Managing the elderly’s safe mobility

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Outline

1. Introduction
2. How to identify usability potentials of HF research for the policy world [definition, determinants/indicators]
3. Current conditions and trends
   - Mobility
   - Travel safety
   - Impacts
4. Strategies & measures
   - Management measures
   - Policy preconditions
5. Conclusions
1. Introduction

- Ageing of the population is an international traffic and transportation issue
- Ineffectiveness of Ad-Hoc measures
- System Approach as solution:
  - Systematic process
  - Comprehensive analysis [process + context + content]
  - Integral policy packages
  - Monitoring & Evaluation (PDCA cycle)
- Ambition of this conference
  - establish what we know to effectively support improvements

1. Introduction [continued]

State of the art projects:
Sample of international projects:
- 2004 – Ageing and Outdoor Mobility
- 2005 - Enhancing Mobility in Later Life
- 2010 - COST358 PQN (performance, system approach to walking)
- 2013 - GOAL and TRACY

Sample of Dutch national projects
- 2007 - Assisting the older driver (SWOV – Davidse)
- 2008 – Grijs op Reis [The Gray on their Way]- KiM
- 2010 - Silvering – Rijkswaterstaat (Moerdijk c.s.)
- 2013 - Travel risks of the elderly – Consumer Safety/Rijkswaterstaat
2a Identification of HF research usability potentials

**Definition: 3 Human Factors perspectives**

1. **Ergonomics:**
   - Concerns adaptability of technology to abilities
   - Technology is target object, human is reference subject (D4A)

2. **Behavioural adjustment:**
   - Concerns managing human behaviour
   - Target is 'better traffic & transport' via 3 E's; objective = reference

3. **Organisation:**
   - Concerns the management of the interventions
   - Organisation is target object; traffic system is reference subject

2b Identification of HF research usability potentials

Human Factors concern human behaviour

**Determinants** of behaviour: *NOA-model* (Steg & Vlek)

- **Autonomous influences**
- **Policy impulses**

Diagram:

- Needs (N)
- Opportunities (O)
- Abilities (A)
- OS = Opportunity Search
- MP = Motivation to Perform
- BC = Behavioural Control
- Behaviour
2c Identification of HF research usability potentials

**Determinants of [user] behaviour**

- **Needs:**
  - Safe Mobility
  - Other human needs & wants

- **Opportunities:**
  - Social-normative environment cf. fellow travellers, humans around, norms, values
  - Physical environment cf. land use, network, site
  - Mobile environment cf. vehicle, traffic, transport

- **Abilities:**
  - Ageing persons and population cf. GOAL profiles
  - Indicators of accidents, casualties cf. Police, ER, Hospital data

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2d Identification of HF research usability potentials

**Determinants → indicators of societal changes**

- **Autonomic changes**
  - Societal changes e.g. ageing, mobility, economy, culture, ...
  - Political changes e.g. lean government, taxes, decentralisation
  - Technological changes e.g. vehicles, traffic management, ITS
  - Spatial changes e.g. i.e. land use, wear & tear, climate

- **Policy induced changes**
  - Policy life cycle e.g. management & control phase
  - Policy culture e.g. from pro-active back to reactive?
  - Electoral changes e.g. more elderly voters
  - Policy preconditions e.g. volume and quality of policy activities [see slide 16]
3a Current conditions - Mobility

• **Mobility is the ability to move or be moved freely and easily**
  - Mobility is about getting somewhere: trips more essential than distances

• **GOAL profiles**
  - FF  Fit as a fiddle (35%)
  - HC  Happily connected (30%)
  - OG  Oldie but Goodie (16%)
  - HH  Hole in the heart (13%)
  - CF  The Care-Full (6%)

• **Travel characteristics**
  - Trips are multi-modal: every trip starts and ends with walking
  - Walking + cycling are basic mobility and affordable
  - Less than 50% of trips are by car (65+: < 30% as driver)
  - Increasing share of elderly in traffic (ageing in traffic)

3a Current conditions - Mobility

• **Changes with age and ageing:**
  **Needs**
  - Lifestyle changes incite change in distribution of travel motives / choices
  **Abilities**
  - Needed preparation time / safety concerns
  - Driving competence when < 3,000 kms per year as driver
  - Health, competences and risks: ability to cope with complexity
  **Behaviour**
  - Number of trips per day
  - Distance covered
  - Speed choices
  - Driving/riding cessation incite new modal choices, but ...
  - Independent / accompanied travelling
3b Current conditions – Travel safety

- Travel vs traffic safety
  - Concerns danger/accidents while moving about in public space
  - Appropriate definition - policy actors’ responsibilities (= public space)
  - Irrespective of data availability, accident type, objective/subjective

- Data:
  - Numbers, coverage, validity, representativeness, reliability

- Fatalities:
  - Real numbers, relative numbers, trends

- Casualties:
  - ER, Hospital, MAIS, real numbers, relative numbers, trends

- Material damage:
  - Monetary costs, psychological impacts

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% of traffic fatalities per age group
3b Current conditions – Travel safety

From triangulation study (VeiligheidNL, 2013):

• Over 70% of all ER casualties = cyclist or pedestrian; in-car < 20%

• Over 60% of 50+ ER casualties concern single accidents (falls)

• Pedestrians: 9x more falls than traffic accidents; 7% of 50+ casualties concern crossing accidents.

• 100% increase in 5 years in hospital admittances amongst elderly (55+) pedestrians and cyclists

• Keys: exposure, experience, self-regulation, complexity, over-estimation of abilities, balance, fragility.

  The elderly are not risky, but at risk.

3c Current conditions - Impacts

• Loss of life
  – Travel accidents still major cause of death

• Individual consequences
  – Quality of Life: decrease in capabilities, dependency, stress, loss of contacts and income, isolation, loneliness and depression, driving/riding cessation, ...

• Social consequences
  – Participation: small circle of social contacts, burden on friends and family, ...

• Services and facilities needed
  – Social catching net: medical, transport & handyman services, home adaption...

• Economic consequences
  – Loss of consumption, governmental costs of special facilities, welfare support, medical facilities, dedicated transport, ...
4a Strategies & measures – management strategies

- Mobility management
  - more focus on inter-modal travelling, walking and cycling; support independent living and travelling

- Traffic management
  - decrease complexity and number of conflicts

- Safety management
  - Ergonomics – application of science based criteria, e.g.
    - 6 C’s: Connected, Convenient, Conspicuous, Convivial, Comfortable, Co-existence
    - 5 safety principles: Functional, Homogenous, Recognizable, Forgiving, Status Awareness
  - TRACY criteria: affordability, availability, friendliness, secure, transparent, …
  - Behavioural adjustment:
    - Decrease complexity, increase the elderly’s traffic abilities

- Organisation: next slide

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4b Strategies & measures – Policy preconditions

Critical policy preconditions are:

- Leadership (direction, distribution of resources)
- Knowledge & professional skills
- Strategies & policies
- Resources (money, staff, tools, materials, …)
- Co-operation & Partnerships
Conclusion

• Human Factors: 3 complementary perspectives
• One only finds what one is looking for
• Data validity is a real problem, triangulation helps
• A Systems approach offers effectiveness / efficiency
• The elderly’s safe mobility on foot and bike deserves research/policy priority over car mobility
• Critical is in the policy process:
  – Linking research and policy development
  – Attention to the 5 critical policy pillars.

Thank you!

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