

e-INCLUSIOW

ICT for an Inclusive Society - **RIGA** 11-13 June 2006





ICT and Ageing: Scenario's for caring surroun"things'

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VP Wireless Autonomous Microsystems

No one left behind



WHO Millennium Development Goals

Health in the Millennium Development Goals

Health Targets	Health Indicators
Goal 1: Eradicate extreme poverty and hunger	
Target 1	Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day
Target 2	Halve, between 1990 and 2015, the proportion of people who suffer from hunger
Target 4	Prevalence of underweight children under five years of age
Target 5	Proportion of population below minimum level of dietary energy consumption
Goal 2: Achieve universal primary education	
Target 3	Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling
Goal 3: Promote gender equality and empower women	
Target 4	Eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels of education no later than 2015
Goal 4: Reduce child mortality	
Target 5	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
Target 13	Under-five mortality rate
Target 14	Infant mortality rate
Target 15	Proportion of one-year-old children immunized against measles
Goal 5: Improve maternal health	
Target 6	Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio
Target 16	Maternal mortality ratio
Target 17	Proportion of births attended by skilled health personnel
Goal 6: Combat HIV/AIDS, malaria and other diseases	
Target 7	Have halted by 2015 and begun to reverse the spread of HIV/AIDS
Target 18	HIV prevalence among pregnant women aged 15-24 years
Target 19	Condom use rate of the contraceptive prevalence rate
Target 20	Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
Target 8	Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
Target 21	Prevalence and death rates associated with malaria
Target 22	Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures
Target 23	Prevalence and death rates associated with tuberculosis
Target 24	Proportion of tuberculosis cases detected and cured under DOTS (Directly Observed Treatment Short-course)
Goal 7: Ensure environmental sustainability	
Target 9	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
Target 29	Proportion of population using solid fuels
Target 10	Halve by 2015 the proportion of people without sustainable access to safe drinking-water and sanitation
Target 30	Proportion of population with sustainable access to an improved water source, urban and rural
Target 11	By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers
Target 31	Proportion of population with access to improved sanitation, urban and rural
Goal 8: Develop a global partnership for development	
Target 12	Develop further an open, rule-based, predictable, non-discriminatory trading and financial system
Target 13	Address the special needs of the least developed countries
Target 14	Address the special needs of landlocked countries and small island developing states
Target 15	Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term
Target 16	In cooperation with developing countries, develop and implement strategies for decent and productive work for youth
Target 17	In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries
Target 46	Proportion of population with access to affordable essential drugs on a sustainable basis
Target 18	In cooperation with the private sector, make available the benefits of new technologies, especially information and communications

- Target 18:
In cooperation with the private sector, make available the benefits of new technologies, especially information and communications
- World Health Assembly resolution 58.28 urges the Member States to: (inter alia)
 - develop a national eHealth strategy, including legal and infrastructure frameworks, and public-private partnerships
 - mobilize multi-sectoral collaboration
 - establish national eHealth centres and networks of excellence



ICT expectations

- Easy to use, not obtrusive
- Designed for all – useful for the elderly
 - No “products for the seniors”
 - “Positive products” – Joy-of-live
 - Fitness programs / improve well being
- Role of ICT: *Support and enable ...*
 - living independently at home
 - facilitate communication and social contact
 - prevention rather than treatment
 - some responsibility of individuals, their family and friends

Essential role for home, informal and voluntary care



EPoSS

European Technology
Platform on Smart Systems Integration

Vision – scenario *technology roadmaps*

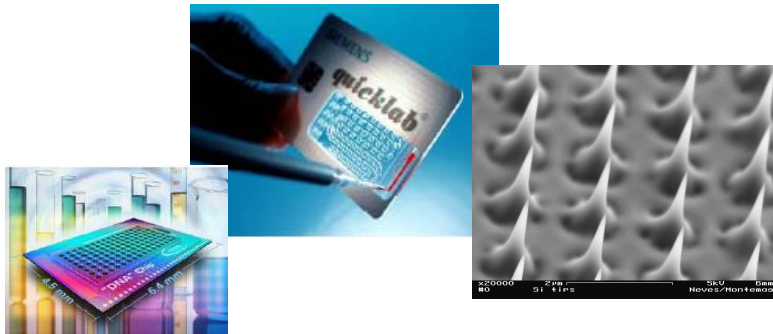




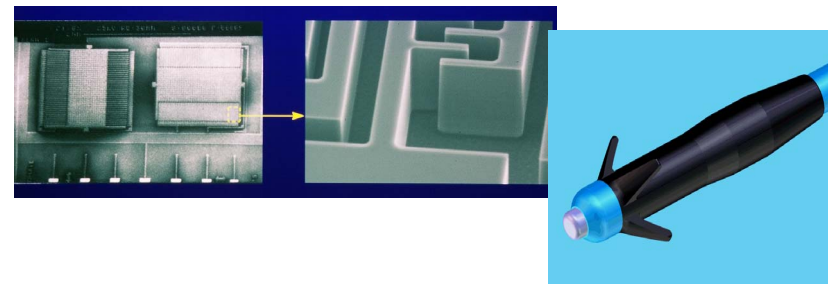
EPoSS
European Technology
Platform on Smart Systems Integration

Smart Systems Integration

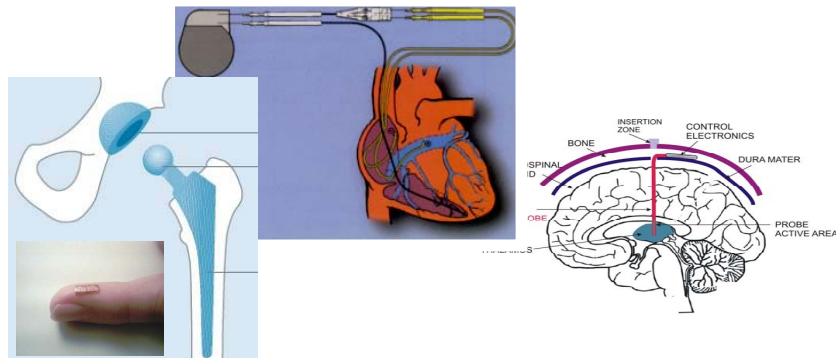
Assisted Health Checking



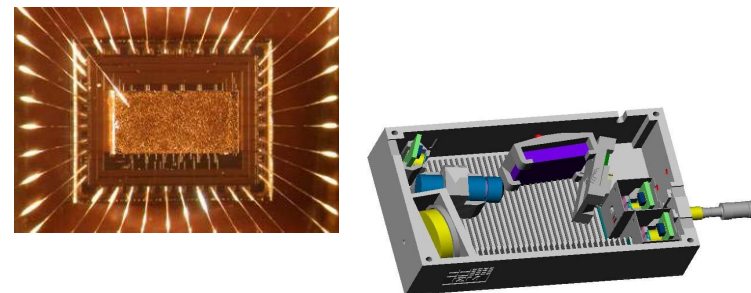
Assisted Therapy



100% functional substitution / Rehabilitation

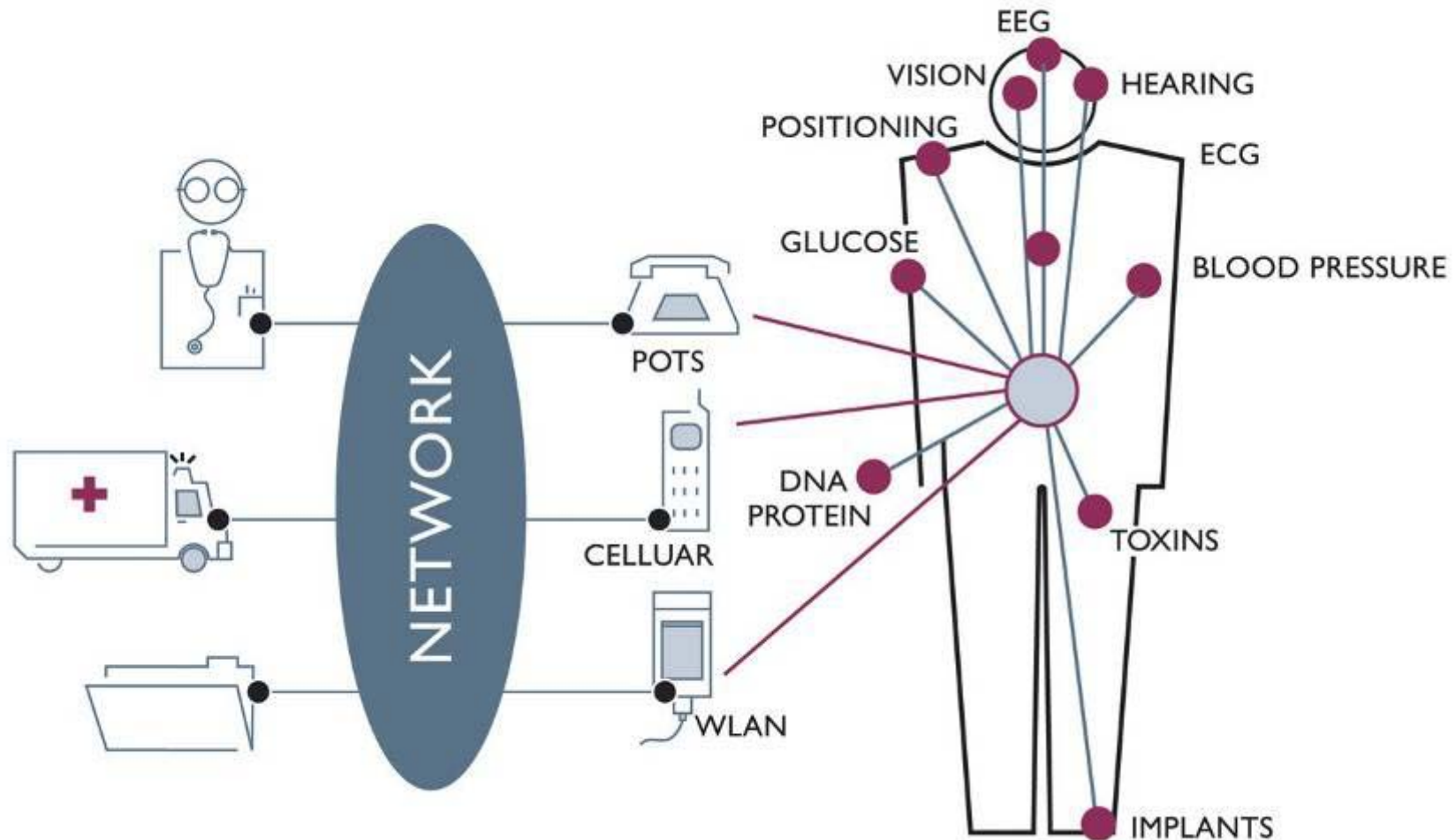


Monitoring and control of environmental conditions





IMEC Human++ Program





Wireless autonomous microsystems as enabler for human centric care

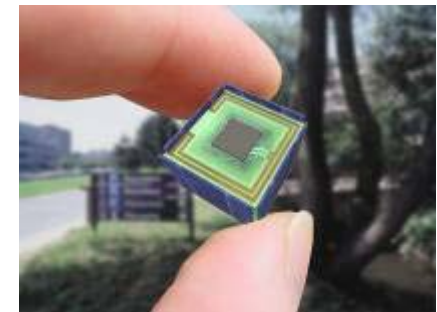
2002



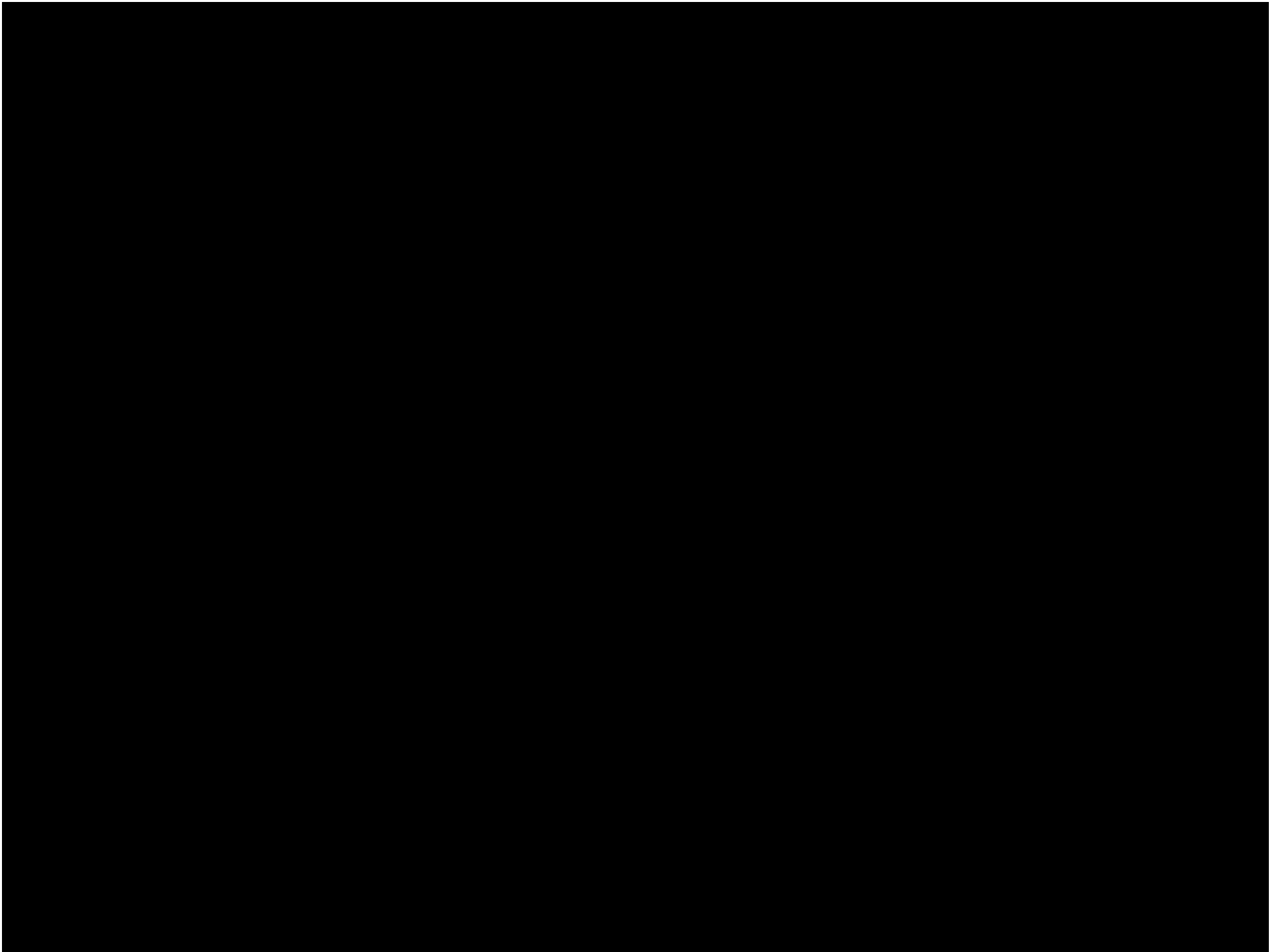
300 cm³
140 mW

**Reduce
power & size**
**Increase
functionality**

2010



1 cm³
100 μ W



Sensing Applications

Health:

- Blood pressure
- Temperature
- ECG
- Glucose
- Toxins
- UV dose
- Drug dispensing

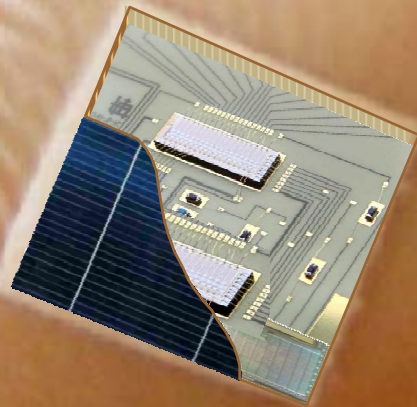
Safety:

- Shock, ...

Comfort:

- Perspiration, ...

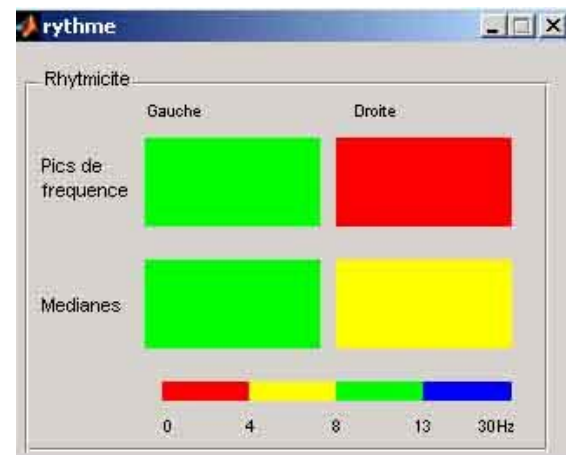
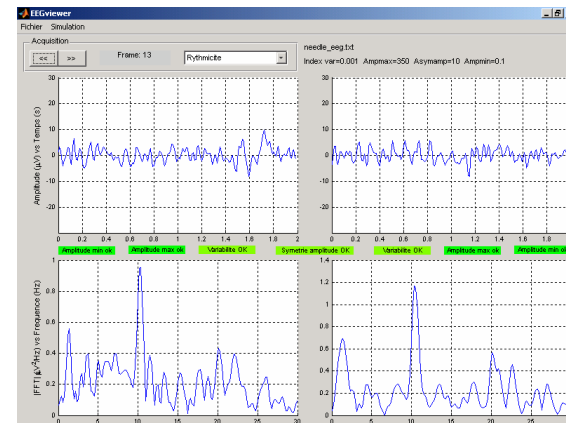
2003 → 2010





Case studies and field trials

Ambulatory Color EEG for neuro-feedback and rehabilitation





Assisting devices – 1st generation





Interactive “test” sites... understanding the needs

Intel Proactive Health

Philips Home Lab

Living Tomorrow

Many others ...



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Conclusions

- Technology evolution:
 - Wireless Sensors / Actuators
 - Wireless Sensor Networks
 - High functionality
 - Complex services
 - Abundant, autonomous, cheap, unobtrusive, reliable
- Technologies promoting / enhancing
 - Personal health and wellness activities
 - Telemedicine – remote diagnostics – virtual physician
 - Informal family and friends care network
 - Designed for all – useful for the elderly



Recommendations

- Build convincing field trials with all stakeholders
 - Include all stakeholders
 - Emphasis on acceptability questions
 - At national level, with European concertation
 - Evaluate and study the societal impact
- Support the technological development of affordable, acceptable, unobtrusive “hardware”
 - Link to SRA of European Technology Platforms (e.g. EPOSS, ...)
 - Standards ?
 - Acceptance procedures ?



e-INCLUSION

ICT for an Inclusive Society

Ministerial Conference
Riga 11-13 June 2006

No one left behind



Sources

- European Technology Platform EPOSS. Strategic Research Agenda (Kick-off July 5th, 2006)
- CEPO Study on Senior citizens and ICT (Flanders 2004): “Kleurrijk Vlaanderen kleurt grijs”
- FP 6 IST: Ambient Assisted Living
- www.who.int
- www.HolstCentre.com, www.imec.be
- Intel Proactive health (<http://www.intel.com/research/prohealth/>)
- www.livingtomorrow.be
- Philips Home Lab www.Philips.com