Technology

Well-being in Ageing Societies: Perspectives from China, Germany and Japan

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(Sibylle Meyer)
Addressing Assisting Technologies

- Informal and professional Care Givers
- All Employees

People with the Need of Support

- Elderly Employees (> 65)

Germany 2050
64.4 – 72.4 Mio., 80% probability

G. Dobelhammer (2012): in J. W. Vaupel (Hrsg.): Demografische Forschung aus Erster Hand, Max-Planck-Institut für demografische Forschung, Rostock
Technologies in a Concert of Approaches
Easing the Societal Changes

- Encouragement of Volunteering
- Company Health Management
- Prevention Support for Self-Help
- Compatibility of Family, Care and Job
- Acquisition of Foreign Professionals
- New Forms of Habitation
- Health in High Age
- Encourage of Work-Life-Balance Concepts
- Technology Based Assisting Solutions

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What kind of technologies can contribute to successful ageing and/or active ageing?

1. Basic Technologies

- Communication Technologies (wireless, cable)
- Measuring Components Sensors
- Performing Components Actors
- Energy Harvesting
- Internet of Things
- Data Handling Information Processing
- Semantic Analysis Artificial Intelligence
- Location Technologies
- Materials Science
- Micro-system Technology
- ICT
What kind of technologies can contribute to successful ageing and/or active ageing?

2. Applied Technologies

- Smart Home Domotic applications
- Telemedicine Devices
- Smart Meter
- Smart Textiles
- Robotics
- Entertainment Devices
- Computer Tablets/Smartphones APPs
- Light
- Household Equipment
- e-Mobility
- Battery Technology
- Local Based Services
What kind of technologies can contribute to successful ageing and/or active ageing?

3. Adoption and Services

(Human) Services

Individual Rules

Technology

Who will come to help?

When is person normally getting up?
Who should be informed?

Is measuring time.
Is able to discover a fallen person.
What kind of technologies can contribute to successful ageing and/or active ageing?

4. Design, Acceptance, Interoperability, Availability in the Market

- **Solutions** (including technology and services) designed from the **requirements** and **needs** of the potential **users**: **Acceptance** through the recognition of the **benefit**!

- **Interoperability** is necessary for complex solutions.

- **Point of Information, Point of Sale** with a presentation of solutions
  - Not single goods: More “Living Room” than “Bookshelves”, “Sofa”, “Arm Chairs”
  - Specialized sales people
  - With a chance to see, touch, try, smell, being amazed, being emotional affected
What kind of technologies can contribute to successful ageing and/or active ageing?

5. Solutions for different fields

- Safety
- Support in Daily Life
- Communication
- Social Participation
- Handling Diseases
- Support of Rehabilitation
- Mobility
- Fun
- Wellness
- Fitness
- Prevention
- Foster Care
- Prevention
What kind of technologies can contribute to successful ageing and/or active ageing?

5. Range of Solutions

Gadgets, Devices (cheap, easy)
- Orientation light
- Automatically switching off Iron
- e-book-reader

Devices with the Need of Configuration
- Systems for disorientated people (Geo fencing)
- Pill/Medication dispenser

Devices with Need of Support for Installation (Craftsman)
- Self extinguishing cooking stove
- House automation systems, central switch off
- Washlets

Devices with Need of Services
- All sorts of Emergency Alarms
- Telemedicine Devices
How do technologies affect well-being over the life course?

- To serve over the life course solutions based on technology have to be
  - Modular: add components, add services
  - Adaptable to changing requirements: change configuration, add more or change to different components
  - Requirements: interoperability between components and even services; data security and safety
  - Development of answers to ethical questions

- Perspective for solutions: Cross Generation, supporting the life course.
How do technologies affect well-being over the life course?

Ambulant, Residential and Private Care Giving

Working until High Age

Bridging Missing Infrastructure

Comfort Entertainment
Wellness Fitness

Support

Safety Security
(Primary-) Prevention

Diseases Secundary and Tertiary Prevention

Rehabilitation

Nursing, Care

Palliative Care

Residing and Living

Being mobile

Sharing Social and Cultural Life, having Fun
Drivers for Smart Technologies

Societal Changes

Renewable Energies
Smart Grid

Energy Costs
Energy Efficiency

Smart Cities

Bildquellen:
http://www.publicus-boorberg.de/sixcms/detail.php?template=pub_artikel&id=boorberg01.c.143778.de
Summary

 Approaches to deal with challenges caused by the demographical and societal changes are addressing not only the aged but all societal groups.
 Major solutions are based on new or adopted technologies, often in combination with new or optimized services.
 Technology based solution have a better chance (acceptance, market, ...) when implemented as cross generation solutions.
 There are different driver for smart solutions that influence each other.
Herzlichen Dank für Ihre Aufmerksamkeit
Thank you for your attention!

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Appendix

TECHNOLOGY RESEARCH IN GERMANY
Research Programmes in Germany and Europe

Europe

Framework Programmes
- FP6 2002-2006
- FP7 2007-2013
- Horizon 2020 2014 to 2020

AAL Joint Programme
- Call 1 2008
- Call 2
- Call 3
- Call 4
- Call 6 2013

Germany

Federal Ministries
- Education and Research
- Family, Senior Citizens, Women and Youth
- Economics and Technology
- Transport, Building and Urban Development
- Health

State Ministries
- Lower-Saxony
- Hessen

Microsystems

Human Services

Demographical Change: humans and technology interaction

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Research Themes

- AAL Joint Programme: Themes to addressed
Research Themes

- **AAL Joint Programme: Calls**
  - **Call 1 - Chronic Conditions**: ICT for the Management and Prevention of Chronic Conditions of Older Adults
  - **Call 2 - Social Interaction**: ICT based Solutions for Advancement of Social Interaction of Elderly People
  - **Call 3 - Self-serve Society**: ICT-based Solutions for Advancement of Older Persons’ Independence and Participation in the “Self-Serve Society”
  - **Call 4 - Mobility**: ICT based solutions for Advancement of Older Persons’ Mobility
  - **Call 5 - Daily Life Activities**: ICT-based Solutions for (Self) Management of Daily Life Activities of Older Adults at Home
  - **Call 6 - Supporting occupation in life for older adults**: ICT-based Solutions for Supporting Occupation in Life of Older
Research Themes

- **Federal Ministries**
  - **Family, Senior Citizens, Women and Youth:** Long-term care, „Intelligent Nursing Homes“, promotion of volunteer work, multigenerational houses
  - **Economics and Technology:** Design for All, Studies about Telemedicine, Mobility
  - **Transport, Building and Urban Development:** Funding program „age-appropriate renovation“, urban redevelopment (barrier free)
  - **Health:** Aging and staying healthy; Health in high Age
Federal Ministry of Health

- Funded 6 Research Networks „Health in (High) Age“ with 35 Mio.
  - AMA: Autonomy with multi morbidity
  - ESTER-Net: Prevention before and care with frailty.
  - KORA-Age: Develop and stay in social contacts as important factor for well being
  - LUCAS: Counseling, early recognition and health promotion
  - MultiCare: Recognition and compliance of interactions between single diseases
  - PRISUS Study: List of medication not valid for people in high age
Research Themes

- Federal Ministry for Education and Research: Funding Themes
  - Work and Competences
  - Health and Quality of Life
  - Mobility and Participation
  - Habitation and Safety
  - Fostering and Support
  - Municipalities and Elderly
Research Themes

- Federal Ministry for Education and Research: Calls
  - Interdisciplinary Constitution of Competence (Open)
  - Adaptive, Learning Systems (Open)
  - Small and Medium-sized Enterprises’ Innovation (Permanent)
  - Elderlies‘ Technology Messengers (2013-2014, 360.000 Euro, 18 Projects)
  - Technology Adopting to Humans (2013-2016)
  - Being age 60+ and in the middle of the work Live (2013-2016, 17 Mio. Euro, 12 Projects)
  - Being Mobile until High Age (2011-2014, 20 Mio. Euro, 14 Projects)
  - Age-appropriate Assisting Systems for a Healthy and Independent Living (2009-2013, 45 Mio. Euro, 18 Projects)
Research Themes

- Federal Ministry for Education and Research: Accompanying Research
  - User Dependent Innovation Barriers Concerning Age-appropriate Assisting Systems
  - Legal Questions Concerning Age-appropriate Assisting Systems
  - Economic Potentials and New Business Models Concerning Age-appropriate Assisting Systems
  - Ethical Questions Concerning Age-appropriate Assisting Systems
  - Reasons for Referrals to Hospitals of People living in Long Term Care Houses