Assistive Technologies for the inclusion of people with disabilities: Perceptions, needs and social-ethical challenges

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Agenda

1. Introduction

2. Empirical Insights: Perceptions and Needs of ATs

3. Remarks on social-ethical challenges

4. Final remarks

1. Introduction: the project

- Project: "Assistive technologies for the inclusion of people with disabilities in society, education and jobs"
  - Foresight-Analysis of the state of the art as well as future trends concerning the needs and perceptions of people with disabilities on assistive technologies

- Disabilities in focus:
  - Blindness and visual impairment
  - Deafness and hearing impairment
  - ASD

- Research methods:
  - Literature review
  - Database research (EASTIN, Web of Science, EbSCO All, IEEE, ANED-DOTCOM)
  - 3 empirical studies (Europe-wide)
    - Online survey
    - Expert interviews (2 sets)

1. Introduction: Research methods

- ## European Online-Survey

Respondent distribution across the three disability groups

Kind of impairment	Share of respondents	Number of respondents	Only mandatory questions were answered
Blind or visually impaired	61,9%	231	14
Deaf or hearing impaired	19,3%	72	9
ASD	18,8%	70	18
Total	**100%**	**373**	**41**

- ## Semi-structured expert interviews (on a European level)
  - 14 semi-structured interviews
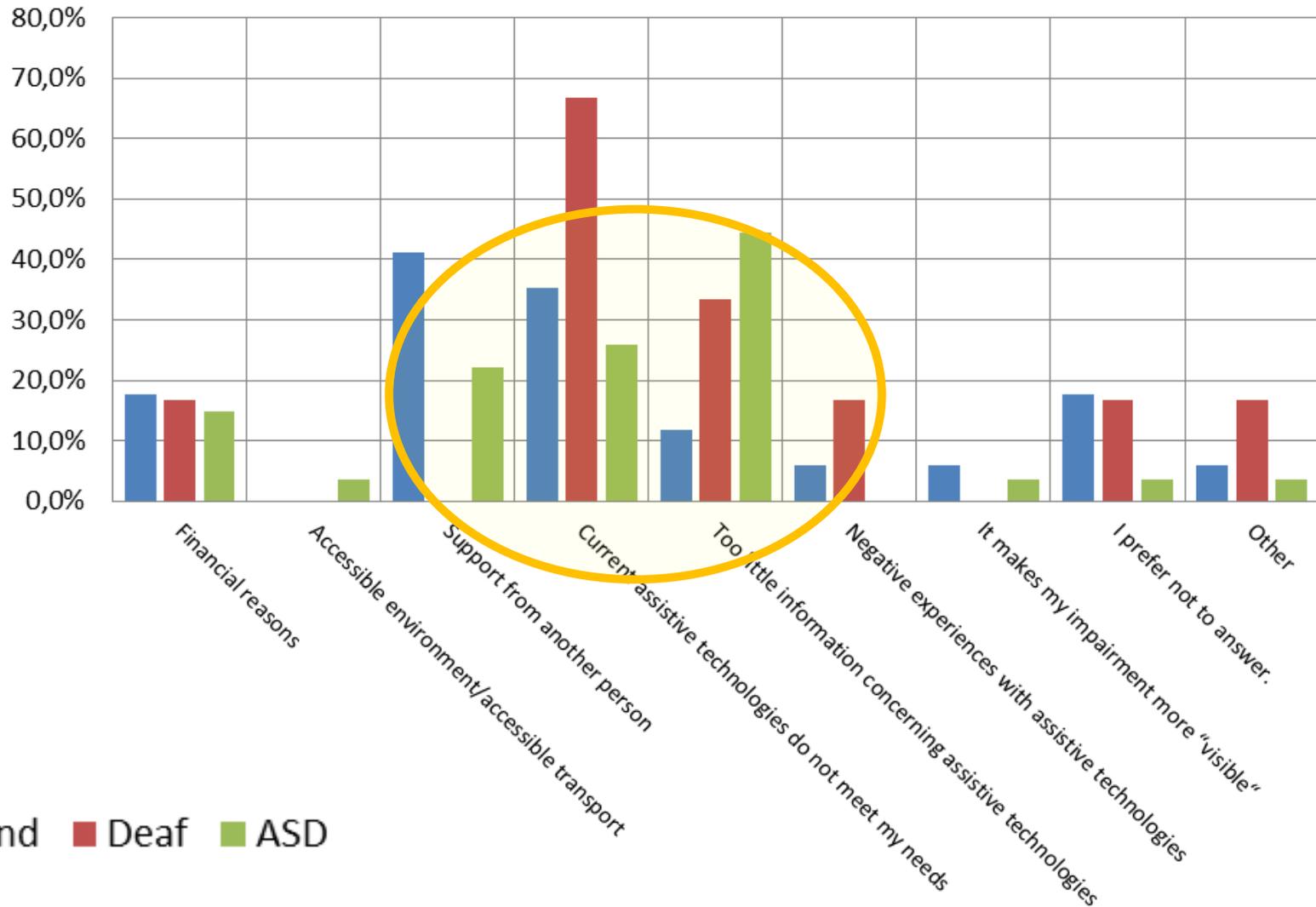 - European organizations and other actors (research, politics, etc.)

2. Empirical Insights : Use of ATs

Do you currently use assistive technologies to help you to cope with your impairment?

Source: Nierling et al. 2016:26
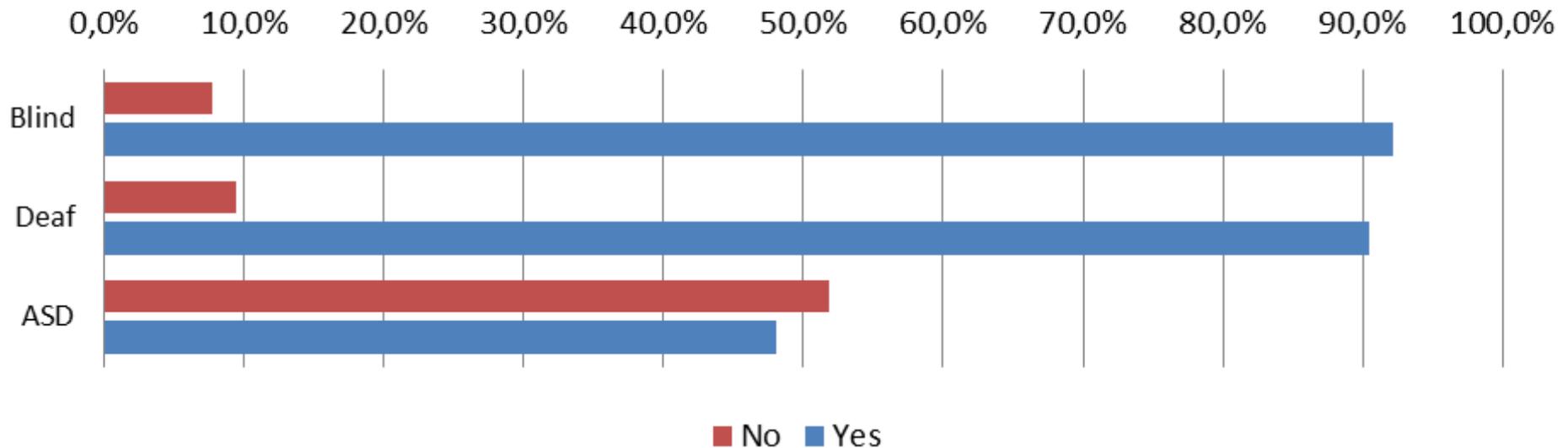
2. Empirical insights: : Non-use of ATs

Why do you not use assistive technologies?

Source: Nierling et al. 2016:29

2. Empirical insights: Non-use of ATs

- Process of technology design and development
 - → universal and user-driven design

> *"You **totally depend on the manufacturer** to make it accessible; you cannot install your third party app on the ATM to make it accessible…"*
>
> *(Simons, EBU, 31)*

- Acceptance and awareness of ATs
  - → cultural factors, stigma, information, age

2. Empirical insights: Barriers in society

Which barriers are you confronted with in your everyday life?

Source: Nierling et al. 2016:24
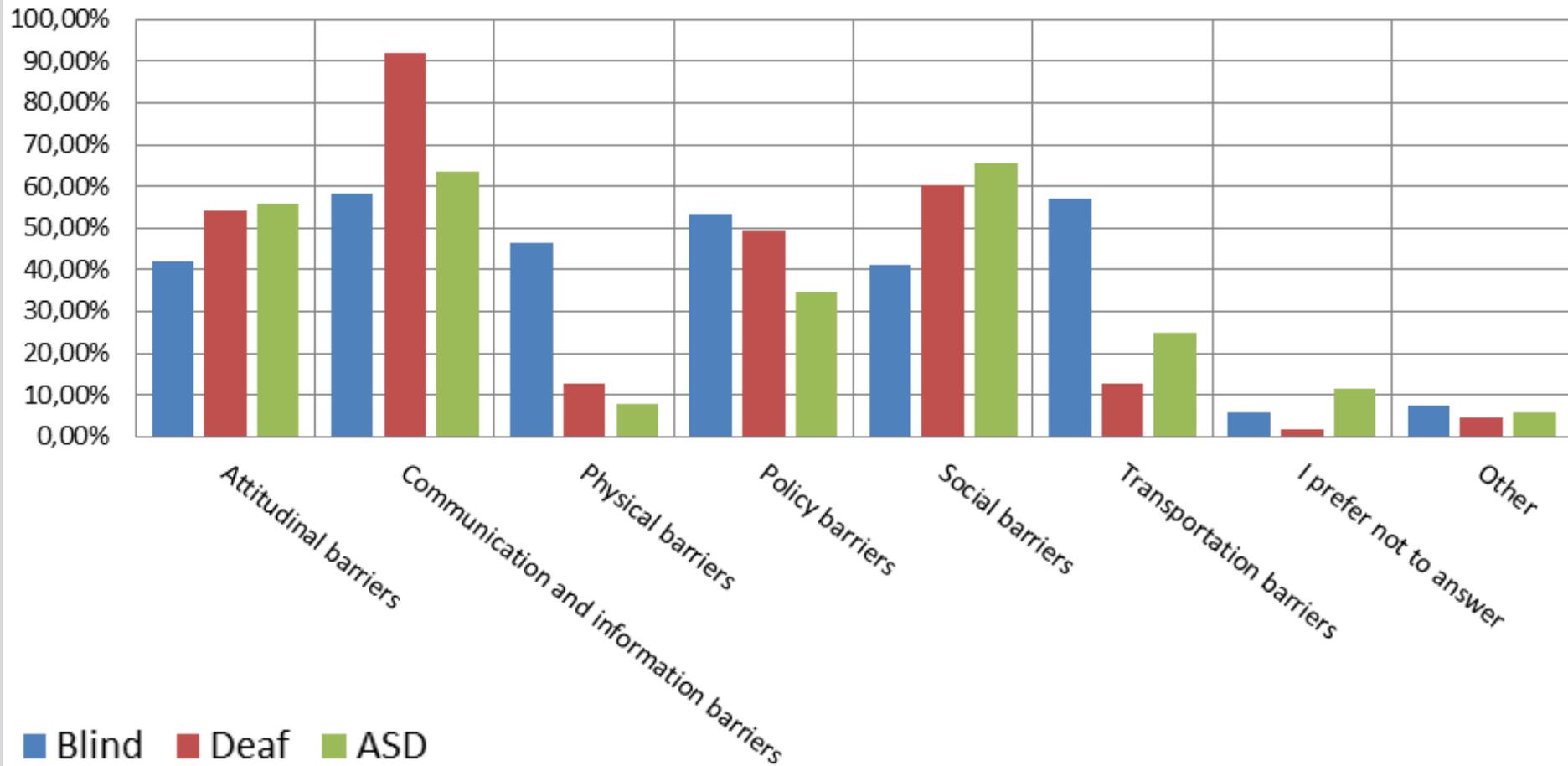
Independent living

- Vary according to the type of disability, e.g:

    - Visual impairments --- lack of universal design in everyday technologies

    - ASD --- support personal communication and social interaction

2. Empirical insights: Barriers in society

■ Education

- ■ People with disabilities

- ■ Professionals

> *"So it starts indeed with the **police force**, with the **civil servant**, with the **teachers, throughout society** [...], so that all of these professions that can be in contact with people with autism should be made aware and trained to recognise autism and to know how to interact with people with autism."*
>
> (Baranger, Autism Europe, 81)

2. Empirical insights: Barriers in society

■ **Employment → most challenging field!**

- ■ High attitudinal barriers (recruitment phase)

- ■ Lack of knowledge from company side ("Reasonable accomodation")

- ■ General lack of knowledge concerning people with disabilities and work - ATs for a "disability friendly" labour market

*"**Technology** can be very useful in the employment world, where technology can **help** make the labour market more **disability friendly**."*

(Zelderloo, EASPD, 33)

■ Employment → most challenging field! (cont.)

■ Failure in the education system

*"If **people with disabilities** have **not been able to take part in education** or have **not been able to benefit from education** in the same way as non-disabled children because of the **lack of adjustments including technologies**, then the end result is, that the person with the lower level of education and skills will have more **difficulties to find a job**. **Not just because of the disability but mainly because of the lower level of education and training** [...] (it) has an impact on the employability of people. So the more people have **access to technology** that allows them to take part in all aspects of life that also has a **positive impact** on their capacity to be **effectively included in the labour market**"*

(Tromel, ILO, 45)

2. Empirical insights: Future technology development

- Blindness and visual impairment
  - Autonomous vehicles

- Deafness and hearing impairment
  - Sign language to speech translators
  - Devices for challenging surroundings

- ASD
  - Innovative therapy and training devices
  - Emotion recognition devices
  - Assistive robots

3. Remarks on the social-ethical concerns

- Social acceptance

  - Stigmatization – ATs may drown attention to a person disability – Labelling
  - ATs could question self-esteem or identity issues – by increasing a not-necessity dependency
  - The role of ATs as such may be considered in relation to the wider societal context of people with disabilities, such as overcoming the strong attitudinal barriers that still exist towards people with disabilities

3. Remarks on the social-ethical concerns

- Ensuring accessibility

    - Law reinforcement to ensure "punishments" to actions that support discrimination on the ground of disability
    - Austerity driven economic policies and related financial problems of health systems in many European countries that result in spending cutbacks in this area. Focusing on questions such as "What is already there?" and "How can it be implemented most efficiently?" might be a way to respond to these economic challenges in a constructive manner.

3. Remarks on the social-ethical concerns

- **Affordability of ATs**
  - Key elements in ensuring access to ATs
  - States should include the provision of essential ATs in national health schemes coverage, on the basis of the World Health Organization priority assistive products lists
  - Ensure an universal access – ATs should be available at affordable prices → Fair distribution to avoid a technological divide

3. Remarks on the social-ethical concerns

- Promise of independence and quality of life improvement
  - ATs may promote social exclusion and foster isolation and abandonment
    - NO human contact (eg. Social robots) – by cutback services
    - Less human contact / social interaction (eg. Robots, ATs for lifting, carrying and even cleaning, pill dispenser)
  - Risk of social exclusion needs to be thoroughly assessed
  - Will we witness a shift on the model paradigm of care?
    - From human touch/caring to dehumanization of care practices?
    - Will there be an objectification of people with disabilities?
    - What kind of care society we wish for?

3. Remarks on the social-ethical concerns

- ATs may change our understanding of a healthy human body – normal body

    - Should embedded technologies (embodied ATs) be considered part of the body? Or artefacts?
    - How do we understand normality in the context of ATs?
    - In what way(s) do embodied ATs limit personal autonomy?
    - How is "reality" perceived with the use of ATs?
        - What is "seen" through a bionic eye? "reality" or "modified" reality?

3. Remarks on the social-ethical concerns

- ATs may change our understanding of a healthy human body – normal body (cont.)

    - Assistance vs enhancement

    - Most likely that these high-tech devices will be targeted as a technological fix of a malfunction of the human body or brain. Thus, ATs should not be regarded as a technical fix in itself. Instead, their role in their respective socio-technical context should be considered carefully to enhance their use and usefulness for people with disabilities.

    - Specific measures are also needed to properly integrate ethical factors on ATs → Ethical monitoring should therefore become an integral part of the development and design process of ATs.

3. Remarks on the social-ethical concerns

- Responsible research and innovation approach

  - User-centred design – To ensure the inclusion of the user at all levels of decision making (Bottom up approach – Co-design / Co-creation / User-driven design approach), in order to ensure that future technologies truly meet the needs of people with disabilities and are well-perceived by them.

  - Universal design approach (not necessarily have its original meaning to fit "all")

    *"We need **universal design**. So if a device is studied and projected for universal design, it should be adapted for every type of **people with or without disabilities**"*

    (Cirrincione, Autism-Europe, 79)

3. Remarks on the social-ethical concerns

- Responsible research and innovation approach (cont.)

    - Informed consent process – Rights-based approach
        - Duty to consult disabled people, appropriately and to ensure that they are not influenced in their decision on the use of technology – Possibility to drop out on the use of the technology should be given at all time
        - Full and accurate information on the risks and benefits of technology use should be provided.

    *"We are actually **desperate to have** much more **information** about how **best to use technologies** that **we already have"***

    (Cudd, University of Sheffield. 41)

3. Remarks on the social-ethical concerns

- Control over the data. Privacy-by-design approach – Ownership of data.
- ATs have the potential to intrude open rights, privacy and freedom
    - Right to refuse a certain form of support (eg. Robots)
    - Privacy/freedom and autonomy issues – technologically people with disabilities may need to rely on someone (family member or caregiver) – delegation of control to a person / to a technology.
    - Could question dignity – by means of restriction, disempowering practices and neglection of users needs and preferences

4. Final remarks

Reference

Nierling, L.; Maia, M.J.F.; Hens, L.; Wolbring, G.; Bratan, T.; Kukk, p.; CAs, J.; Capari, L.; Krieger-Lamina, J.; Mordini, E. Assistive Technologies for people with disabilities. Part II: Perspectives on assistive technologies. Brussels: European Union 2018, doi: 10.2861/11162

Thank you for your attention!

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