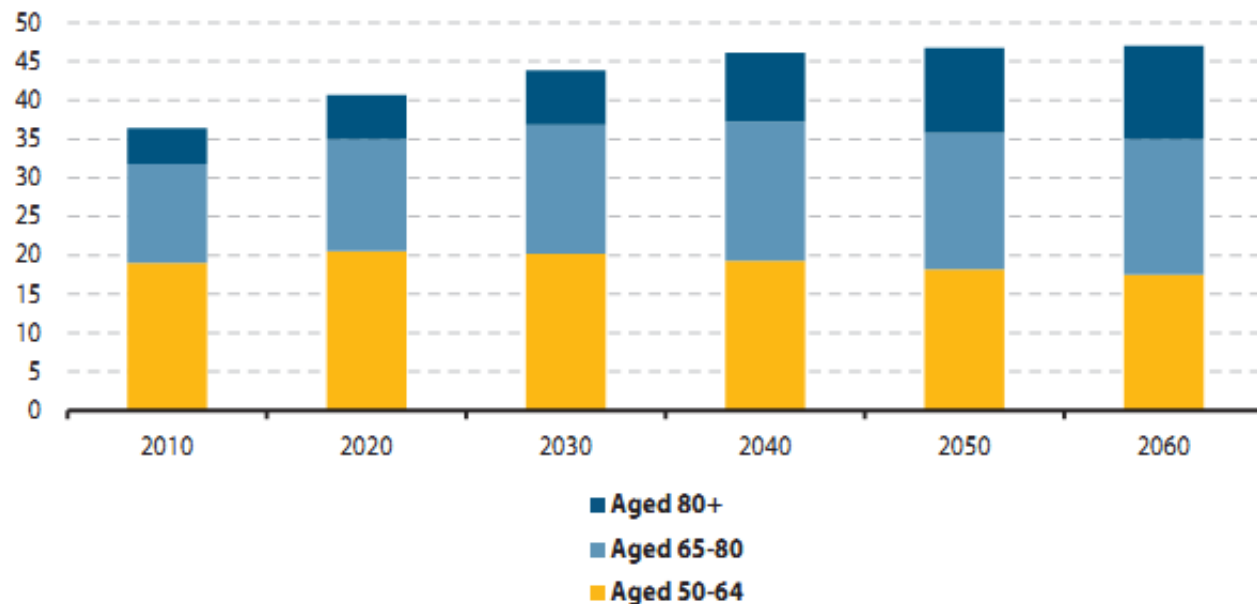
Projected structure of the population by age group, EU-27, 1 January 2010

Year	Millions	% of total population
1950	130.5	5.2%
2000	417.2	6.8%
2050	1,486.9	16.2%

Source: Martin, 2011. Data from United Nations Population Division, 2009, medium variant.

Population aged 65 or more for the world

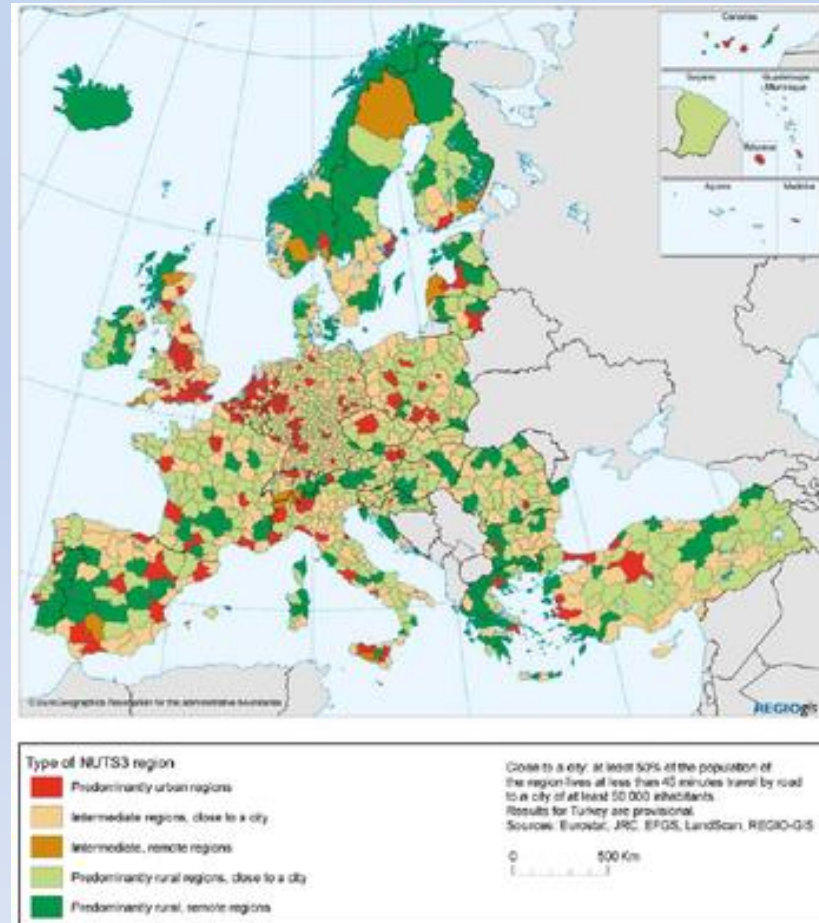
(% share of total population)



Source: Eurostat (online data code: proj\_10c2150p)

# Elderly people in rural areas

1. Senior people live in rural areas and big urban areas, so well distributed in places.





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## BUT

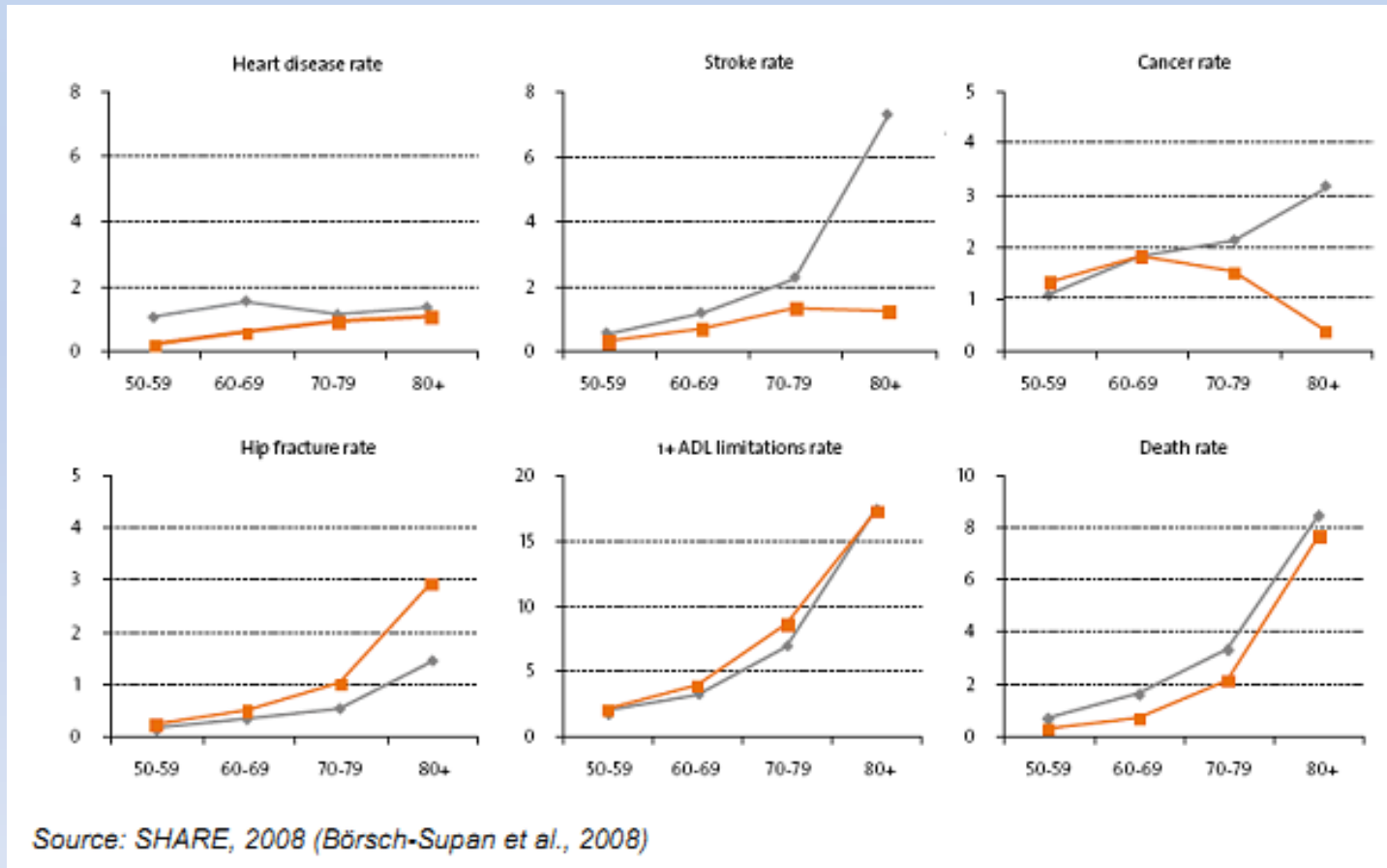
They are frail



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# Health status of the older population

The data revealed that on average men have higher incidence of fatal diseases and death, but women experience more disability

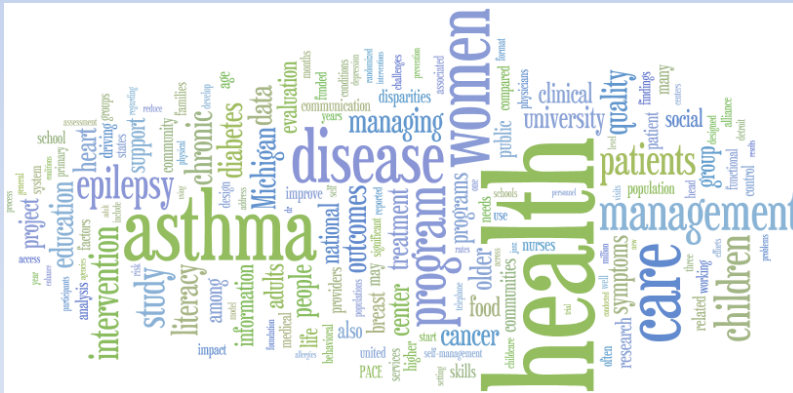


Grey line: men  
Orange line: women

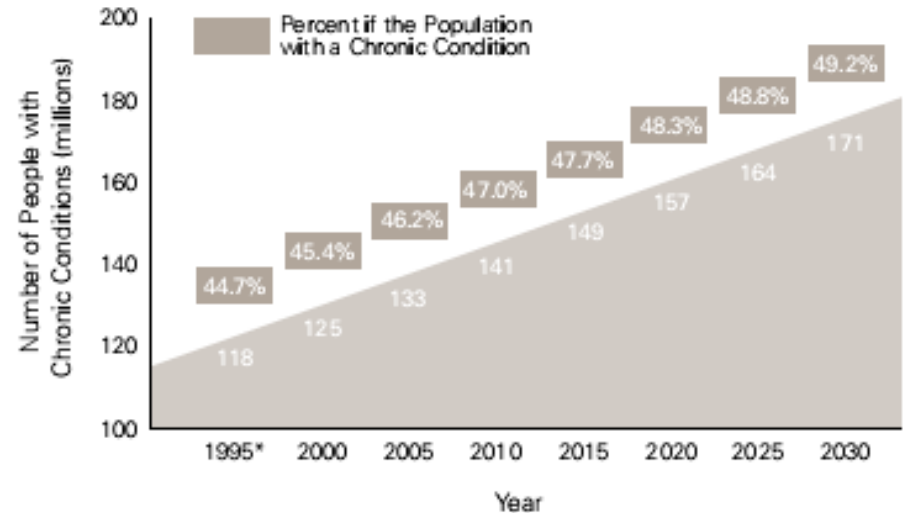


# Management of multiple and chronic diseases at home

- Chronic conditions are those that last a year or more and require ongoing medical attention and/or limit activities of daily living; Examples include arthritis, diabetes, heart disease and hypertension;



**Chart 1: The Number of People with Chronic Conditions is Rapidly Increasing**

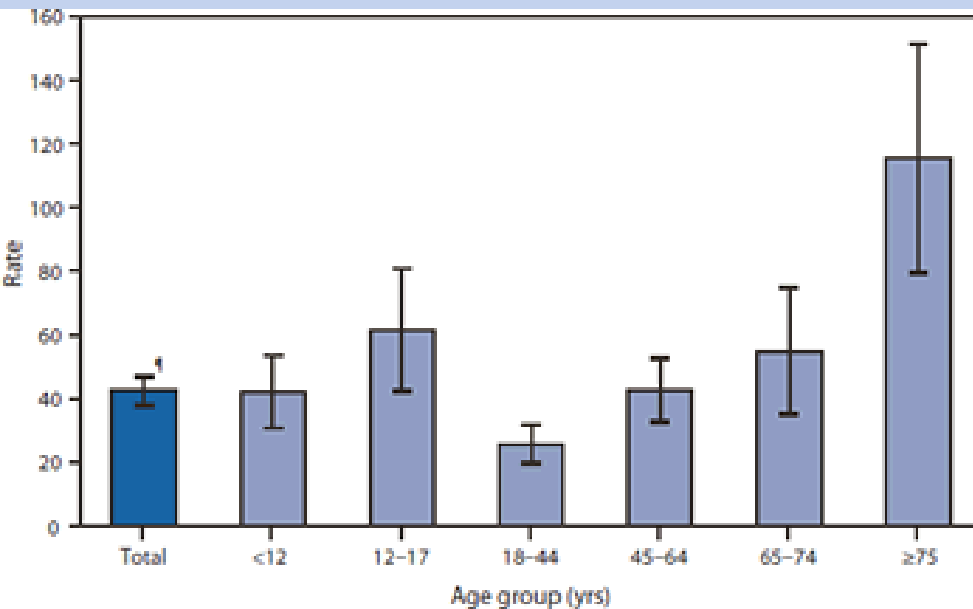


Source: Wu, Shin-Yi, and Green, Anthony. *Projection of Chronic Illness Prevalence and Cost Inflation*. RAND Corporation, October 2000.

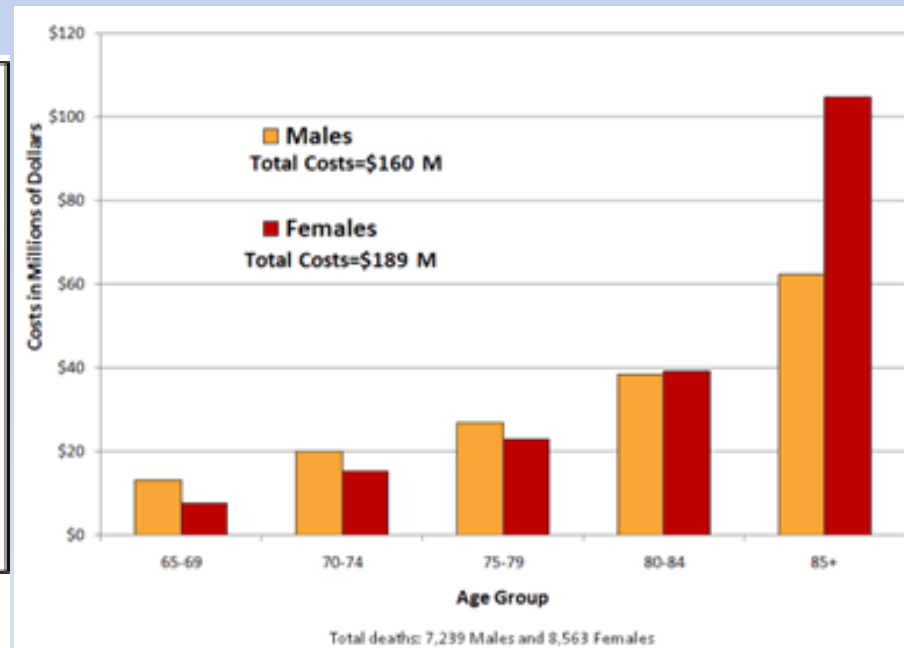
# Risk of accidents

- Older persons, and especially those aged 75+, are more at risk to have accidents and in particular falls (physical weakness or effects of polypharmacy);

Rate\* of Nonfatal, Medically Consulted Fall Injury Episodes,† by Age Group



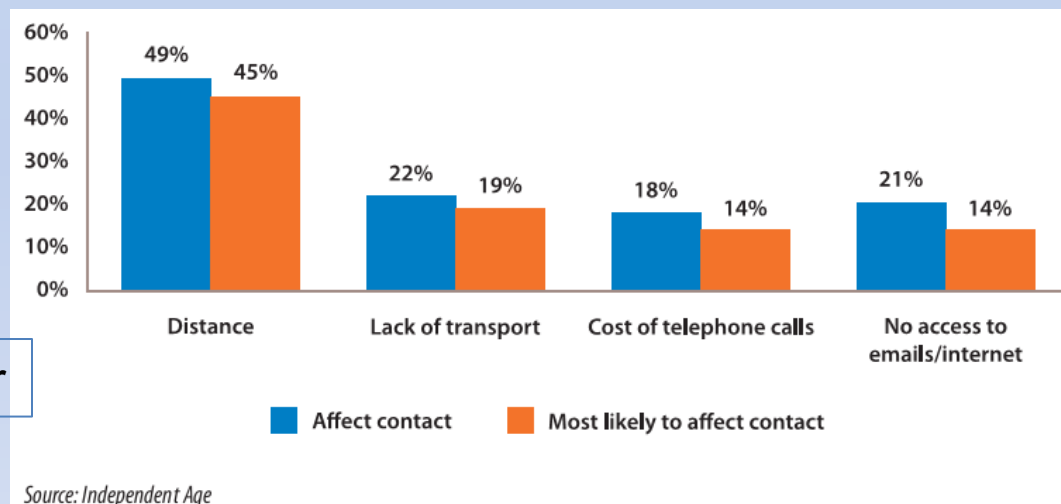
Cost of Fall Injuries in Older Persons in



Graphic source: [MMWR Quickstats](http://www.cdc.gov/mmwr/quickstats), 02/03/2012

# Insecurity, vulnerability, loneliness and depression;

1. Older persons who live alone and/or had negative experiences (like accidents, falls), may strongly perceive their loneliness and vulnerability;
2. Consequently depression and premature degeneration of both physical and cognitive health occur.



loneliness → high blood pressure

Low social integration → breast cancer

lack of social networks → cardiovascular disease

**Overall, research suggests that loneliness is as much of a threat to health as smoking or obesity**

# Maltreatments

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1. A study of the World Health Organization highlighted that in Europe annually about 4 millions of elderly older people are subject to maltreatments and abuses that often cause premature deaths;
2. There are several forms of abuse:
  - physical,
  - psychological,
  - financial,
  - sexual
  - medical abuse.



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**So....**

It is easy!!!

We have to take care of them



# Informal caregivers

- The term 'informal caregivers' pertains to **unpaid persons** (mainly the partner, but also other family members, friends, neighbours, etc.);
- In the majority of EU countries, informal **caregivers undertake on average 60% of care requests**;
- These individuals manage a wide variety of tasks, from health care and therapy management to support for Activities of Daily Living (ADL) (bathing, dressing, cooking, cleaning the house, etc.);
- These informal carers often have **difficulty finding a good balance between their caring role** and other activities of their life (work, family, leisure, etc.)

# Occupation in healthcare

The U.S. Bureau of Labor Statistics has predicted that occupations in healthcare will dramatically change.

## Fastest-growing occupations 2002-2012

(projected)	GROWTH	# OF NEW JOBS
Medical assistants	59%	215,000
Network systems, data communications analysts	57%	106,000
Physician assistants	49%	31,000
Social and human service assistants	49%	149,000
Home health aides	48%	279,000
Medical records and health information technicians	47%	69,000
Physical therapist aides	46%	17,000
Computer software engineers, applications	46%	179,000
Computer software engineers, systems software	45%	128,000
Physical therapist assistants	45%	22,000

# Quaternary stakeholders point of view

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- To make healthcare and long-term care services **efficient and financially sustainable**
- To **facilitate the access to services** by all citizens (smart cities and infrastructures)
- To have **healthy and active citizens** contributing to the welfare of the community
- To **revise regulations and funding instruments**



# Healthy and active citizens contributing to the welfare of the community

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- It is fundamental to **keep citizens healthy**, active and involved in the community life as long as possible;
- governments should encourage actions devoted to **disease prevention and the adoption of healthy life styles**;
- these preventive activities should be promoted to **all citizens**, young persons, adults and older people.



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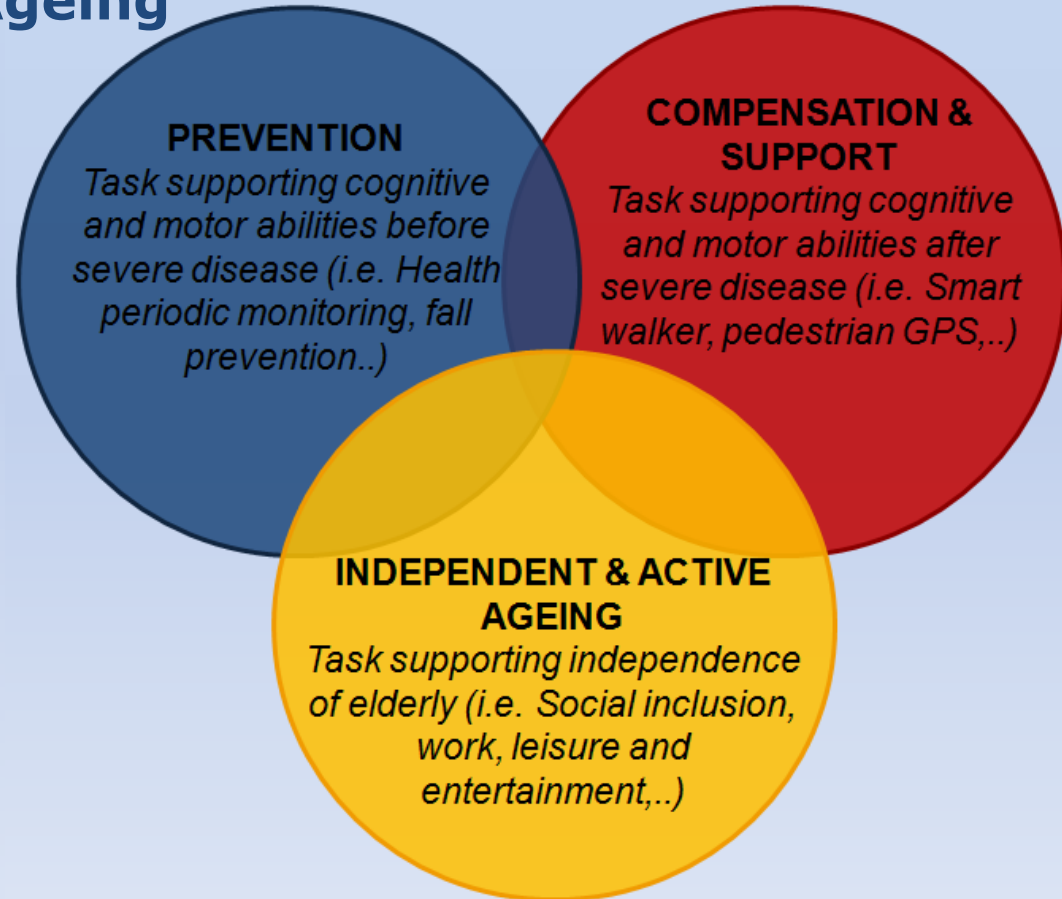
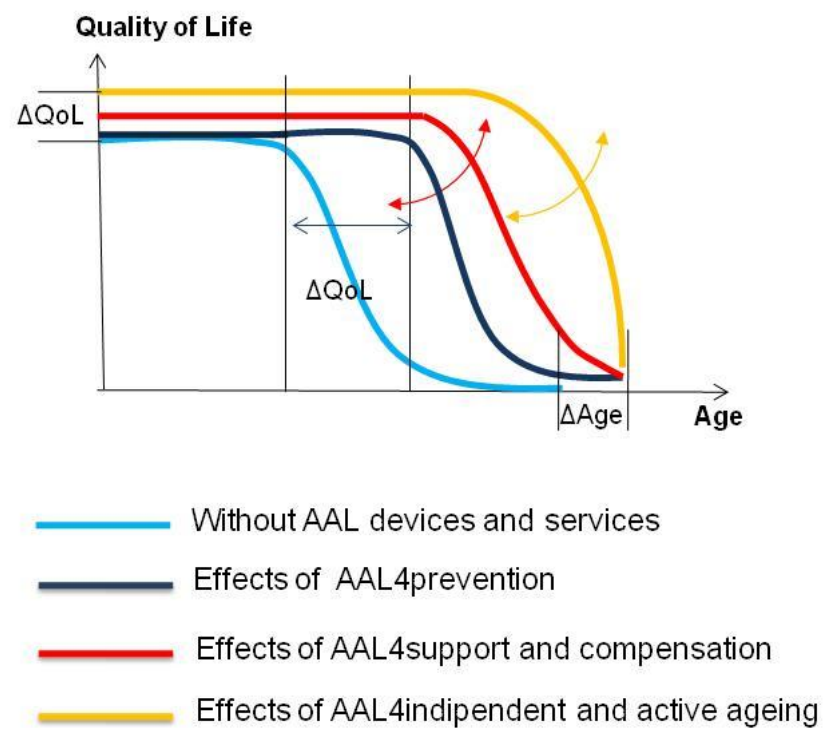
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## A model for Active and Assisted Living



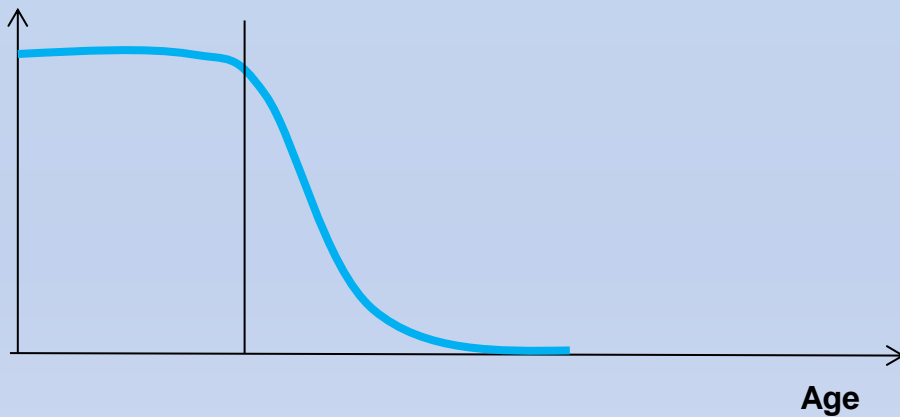
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- **Prevention**
- **Compensation and Support**
- **Independent and Active Ageing**



# Analysis of elderly life

## Quality of Life



— Without AAL devices and services

*"Action to reduce or eliminate the onset, causes, complications or recurrence of disease"*

## Primary Prevention

Activities to avoid and delay specific diseases

## Secondary Prevention

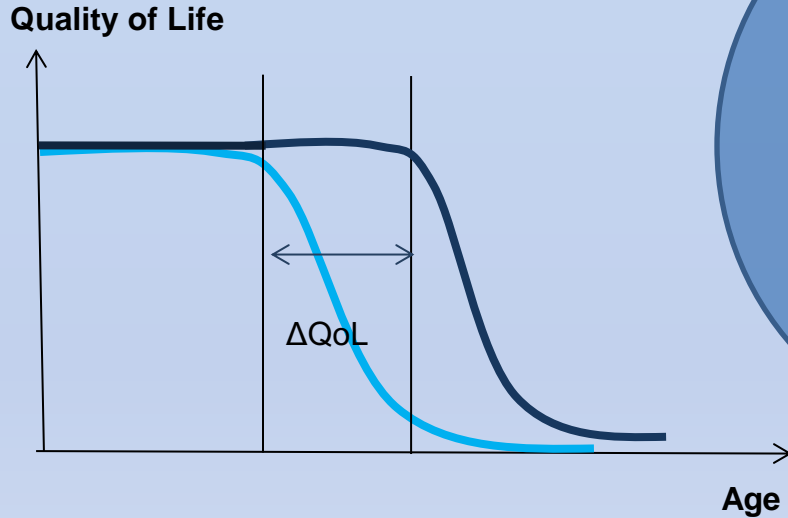
Actions taken to delay the onset of significant morbidity

Some examples:

- Point of care
- Neurodegenerative Disease
- Safety at Work



# Analysis of elderly life

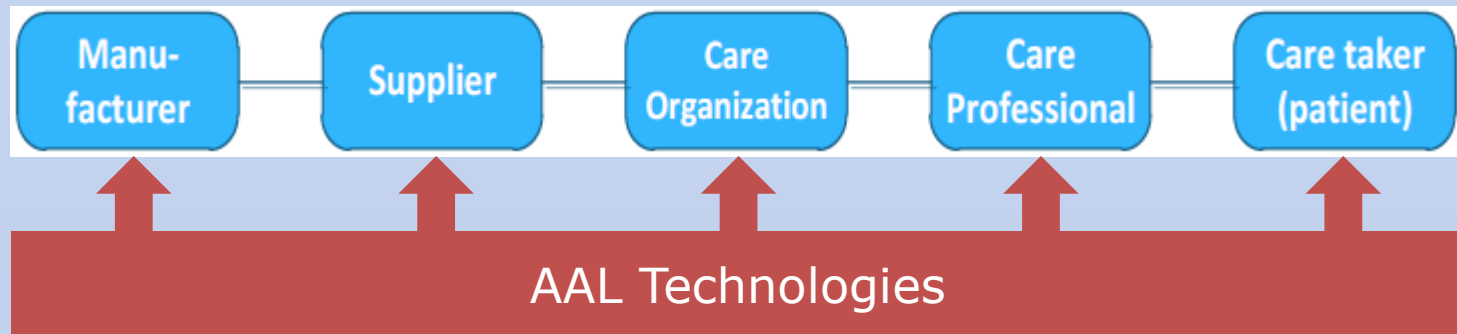


- Without AAL devices and services
- Effects of AAL4prevention

**PREVENTION**  
*Tasks supporting and maintaining cognitive and motor abilities before severe diseases (i.e. health periodic monitoring, fall preventions, etc.)*

# Compensation and Support

Compensation and Support concerns elderly people with physical or cognitive impairments that need help in their daily activities

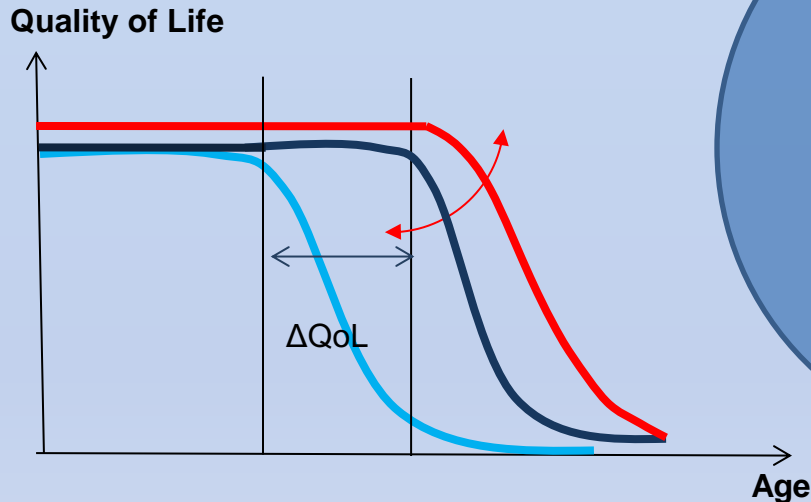


Technology should be part of the integrated care 'chain'

- Monitoring and Assistance
- Personal Management of Chronic Diseases
- Daytime management
- Support in Driving
- Rehabilitation assistance



# Analysis of elderly life



- Without AAL devices and services
- Effects of AAL4prevention
- Effects of AAL4support and compensation

**PREVENTION**  
*Tasks supporting and maintaining cognitive and motor abilities before severe diseases (i.e. health periodic monitoring, fall preventions, etc.)*

**COMPENSATION & SUPPORT**  
*Tasks supporting cognitive and motor abilities after severe diseases (i.e. smart walker, pedestrian GPS, etc.)*



# Independent and Active Ageing

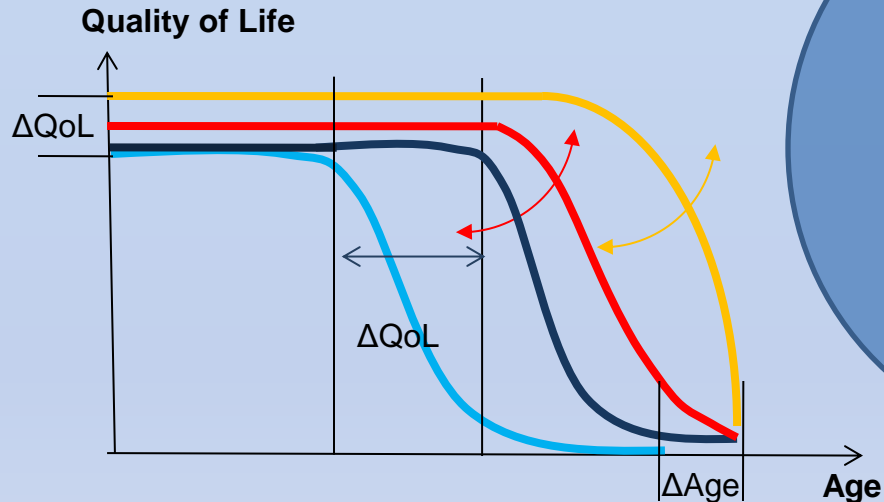
*"Active ageing aims to extend healthy life expectancy and QoL for all people as they age, including those who are frail, disabled and in need of care "*

Wish to remain at home feeling safe, avoiding social isolation thus being involved in society and keeping contacts with friends and family

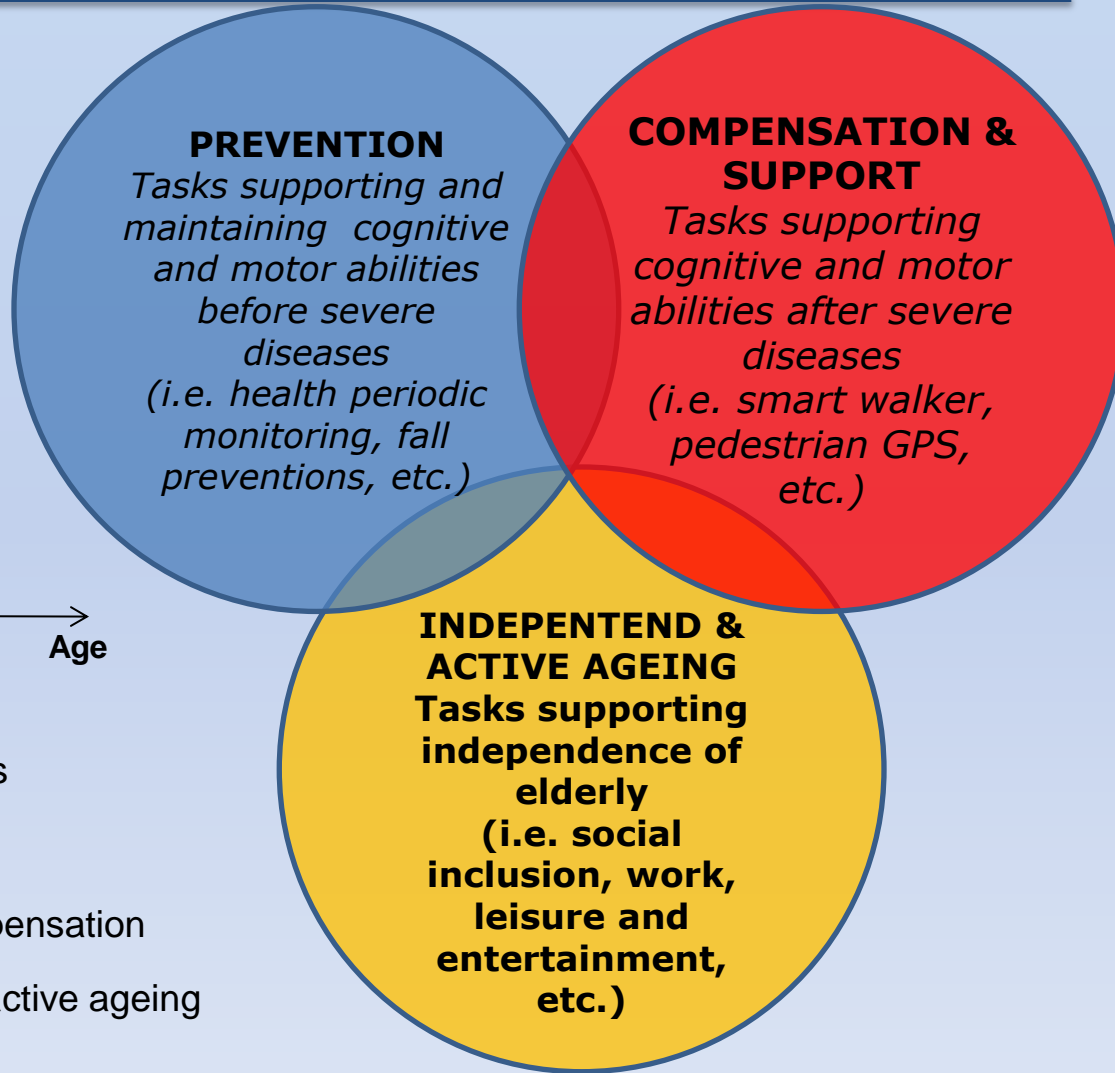
- Safety and security
- Keeping social contacts
- Age Friendly Environments
- Keeping control over life and decisions
- Being able to work longer
- Appropriate response when things go wrong



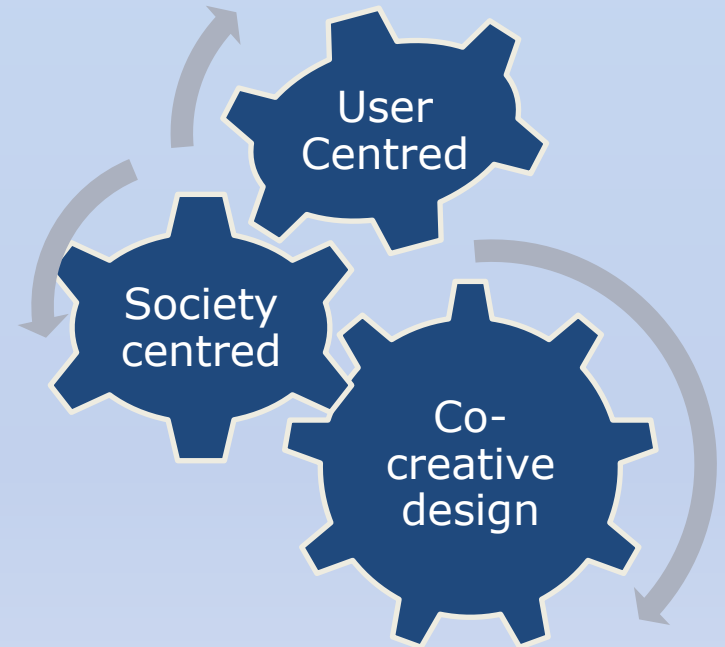
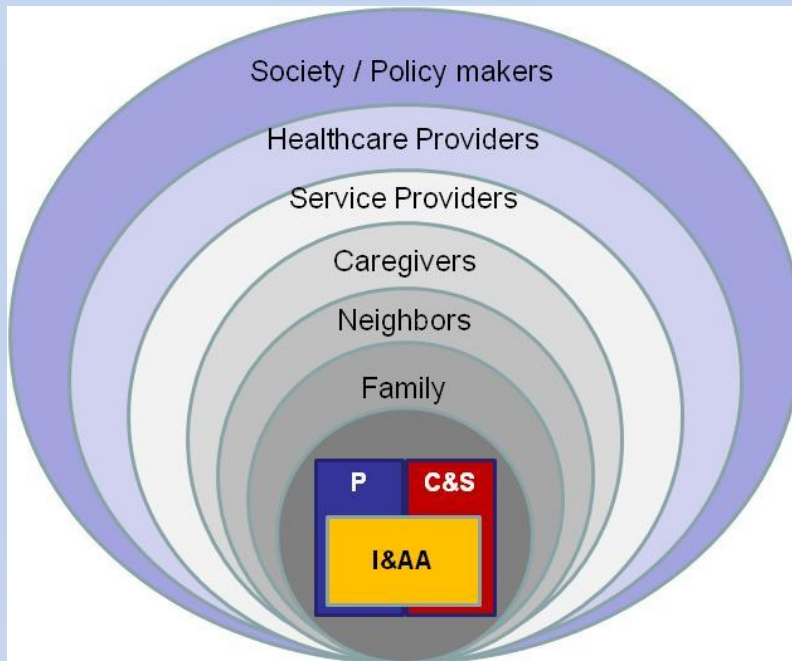
# Analysis of elderly life



- Without AAL devices and services
- Effects of AAL4prevention
- Effects of AAL4support and compensation
- Effects of AAL4independent and active ageing



# Interconnected Stakeholders Context



## Social Innovation and integrated community

- The deployment and adoption of AAL technologies in the real daily life requires a **strong innovation at the level of the service organizations** because they should be designed, and managed in order to provide to older citizens all kinds of health and social services ;
- Community services should be organized in network in order to provide high quality support to each user, **optimizing the resources and avoiding redundancies;**
- **AAL culture** should be promoted, above all for end-users.

# 10 Key Service Scenarios

Prevention of the early degeneration of cognitive abilities

Healthy living

Management of Chronic Diseases

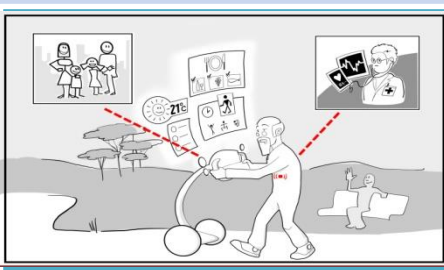
Aging-Friendly and Safety Environments

Fall prevention

Management of daily activities and keeping control over own life

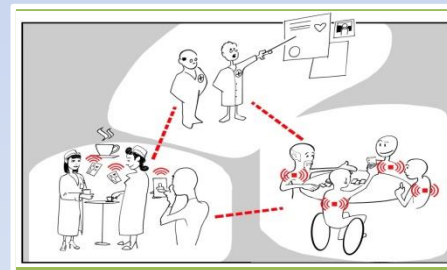
Keeping social contact and having fun

Outdoors mobility (i.e. pedestrians, public transport and private cars)

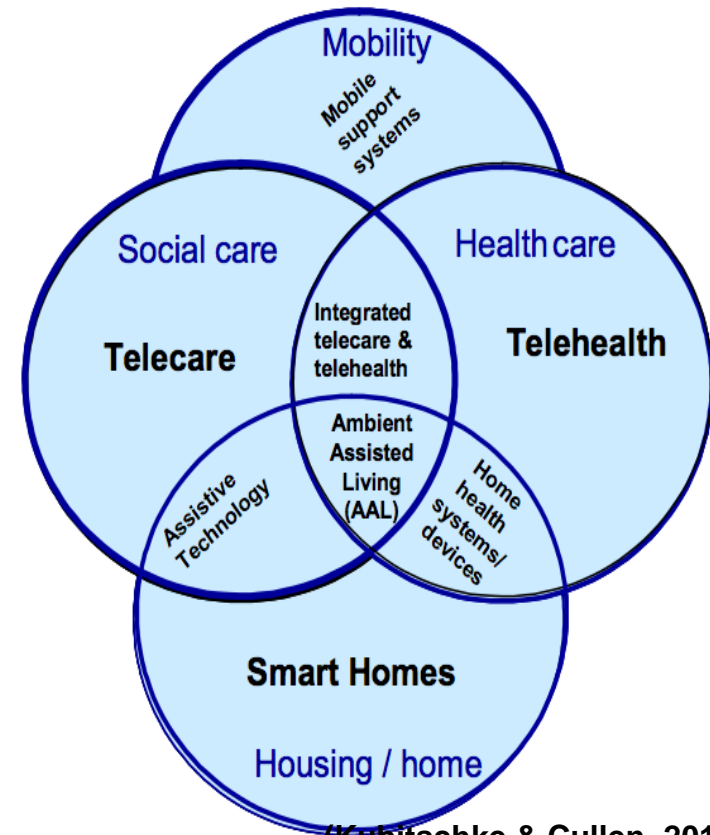


Avoiding Caregivers Isolation

Senior citizens at work



- Reviewed existing models - found few solutions that include components from three domains - most focus in the overlapping space of any two
- Used ICTechnoAge study findings to identify cases for AAL reference business models
  - Scottish telecare
  - Simap
  - SOPHIA
- Looked for potential managed service models
  - UK embracing the managed service approach
  - Spanish government is working to define service outcomes consistent with the UK's approach
  - Germany mostly focused on telecare. Telehealth still mostly small trials (700+) with the goal of demonstrating effectiveness mainly for insurance institutes

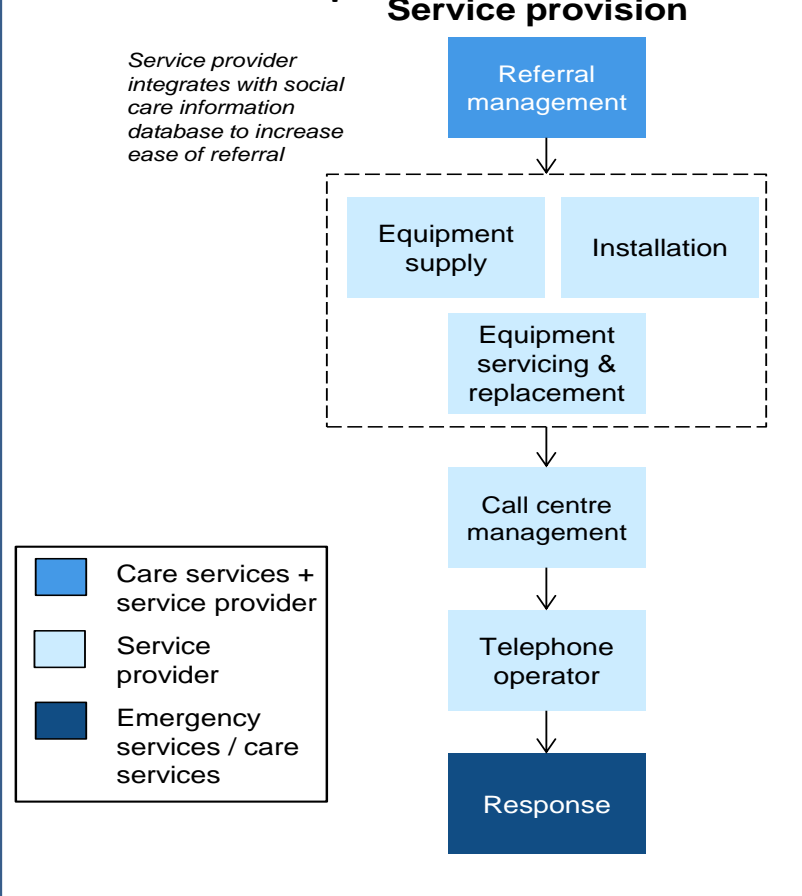


(Kubitschke & Cullen, 2010)

## Managed Services Examples

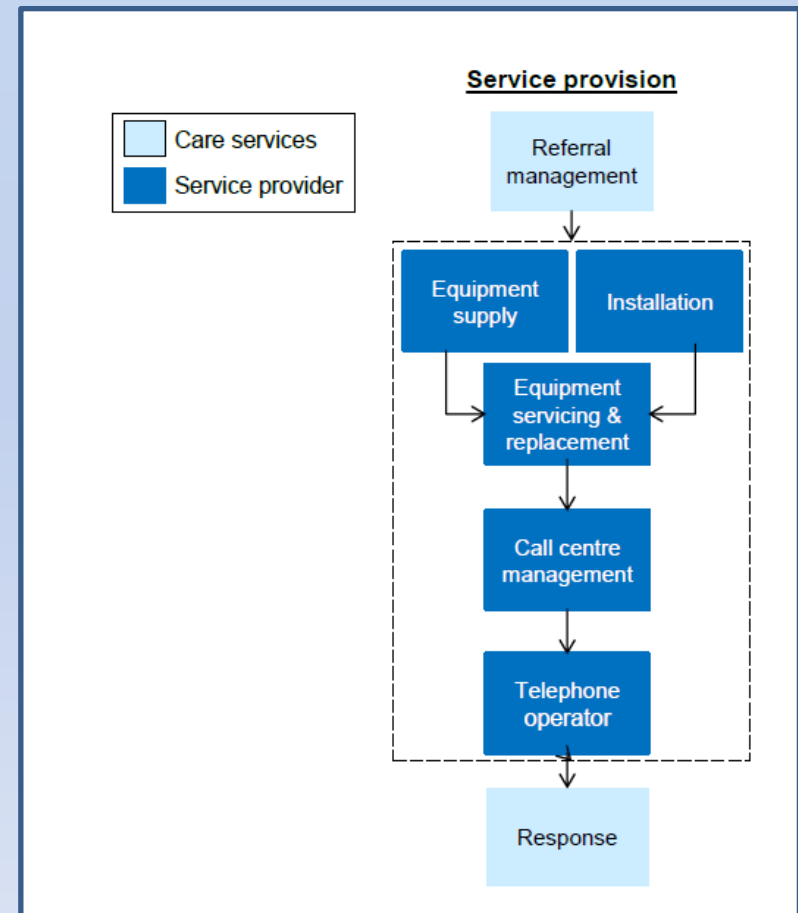
- Transfer of **responsibility to a 3<sup>rd</sup> party service provider** – offers the potential to accelerate the development of a more integrated offering by managing the whole value chain on a fee per service basis.
- A variety of revenue models
  - **Equipment only**
  - **Equipment plus call centre**
  - **Full service from referral to response**

## UK Telecare example



# Telecare in Spain

- In Spain, full **delegation of telecare services to a single provider** is now the norm. Ease of interaction with a single provider appears to be the main reason for outsourcing under a ‘managed services’ model.
- The revenue model used is a **monthly fee per user**, which would cover the equipment and all the other service provisions.
- Andalusia is an exception to the rule with a direct provision model, relying on its own public infrastructure for operations. ASSDA outsourced the equipment supply, installation and maintenance, while the call centre and contact with users remain in-house.



# 10 Key Service Scenarios

Prevention of the early degeneration of cognitive abilities

Healthy living

Management of Chronic Diseases

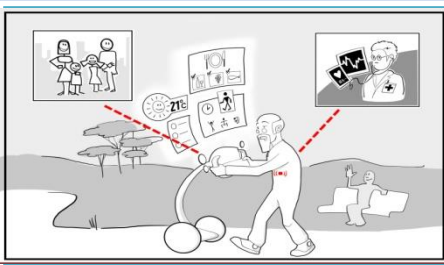
Aging-Friendly and Safety Environments

Fall prevention

Management of daily activities and keeping control over own life

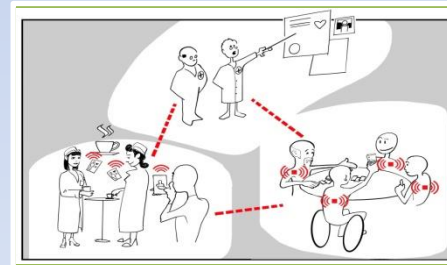
Keeping social contact and having fun

Outdoors mobility (i.e. pedestrians, public transport and private cars)



Avoiding Caregivers Isolation

Senior citizens at work





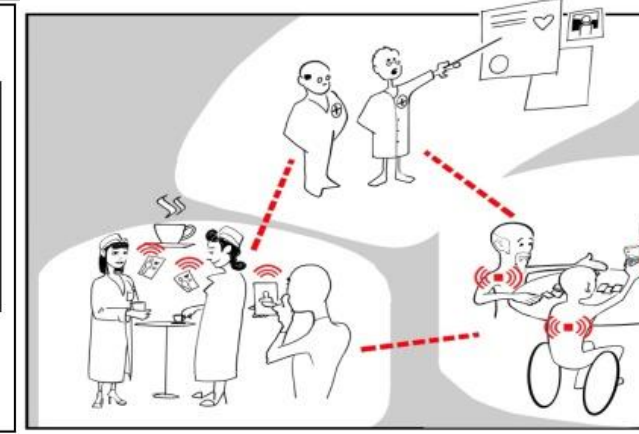
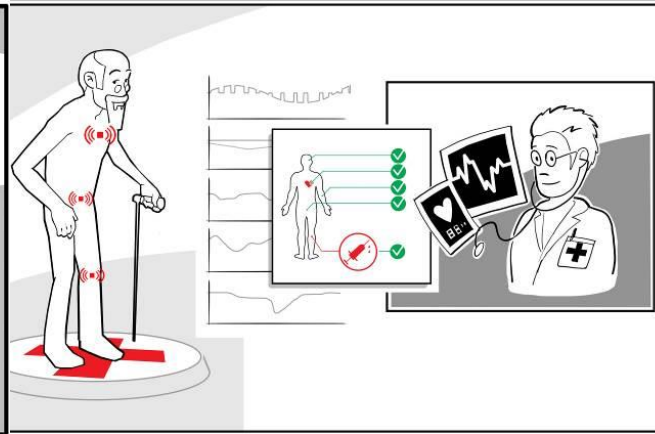
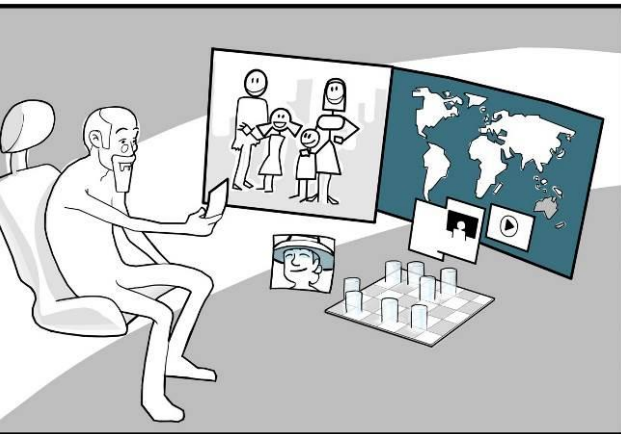
# Managed Service Model

**Prevention of the early degeneration of cognitive abilities**



**Management of Chronic Diseases**

**Aging-Friendly and Safety Environments**



# 10 Key Service Scenarios

Prevention of the early degeneration of cognitive abilities

Healthy living

Management of Chronic Diseases

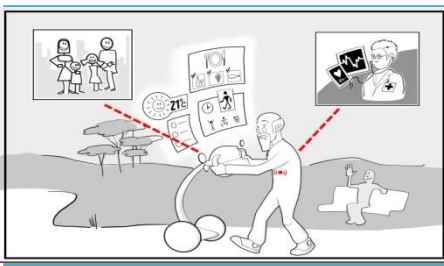
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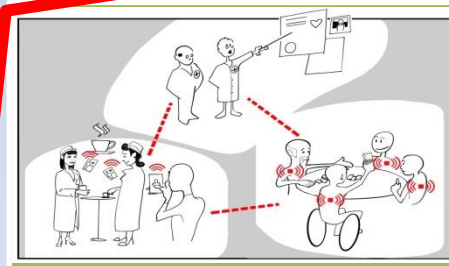
Keeping social contact and having fun

Outdoors mobility (i.e. pedestrians, public transport and private cars)



Avoiding Caregivers Isolation

Senior citizens at work



# Scenario Matrix: aligning segmentation, funding and business models

Scenario	Market segment	Funding	Business Model
<b>Scenario 1: Prevention of early degeneration of cognitive abilities</b>	High degree of prevention aids (support, equipment, etc.) in Urban areas and moderate in Comfortable+ rural areas. In poorer rural areas financial means for prevention is limited.	Country specific Dependent on healthcare system. Can be privately funded, reimbursed through insurance or users may have recourse to public funding	This could be either the telecare or telehealth models covered in D3.2 i.e. Spain - Telecare
<b>Scenario 3: Management of chronic diseases</b>	Comfortable+ and Less Affluent (rural and urban). Many countries offer services for the management of chronic diseases.	Depends on national healthcare system. For many there is government funding or combinations of private and insurance reimbursement. There is a lot of movement towards marketing direct to the users, making some products privately funded.	The Telehealth models as described in D3.2 (UK, Spain, Germany) are the best fit models for this scenario.
<b>Scenario 4: Age-friendly and safe environments</b>	Offered to a high degree in rural and Urban areas. Prevalent in countries that allow this to be funded by healthcare system.	Available in many countries with a combination of funding (private, insurance and public).	The UK telecare model covers the range of services offered for Age-friendly and safe environments.



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## Do we have technology?

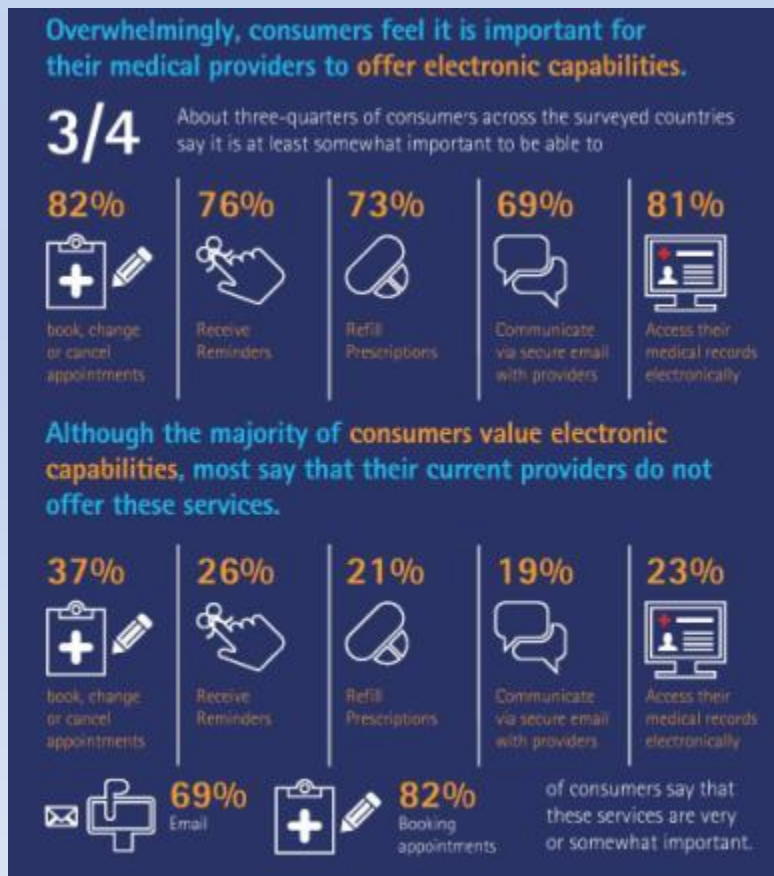
YES



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FP7-ICT-2011.5.4 (Project reference: 288705)

# The market perspective: electronic health

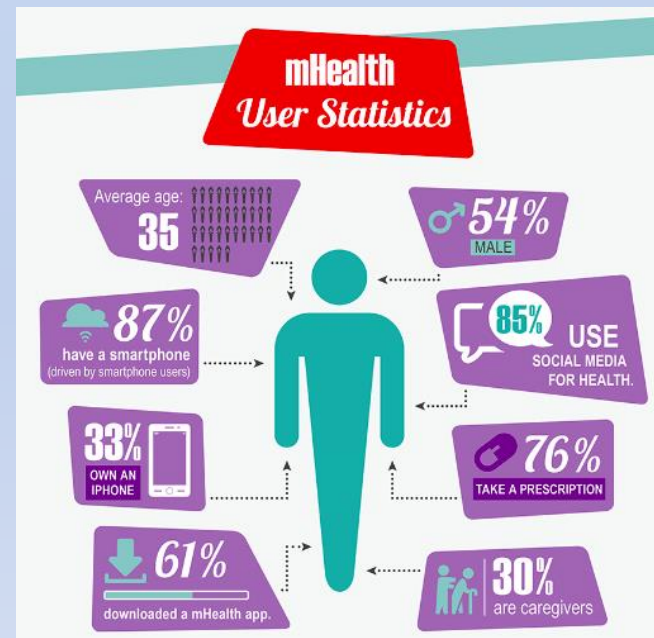
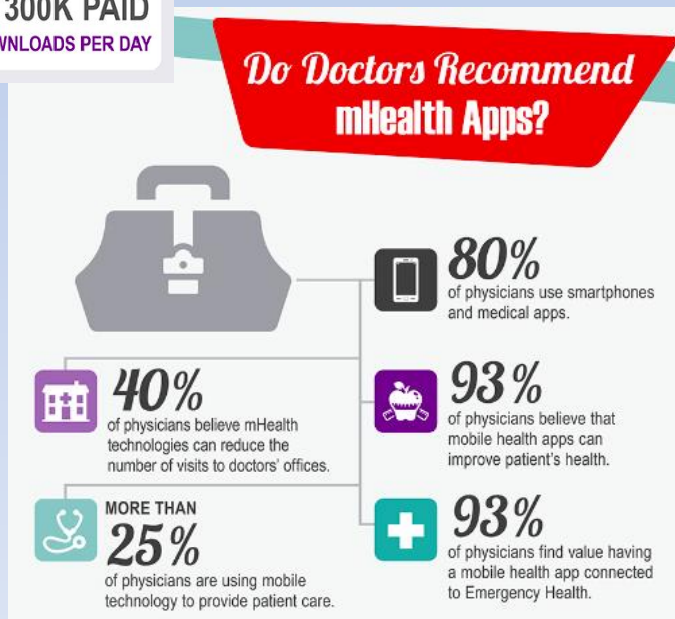
Consumers believe they should have more access to their electronic health records



Accenture consumer survey on patient engagement

# The market perspective: mHealth market

mHealth is a term used for practise of medicine and public health, supported by mobile devices



# The market perspective: digital impact

## The Role of the Internet in Healthcare



**30%**

use computer or mobile device to check for medical or diagnostic information



### Services Customers find valuable if offered online via Internet



**40%**

Appointment reminders



**29%**

Treatment reminders



**30%**

Information for managing drug side effects



**28%**

Discounts or coupons for health related products



**22%**

Information about clinical trials



**22%**

Ways to review a health care experience



**19%**

Online support groups for customers with similar health issues

## Privacy in Healthcare

**63%**



of customers are comfortable with storing their medical records on a cloud

**39%**



don't trust internet sites to keep my health information private and secure



### Information Customers are willing to share Online



**25%**

Exercise / Physical activity



**28%**

Weight



**26%**

Sleep Patterns



**20%**

Nutritional information (eg. calories consumed etc.)



**25%**

Symptoms / General health complaints



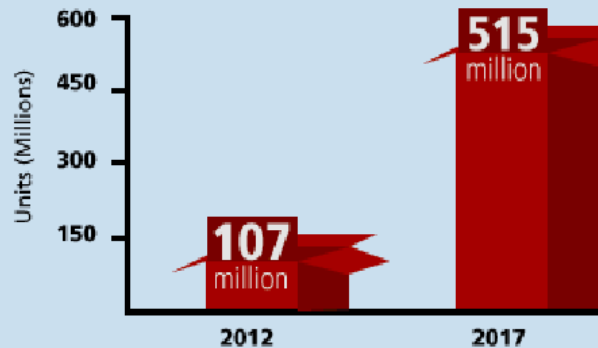
**15%**

Vital signs (eg. blood pressure, heart rate, etc.)

Cisco customer experience report for healthcare

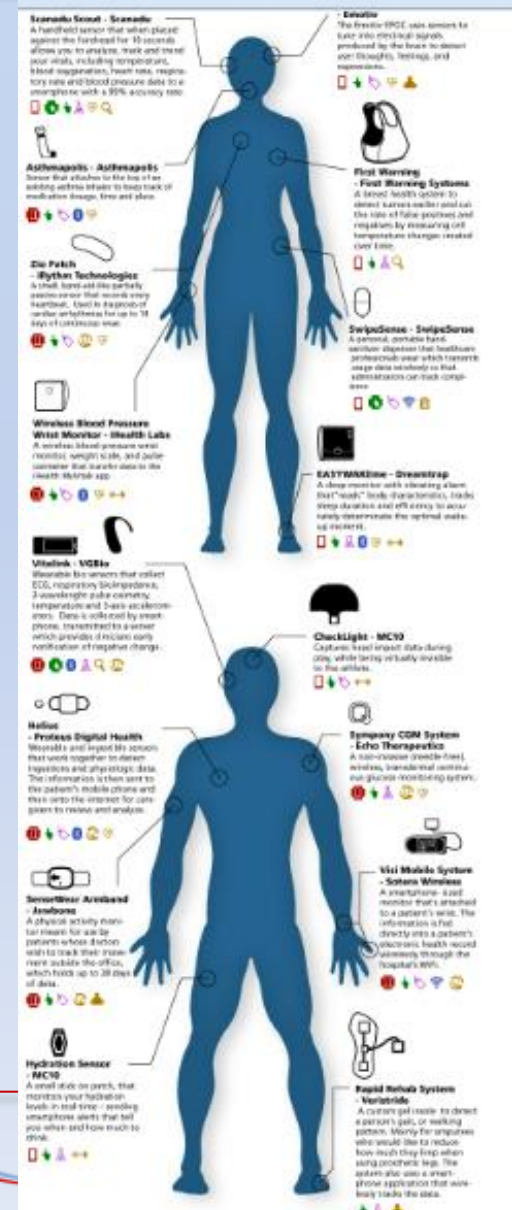
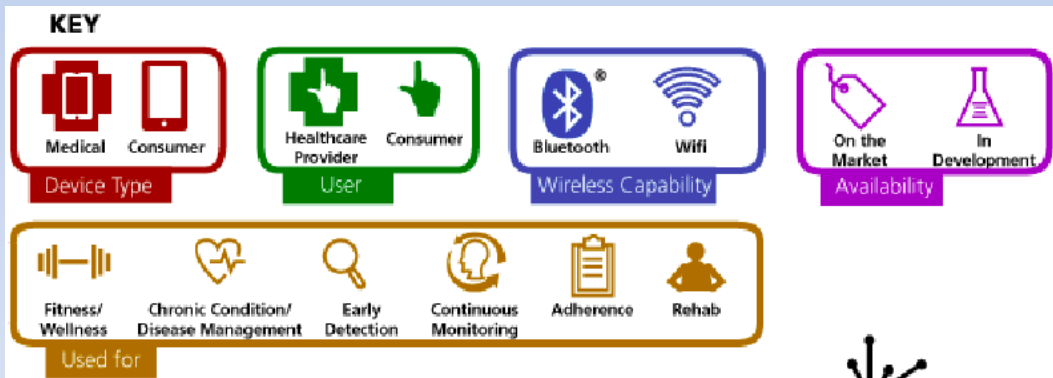
# The market perspective: sensors in healthcare

## Global Mobile Sensing Health & Fitness Shipments



Source: ON World I as seen on mobihealthnews.com

“The whole sensor field is going to explode. It’s a little all over the place right now, but with the arc of time it will become clearer.”  
— Tim Cook, CEO, Apple, 2013





# The market perspective: wearable technology

BY 2017, THE CONNECTED WEARABLE MARKET IS EXPECTED TO REACH  
**64 MILLION SHIPMENTS**

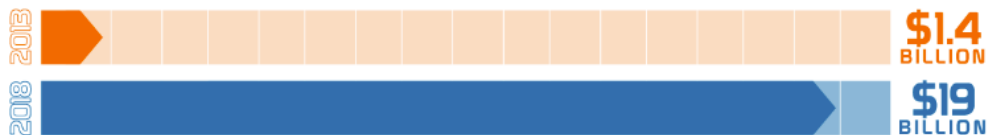
(**8X** LARGER  
THAN IN  
2012)



**82%**

OF USERS BELIEVE  
WEARABLE TECH HAS  
ENHANCED  
THEIR LIVES




FORECAST: WORLDWIDE SPENDING ON WEARABLE TECHNOLOGY



### SPORT DEVICES

 <p><b>SHOTTRACKER</b> BASKETBALL Tracks all shot attempts, makes and misses</p>	 <p><b>CHECKLIGHT</b> FOOTBALL Monitors the number of hits taken to the head during a game or practice and the severity of impact</p>
 <p><b>MISFIT SHINE</b> RUNNING, CYCLING, SWIMMING Tracks steps taken, activity levels and sleep</p>	 <p><b>INSTABEAT</b> SWIMMING Tracks heart rate, calories, number of laps, number of flip turns and breathing pattern</p>
 <p><b>TRACE</b> ACTION SPORTS Tracks speed, distance, jump height and rotation</p>	 <p><b>PUSH</b> WEIGHTLIFTING Tracks reps and sets, force, power, balance, speed and explosive strength</p>

### HEALTH DEVICES

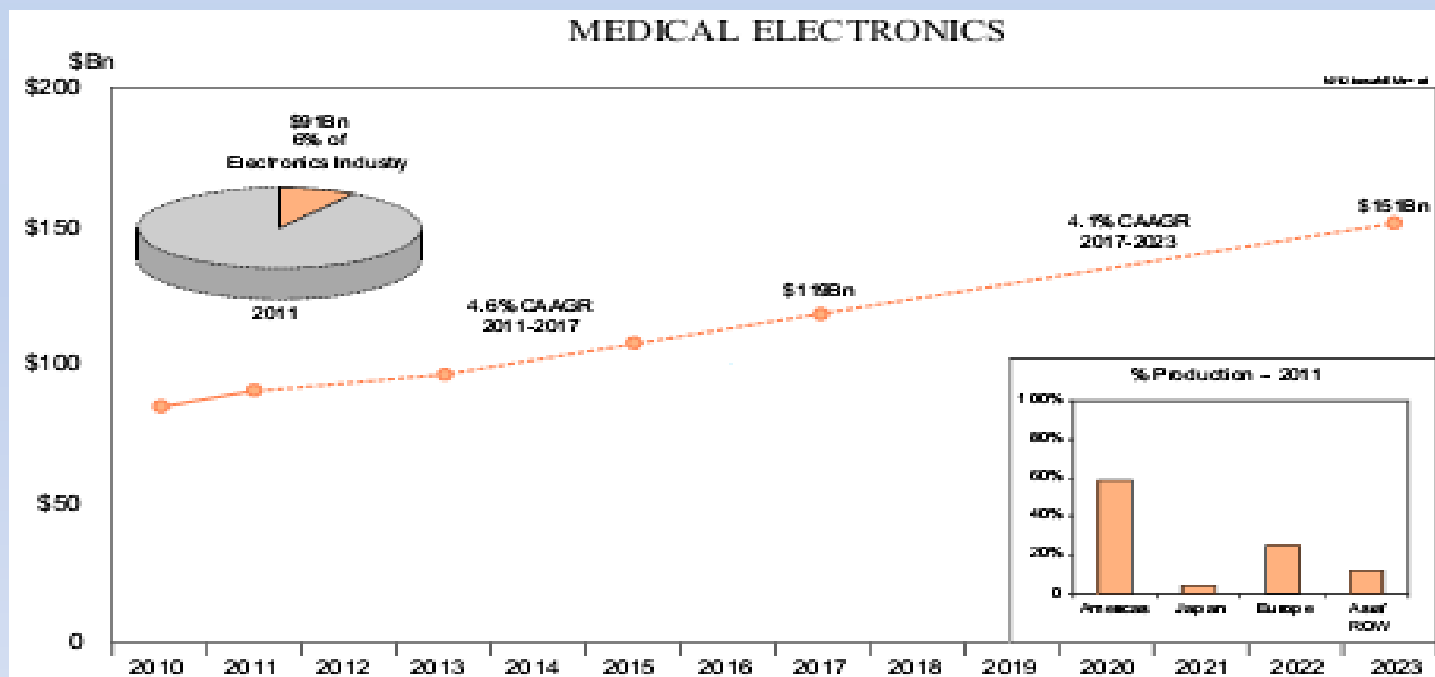
 <p><b>NIKE FUEL BAND</b> <b>1 BILLION</b> POINTS EARNED BY FUEL BAND USERS EACH DAY</p>
 <p><b>FITBIT</b> THE AVERAGE FITBIT USER TAKES <b>43%</b> MORE STEPS PER DAY</p>
 <p><b>STRIV</b> STRIV USERS WALK <b>60 MINUTES</b> DAILY AND AVERAGE <b>8 FLIGHTS OF STAIRS</b></p>

### PERSONAL DEVICES

 <p><b>PEBBLE</b> Displays critical apps and notifications from a user's wrist, including music control and silent alarm</p>
 <p><b>SONY SMARTWATCH</b> Shares calendar notifications, Facebook, email, calls, texts, weather and Twitter notifications; remotely controls smartphone camera shutter, music, and Find My Phone</p>
 <p><b>GOOGLE GLASS</b> Augmented reality eyewear that responds to voice commands, takes pictures, gives directions, searches for information, sends messages</p>
 <p><b>SAMSUNG GALAXY GEAR</b> Shares notifications for calls, emails, texts and weather, takes photos, responds to voice commands and has a Find My Phone feature</p>

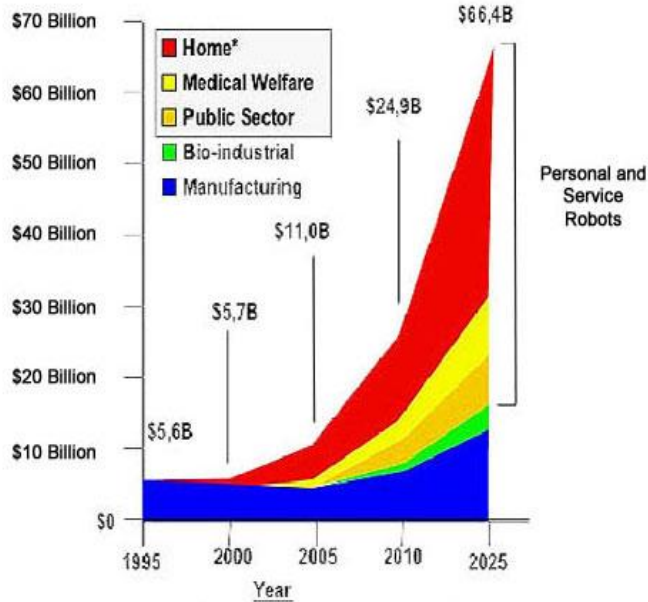
# Medical electronics

A shift towards home or patient centric health care:  
personal healthcare monitoring, diagnostic and  
preventative medical electronics.

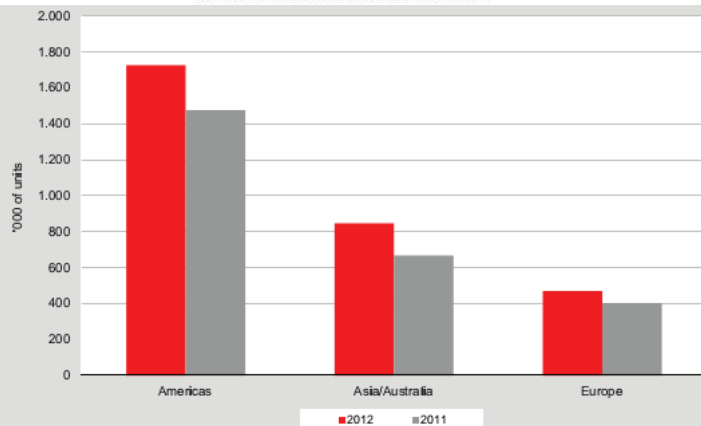


From 91 billion USD in 2011 to 119 billion USD in 2017  
Average rate of 4.6% per year (Prismark)

# Robotic Market



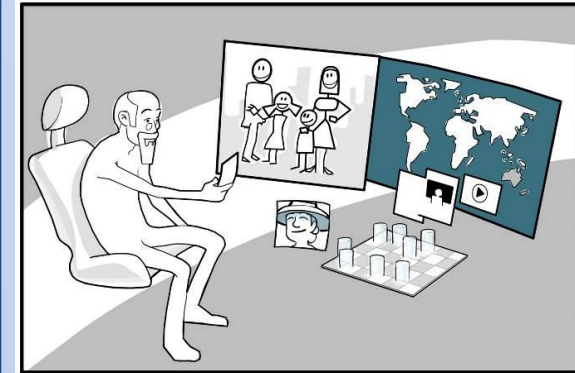
ROOMBA: as of Feb 2014, over 10 million units have been sold worldwide



# PREVENTION OF EARLY DEGENERATION OF COGNITIVE ABILITIES

**AAL SYSTEMS SHOULD BE DEVELOPED IN ORDER TO AVOID THE EARLY DEGENERATION OF COGNITIVE ABILITIES AND DELAY THE OVERCOME OF COGNITIVE IMPAIRMENTS.**

**THESE TOOLS SHOULD STIMULATE THE INTERACTION OF THE USER WITH OTHER PERSONS AND AT THE SAME TIME STIMULATE THE COGNITIVE CAPABILITIES BY MAKING PEOPLE STAY MENTALLY ACTIVE.**



**Short**

**Mid**

**Long**

Reminder and informer

Cognitive gaming at community centres

Cognitive gaming at home

Remote control by clinicians

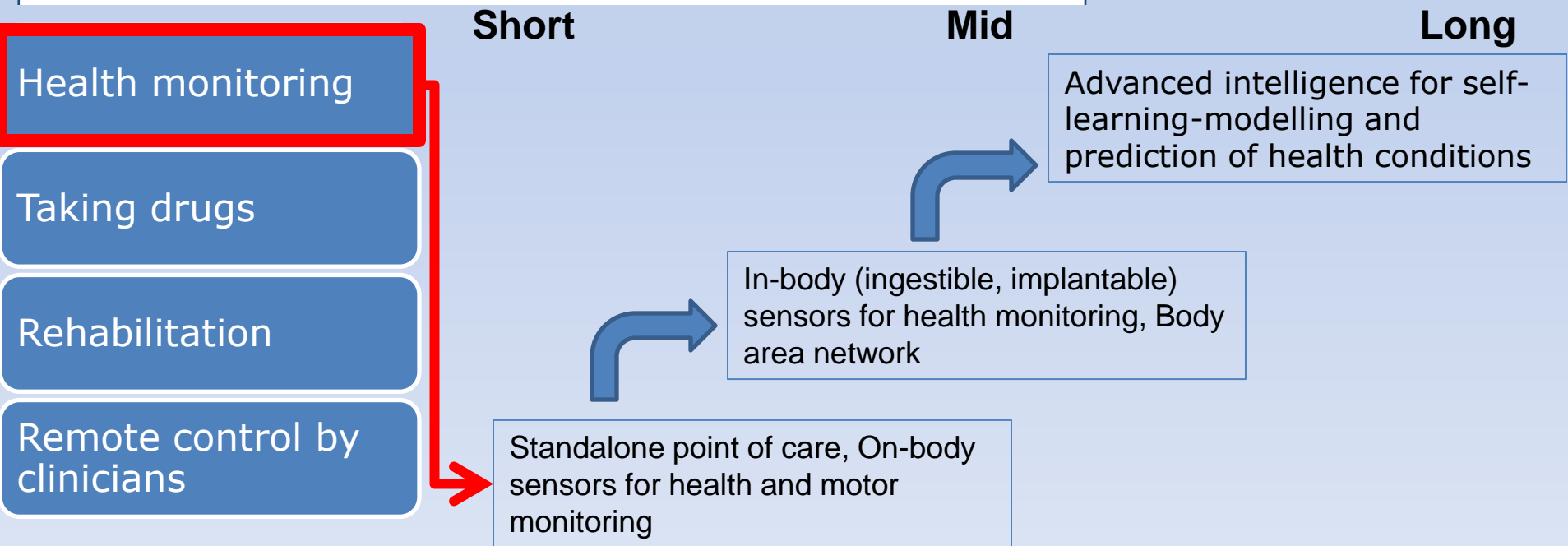
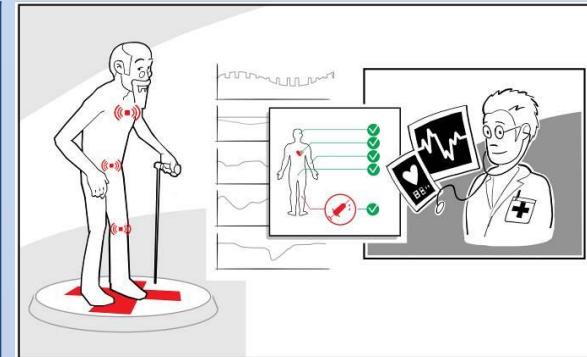
Personalised gaming applications for the stimulation of cognitive abilities

Reasoning tools for the modelling and recognition of cognitive abilities from gaming data

Advanced interfaces (haptic interfaces, augmented reality), self-learning-modelling of cognitive abilities

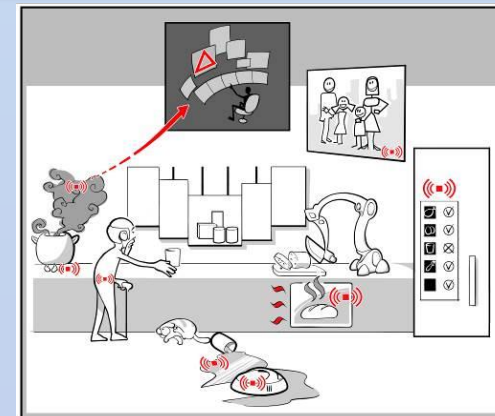
# MANAGEMENT OF CHRONIC DISEASES

**AAL TECHNOLOGIES COULD SUPPORT OLDER PERSONS IN MANAGE EASILY THEIR CHRONIC DISEASES: SMART INTERFACES AND TOOLS CAN BE USED FOR TELE-CARE AND TELE-HEALTH, SMART DRUG DISPENSER CAN HELP USERS IN TAKING CORRECTLY DRUGS, PORTABLE REHABILITATIVE DEVICES FOR REHABILITATION AT HOME, POINT-OF-CARE AND WEARABLE SENSORS TO MONITOR HEALTH PARAMETERS.**



# AGE-FRIENDLY AND SAFE ENVIRONMENTS

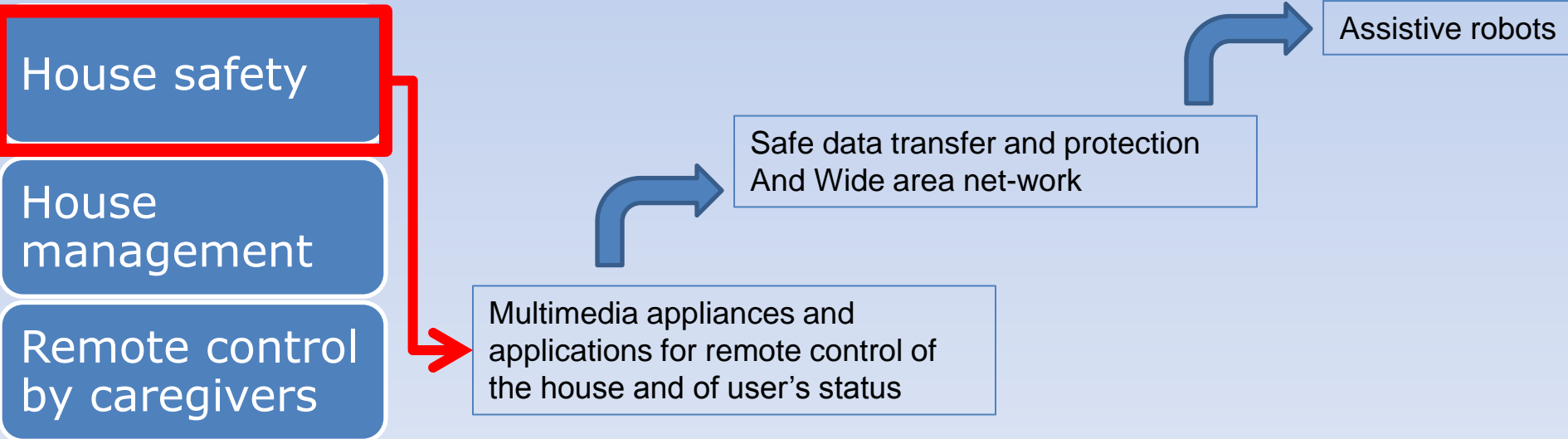
**AAL TECHNOLOGIES, LIKE IMPERCEPTIBLE ENVIRONMENTAL SENSORS, ADVANCED PROCESSING TOOLS FOR EVENTS RECOGNITION AND PREDICTION, SMART ELECTRONIC APPLIANCES AND ROBOTS, COULD BE ADOPTED IN ORDER TO MAKE HOUSES SAFER AND AGE-FRIENDLY ENVIRONMENTS IN WHICH LIVING**



**Short**

**Mid**

**Long**





# AALIANCE2

European Next Generation  
Ambient Assisted Living  
Innovation Alliance

## KEY ENABLING TECHNOLOGIES (KET)

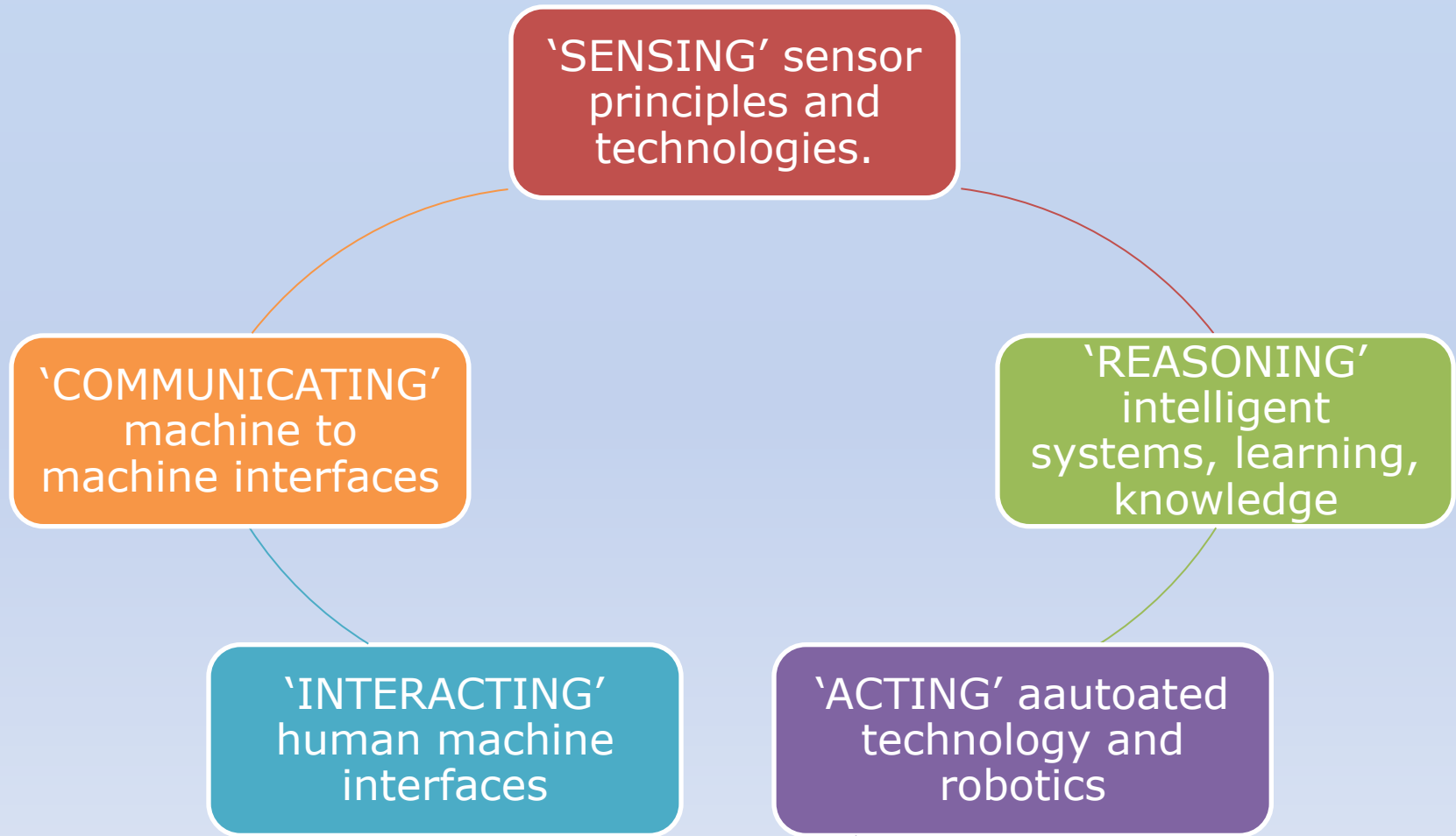


AALIANCE2 is a Coordination Action funded by the European Programme  
FP7-ICT-2011.5.4 (Project reference: 288705)



AAL Forum 2014  
Bucharest, Romania  
September 09-12, 2014

# KET panorama





## 'SENSING'

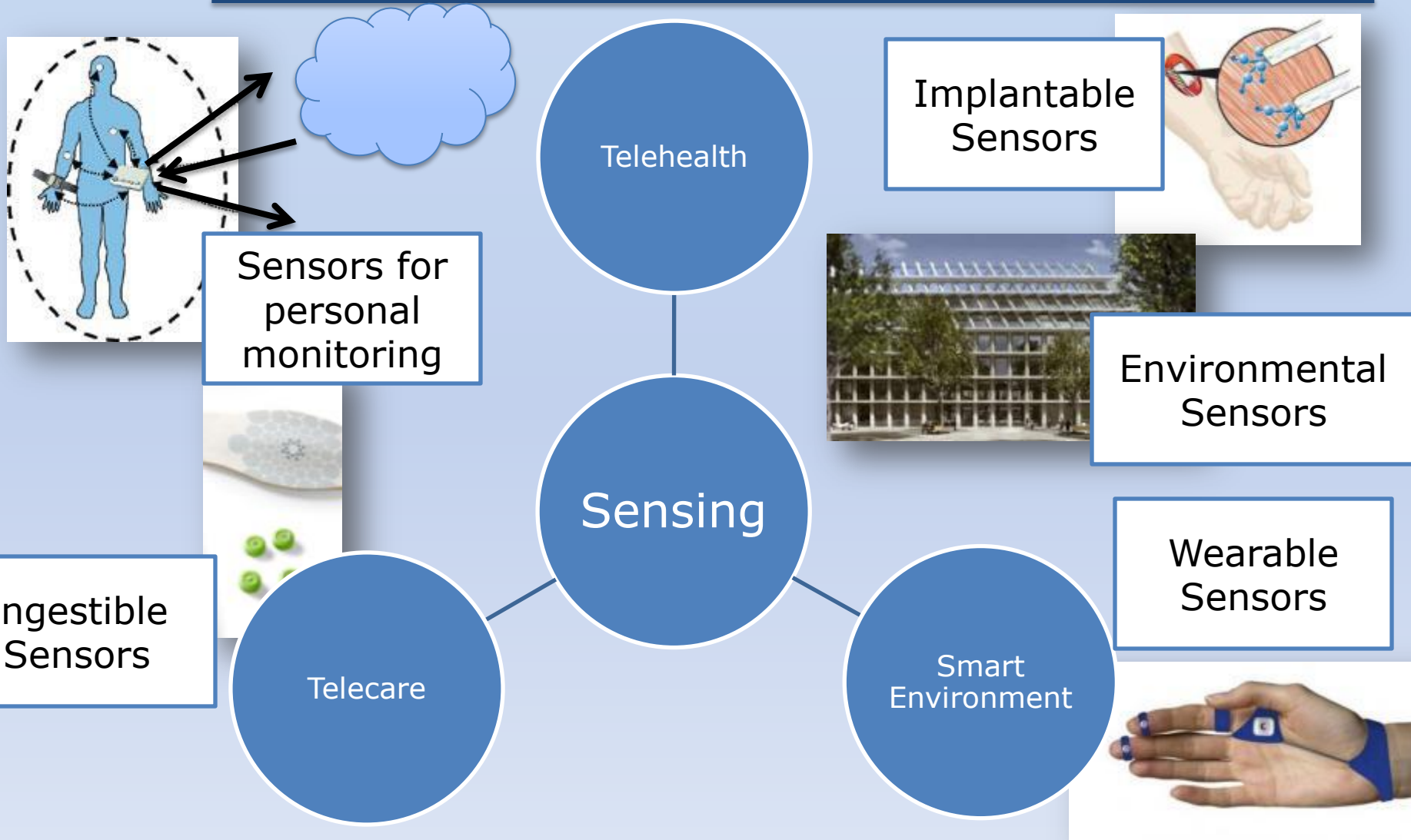
new sensing principles and technologies to measure physical, chemical, electrical, optical, etc. quantities of a phenomenon and to produce outputs usable to improve the AAL services.

### **Sensing:**

- Smart Sensors
- MEMS
- Lab on Chip
- Biosensors
- Vision Sensors

- Environmental sensors
- Pervasive Sensing & Smart Environments
- In / On Body Sensors
- Quantum Sensors
- Energy harvesting

# Sensing



## 'REASONING'

Intelligent systems with computational capabilities able to generate knowledge using logical techniques of deduction, induction or other forms of reasoning.

### **Reasoning:**

- Context Awareness and Sensor data fusion
- Artificial Intelligence
- Advanced controls for robotics and automation
- Self Dependability and Maintainability

# Reasoning



Expert Systems, Fuzzy logic and rules

Semantic web and Cloud

Ontologies

Statistical and Machine Learning Data

Emotion/mood

Autonomous services management and problem optimization

Collaborative filtering

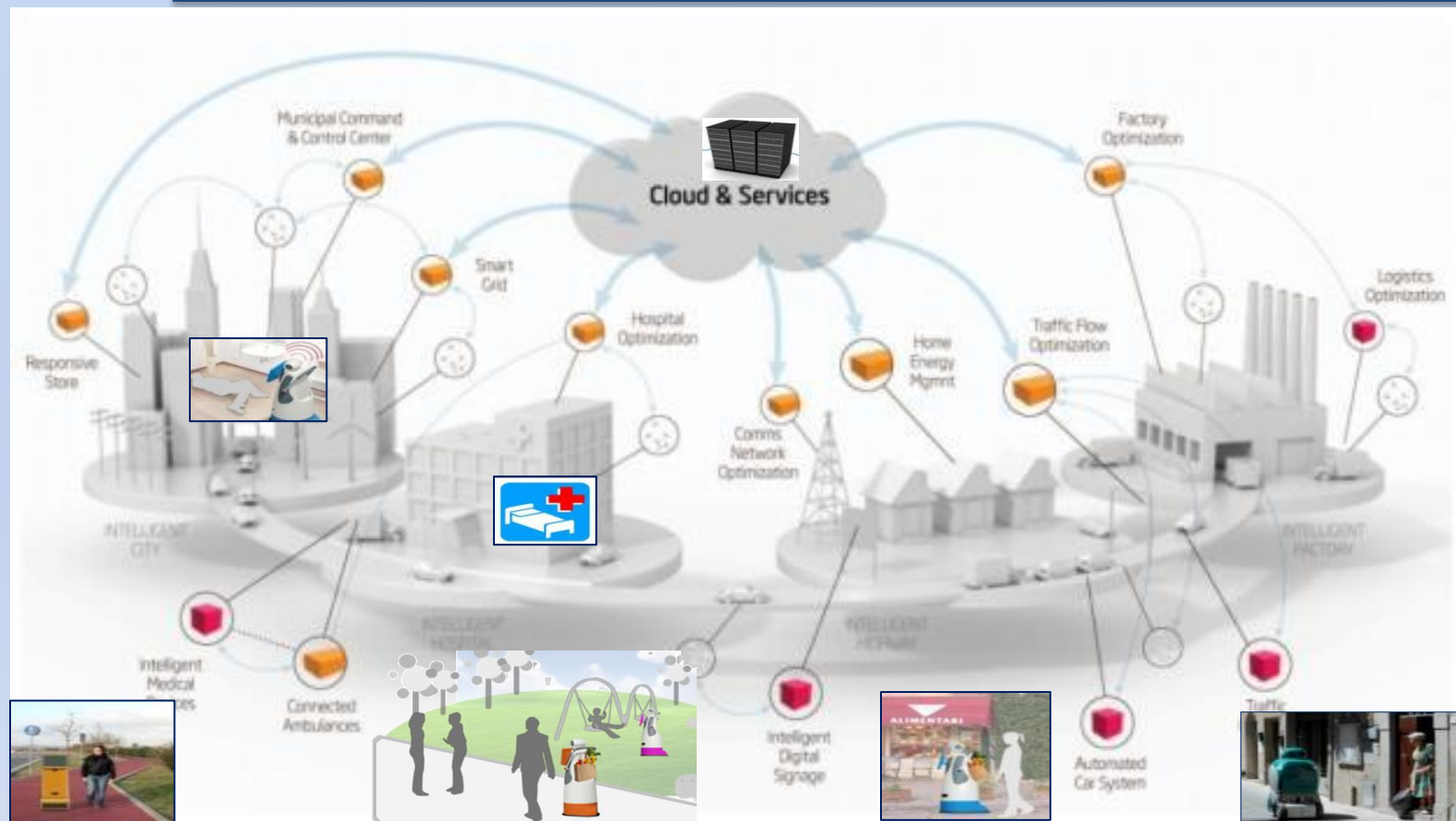
## 'ACTING'

Automated systems and robotics, which proactively act for providing useful services, including physical and cognitive support.

### **Acting:**

- Home automation
- Service Robotics
- Smart Mobility
- Smart Actuators
- NeuroRobotics
- Wearable Robotics
- Cloud Robotics
- Social Robotics

# Cloud Robotics



**“Cloud Robotics: Combination of Cloud Computing and Robotics.  
Cloud robotics is not specific to a robot or a type of robot. It is the way  
robots store information and access a base knowledge.”**

(James Kuffner Carnegie Mellon University, @ Humanoids 2010)

# Social Robotics

A social robot is an autonomous / semi-autonomous robot that **interacts and communicates with humans** or other autonomous physical agents by **means of social behaviors and rules**.



## “INTERACTING”

All kinds of means, both software and hardware, that allow interaction processes and bridge capabilities between users and service/machines.

### **Interacting:**

- Sensorial interfaces
- Spatial Interfaces
- Natural language interfaces
- Multi-modal interfaces
- Neural Interfaces and Brain Computer Interfaces
- Service integrations
- Apps



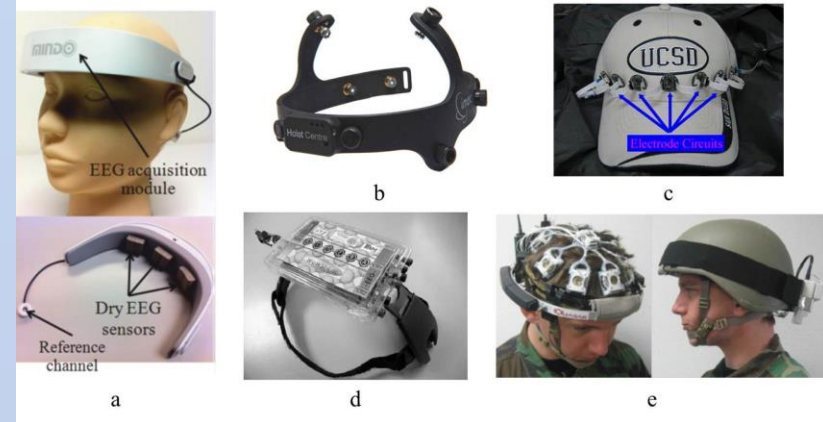
# Neural and multimodal interfaces

EEG-based BCI techniques

Invasive BCIs CI techniques

Noninvasive EEG-based BCIs

Nerve controlled prosthesis



Holograms

Avatars

Haptic Voice Recognition

## 'COMMUNICATING'

Technologies related to machine to machine interfacing that allow devices to communicate and cooperate.

### **Communicating**

- BAN/PAN
- LAN/Home network
- WAN
- Standardisation and certification
- Data protection regulations

# Grand Tech Challenge

**IoT, Cloud market**  
(Google, Amazon, ...)



**Communication Mobile market**  
(Telecom, ...)



**Robotics Market**  
(I-Robot, Panasonic, Honda, ...)



**Consumer Electronics market**  
(Telecom, ...)





# AALIANCE2

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## For real exploitation and deployment, please, don't forget...

### Transversal issues



AALIANCE2 is a Coordination Action funded by the European Programme  
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# Transversal Issues



# Recommendations (1)

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- End-users' and all stakeholders' perspective
  - design services
  - evolution of the structure of the society
  - intergenerational relationships
  - ageing starts before 65
- Design criteria
  - acceptability, user-friendliness, accessibility for all, customisability, dependability, etc.
- Experimentation and pilot sites
  - appropriate methodology with standardized metrics and benchmarks that depicts an homogeneous view of the AAL products and services and users' quality of life
  - necessity of infrastructures and settings

# Recommendations (2)

---

- Dissemination of AAL culture
  - Many elderly persons, caregivers, sociologists and service providers do not know AAL solutions or underestimate potentialities and benefits of ICT devices and new services
- AAL market
  - AAL stakeholders remarked that the AAL market is strongly fragmented (different culture, organisation of services and methods for financing), so necessity to coordinate initiatives to avoid this fragmentation
  - Many interviewed noticed that there is a lack of entrepreneurship among subjects working in AAL research due to market risks (Entrepreneurship and disruptive business models)

# Recommendations (3)

---

- Policies

- Experts recommended to develop policies, at European, national and also regional level, to rethink the organization of healthcare by renewing socio-medical services and including new innovative services with the use of AAL technologies;
- Interoperability, standards and certification;
- Regulation of the transmission, elaboration, sharing and storing of health and personal data;
- The use of the AAL solutions into society is also invalidated from the lack of adequate infrastructure (e. g. presence of architectural barriers and the lack of adequate WLAN infrastructure in the rural areas).



# Recommendations (4)

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- Other remarks
  - Every older person should be the main carer of him/herself, so it is important to empower and make senior people aware about how they should take care of themselves.
  - AAL technologies should be facilitator of AAL services for caregivers and so they should not replace the fundamental role of formal and informal caregivers. These tools should be designed to allow clinicians and carers to follow more efficiently older people.

Thank you for your attention

[www.aaliance2.eu](http://www.aaliance2.eu)

