Denkschule 2017 - Ergebnisse

Introduction: Engineering education and social responsibility

- Society‘s need for engineers to act as „public welfare watchdogs“ (Beck 1992) vs. „a culture of disengagement“ (Czech 2014)
- Beliefs, meanings, and practices that frame the way profession members conceptualize their professional responsibility to the public, based on three pillars

- Lay people’s barriers to form part of technological development, i.e. for fears to expose knowledge gaps on technology, for a lack of time or a lack of interest

Results I: Rescue & Security Services

Challenges:
- rescue of persons
- rescue time
- rescue equipment

Solutions:
- lightweight potential vs. „Lightweight paradox“
- integrated approaches to rescue processes and technologies
- „Sollbruchstelle“ and promotion of rescue features in cars
- rescue tools for lay people

Research and development:
- development and promotion of rescue features in automotive design
- application and promotion of lighter and safer materials
- technology in line with the complexity of rescue and emergency realities

Results II: Care, Mobility & Assisted Living

Challenges:
- care home vs. autonomy
- autonomy supporting technologies vs. threat to privacy and freedom
- limitations of research and development funding policies
- exhaustive problem analysis
- legal terms and conditions for individualized technologies
- public health and insurance policies
- conflicting norms and competing values

Solutions:
- improve transparency
- exchange of information
- technology transfer
- administrative procedures
- education, awareness of professionals

Research and Development:
- continuous dialogue
- pay attention to concerns related to ambiguities of technologies
- provide understandable and transparent information on care and assisting technology
- be accountable for members of civil society, receptive for their critics and concerns, and reflective on social dimensions and the impact of technologies

Results III: Rescue & Sustainable Resources & Climate Protection

Challenges:
- acceptance of sustainable behaviours and technologies
- competition of materials
- unsecure future markets – high development pressure
- agency and responsibility for change
- life circle transparency and lack of re-use strategies for non-recycling materials

Solutions:
- new recycling and re-use strategies
- suitable technologies to foster sustainable behavior
- promotion of business models and marketing strategies for sustainability
- take responsibility for the future

Research and Development:
- thinking engineering and social implications together
- critical thinking instead of mainstream economic catch phrases
- education for sustainability
- provide transparency and information
- development of recycling and re-use strategies

Conclusions

Conclusions on common needs identified through all areas of society are the need …
- for transparency and exchange of information
- for new models and strategies
- the need to respond to challenges resulting from complex and competing norms and values, and to reflect on the impact for the social groups affected
- to recognize the ambiguity inherent to technologies and to find strategies to deal with it
- to take responsibility and act on that base – also in science and engineering

Our conclusions:
- In order to comply with society‘s needs, inter- and transdisciplinary effort is crucial
- Didactical benefit for future engineers (Riegraf & Berscheid 2018)
- Encouragement of a “culture of engagement” in engineering education

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