

# Disability-Centred AI & Algorithms. Memo

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How can we stop  
perpetuating social  
exclusion?



Algorithms **may discriminate** against individuals with facial asymmetry, different gestures, gesticulation, communication patterns or used assistive devices

**The most affected group** – people with disabilities, cognitive and sensory impairments, autism spectrum disorders

Algorithms do not create biases themselves but **may perpetuate societal inequities and cultural prejudices**

**E.g. Unemployment among individuals with disabilities - 50-80%, for cognitive disabilities or severe mental health disorders - up to 85%**


**E.g.** Such individuals are often falsely stopped by the police, discriminated against during the job interviews, excluded by educational system

**E.g.** They are also a few times more frequently victims of violence, abuse, manipulations, unjust law-enforcement

There are **high and acceptable-risk** scenarios when autonomous systems may perpetuate this discrimination

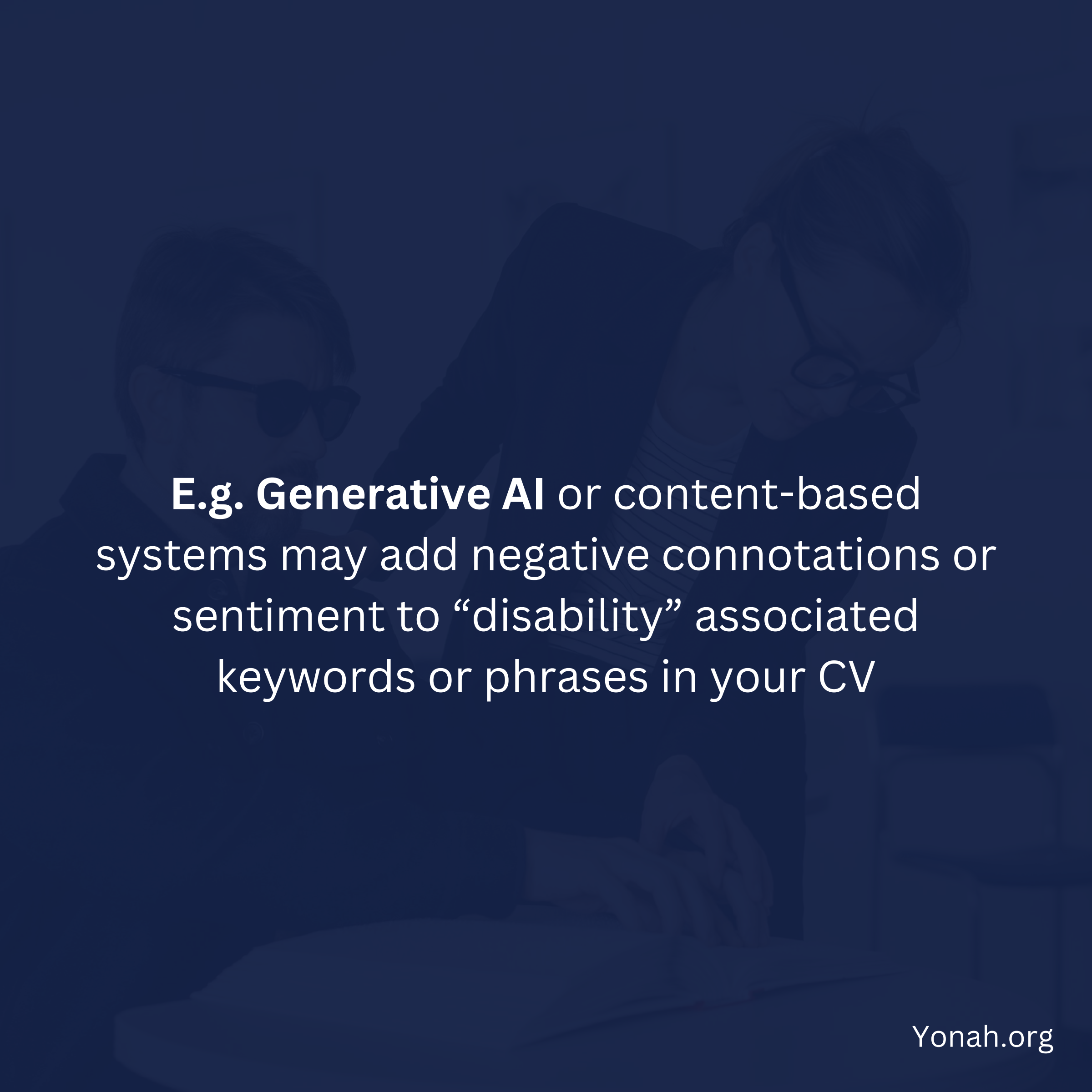


**E.g.** Workday's AI system was alleged by an older black man with a disability who mentioned that the algorithm potentially hinders his job search

A group of people in a meeting, with a woman in the center pointing at a laptop screen. The background is a dark blue gradient with a faint image of the group.

**E.g. iTutorGroup was alleged in an age  
discrimination by Equal Employment  
Opportunity Commission**

**E.g. Social networks** may recognize you as “not alive”, “non-human” or “emotionally flat” due to different behavior or action pattern



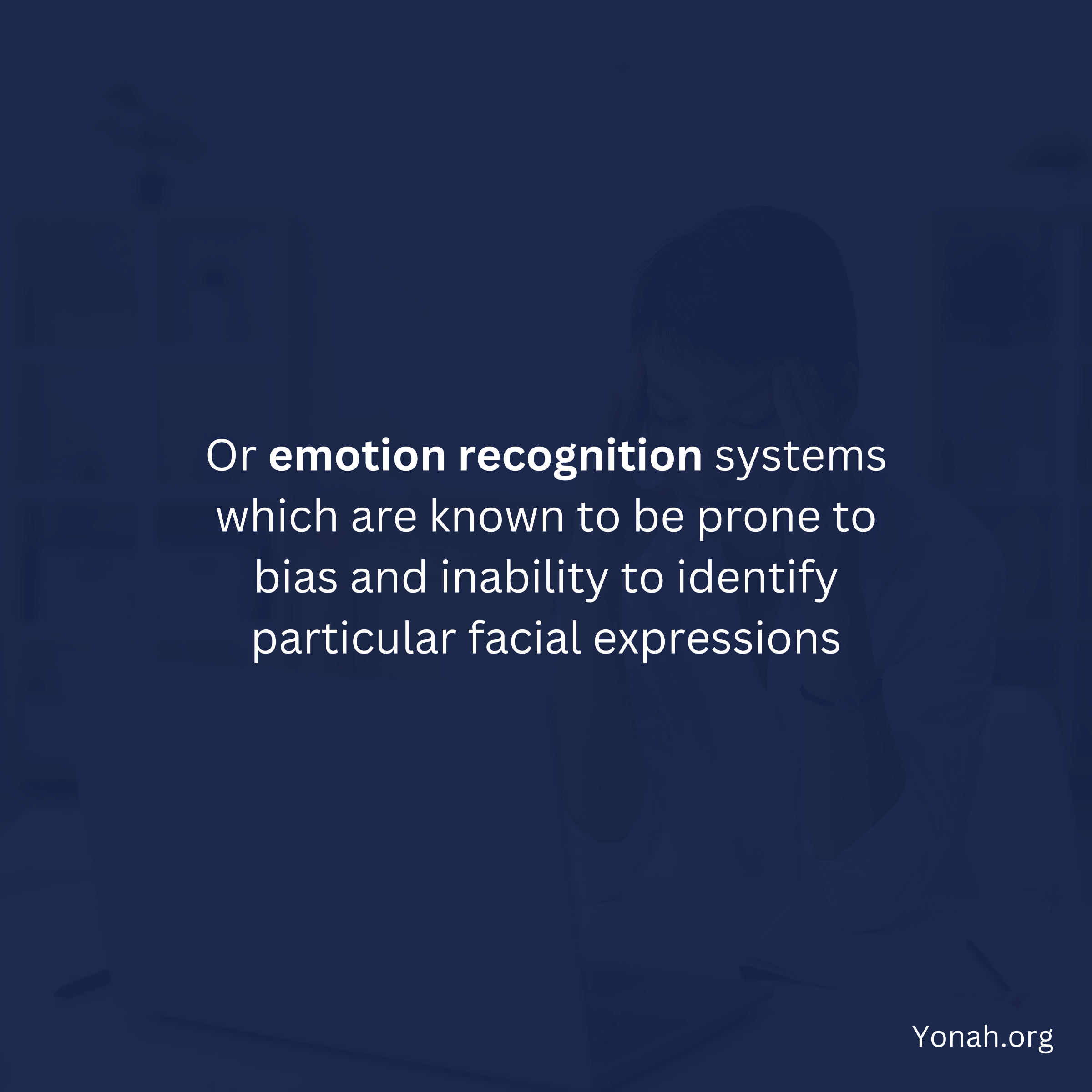
**E.g. Generative AI** or content-based systems may add negative connotations or sentiment to “disability” associated keywords or phrases in your CV

**E.g. Bank systems** may not properly recognize your uploaded documents or automated video interview

**E.g. Police and autonomous security systems may falsely recognize your assistive device as a weapon or dangerous object**



There are other scenarios including **biometrics**, voice, facial and **tactile recognition** which can't properly identify individuals with disabilities



Or **emotion recognition** systems  
which are known to be prone to  
bias and inability to identify  
particular facial expressions




**How can we address these  
challenges?**

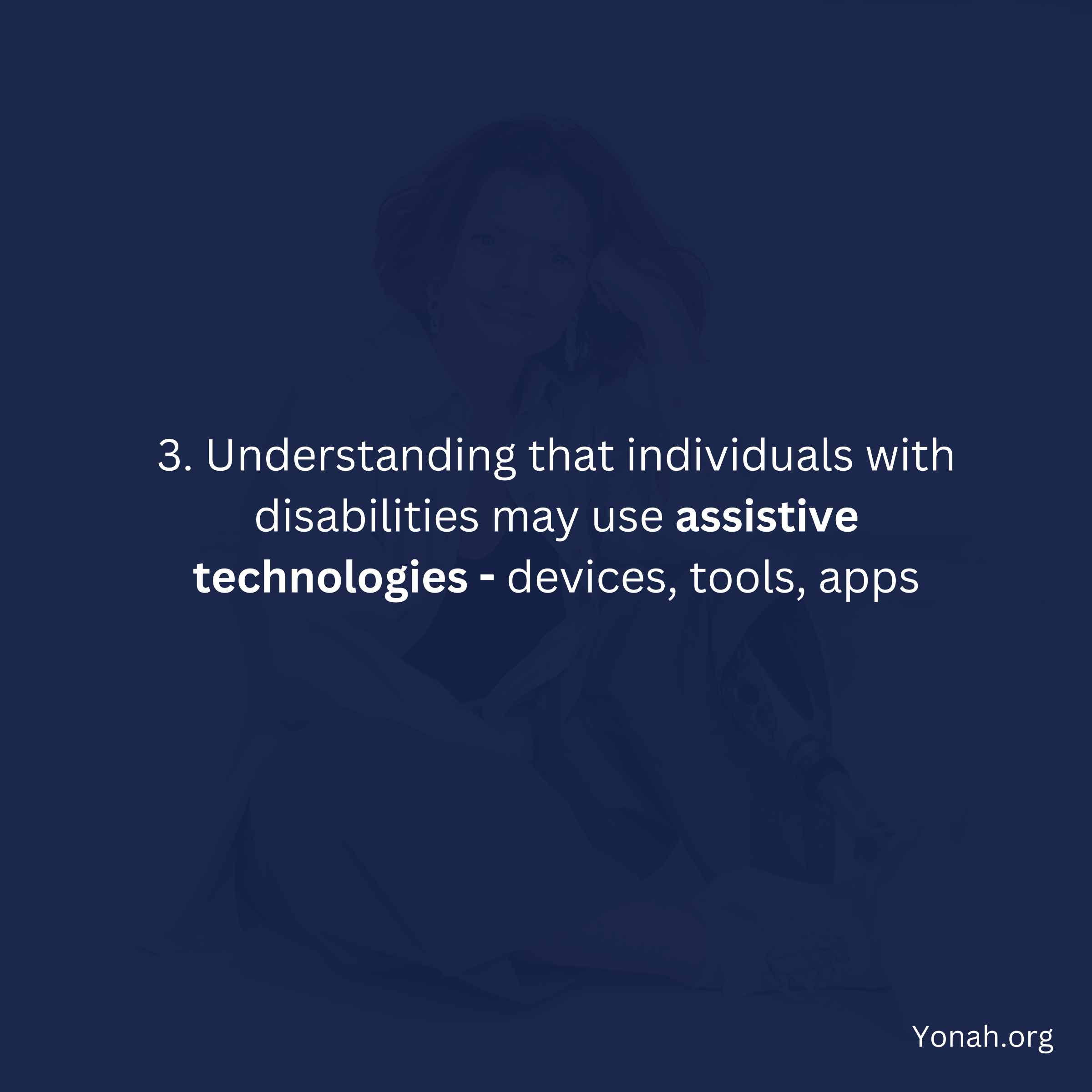
1. Understanding that disability is not the **monolith, but the spectrum**, including the unique cognitive, communication and physical patterns

**E.g.** Disability can be **visible or non-visible**, include physical, visual, hearing or cognitive impairments, facial, speech or tactile differences

2. Understanding that **disability is intersectional**, specifying research and development, depending on age, gender, social and historical criteria



**E.g.** Girls are often misdiagnosed due to different diagnostic criteria, certain ethnic groups are historically excluded from research data




3. Understanding that individuals with disabilities may use **assistive technologies** - devices, tools, apps

**E.g.** Wheelchairs, smart sticks, bionic limbs, visual, hearing and sensory enhancement devices, assistive robotics and learning solutions, etc

4. Understanding that individuals with disabilities are also presented by their families, caregivers and **diverse stakeholders**



**E.g.** Solutions that support individuals with autism may have 2 interfaces, one - for the parent, another one - for the child

A faded, light blue background image showing a woman in a business suit standing in the center, flanked by two individuals in wheelchairs. The image is semi-transparent and serves as a backdrop for the text.

5. Understanding the necessity to  
build the **representation**, an  
accessible **vocabulary**

**E.g.** Less than a quarter of individuals with disabilities are fully presented in the workplace, much less are involved in AI-systems research, development

6. Understanding the sensory and cognitive spectrum, **co-occurring conditions** and other parameters

**E.g. 25-40%** of individuals with cognitive disabilities may experience mental health disorders, allergies and other co-occurring conditions

7. Building **accessible curriculums** and  
recommendations for required skills  
and the system adoption

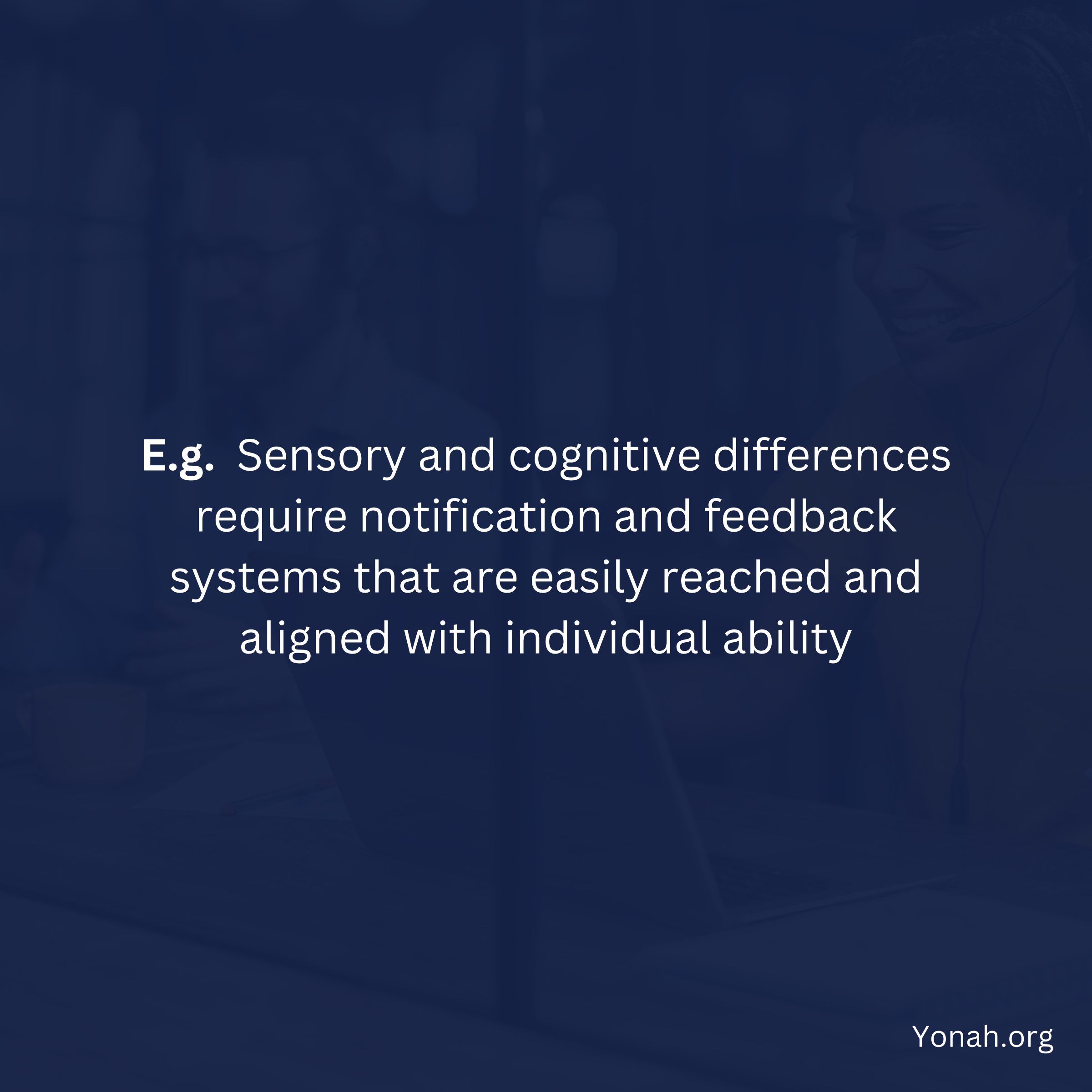
**E.g.** Some social AI companies focused on cognitive impairments, position themselves as "learning companies" due to the necessity to build adoption skills and curriculums

8. Evolving **knowledge frameworks**,  
incorporating bioethics, social studies,  
technology justice



**E.g.** WHO and similar agencies constantly evolve approaches to "digital health competence frameworks" frameworks. There is a need in accessibility ones as well

9. Ensuring a constant **feedback loop** between user and the platform's developers



**E.g.** Sensory and cognitive differences require notification and feedback systems that are easily reached and aligned with individual ability

10. Ensuring a **human involvement** and decision-making, establishing limitations of the system's autonomy

**E.g.** "Social companions" and assistants are frequently used in learning process. However, it doesn't exclude a teacher's involvement

11. Avoiding "**technical fixes**" -  
automation of the error and issues  
fixing, perpetuating existing problems

**E.g.** Such companies as Meta frequently use AI to automate bug finding and fixing, creating a vicious cycle of repeating errors and bias

12. Defining "**disability**"-specific risk and impact assessment such as law enforcement, biometrics, screening systems prone to discrimination



**E.g.** Existing AI Acts and "impact assessment" methodologies often do not specify disability-specific scenarios, risks and evaluation criteria

13. Reassessing so-called "**low-risk**" **systems** which may pose greater risks for individuals with disabilities such as emotion recognition

**E.g.** Emotion recognition systems are specifically prone to bias, often not able to identify particular facial expressions, emotions, gestures

**14. Avoiding silos**, providing guidance on how technology may serve as a tool, but not a replacement for social practises

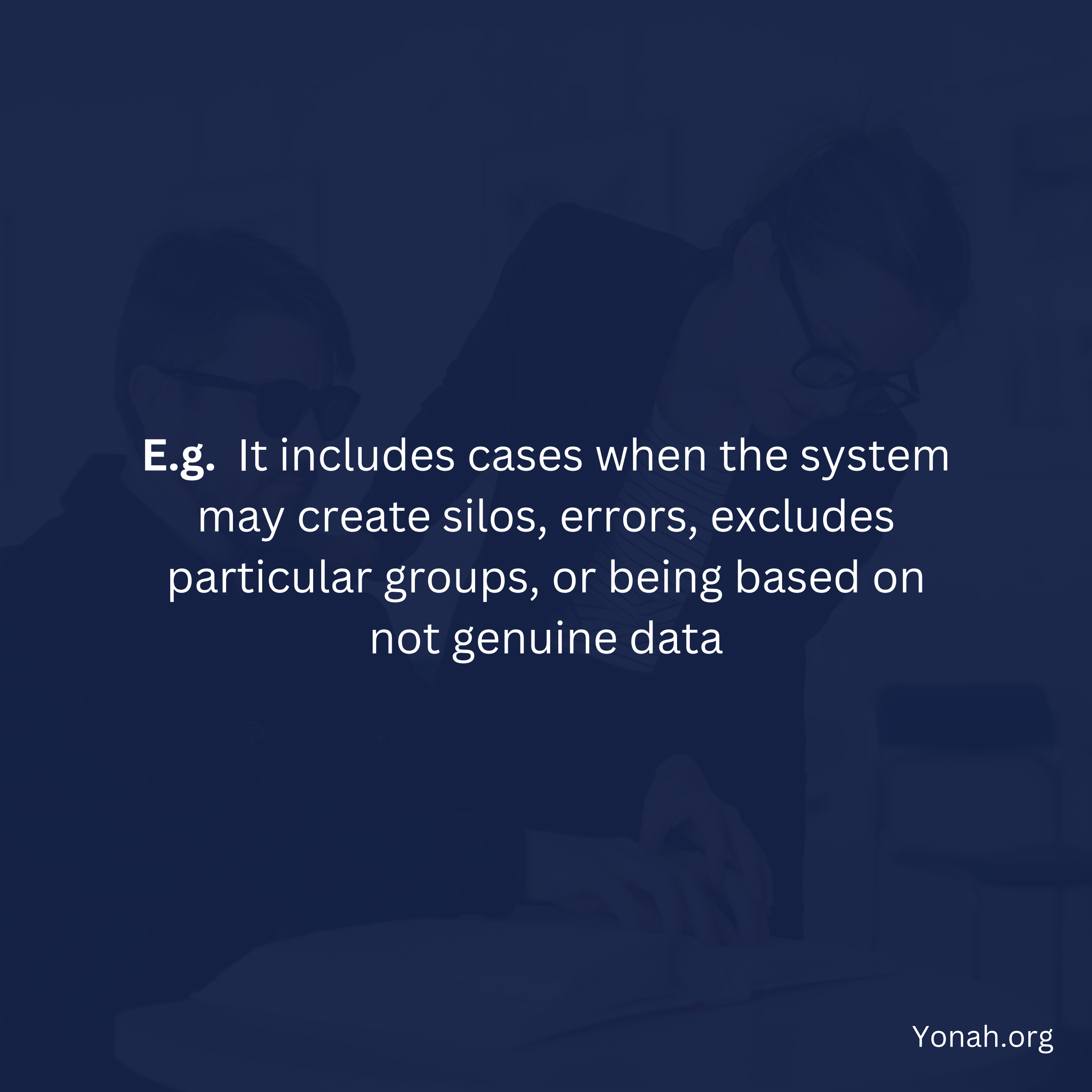
**E.g. 40%** of individuals with disabilities feel socially isolated. Attempt to replace social communication with algorithms may perpetuate it

15. Assessing **scenarios of misuse**,  
including abusive actions and  
manipulations

**E.g.** Individuals with disabilities often become victims of social media abuse or manipulation. They are also frequently "misidentified" by social algorithms

16. Assessing "**omissions**" - **no-actions** that may present harm and should be evaluated in the same way as "actions"





**E.g.** It includes cases when the system may create silos, errors, excludes particular groups, or being based on not genuine data

17. Protecting cognitive, patient and  
disability **data privacy**

**E.g.** Patient data is frequently used in areas of mental health and neuroscience. However this process may violate the privacy of people with disabilities.

18. Protecting individuals data  
creation and **ownership** rights

**E.g.** Individuals using assistive technologies are not only users but creators. For instance, individuals may create works using Generative AI or smart assistant

19. Establishing disability-centered approaches to the audit, eliminating **discriminatory influences**

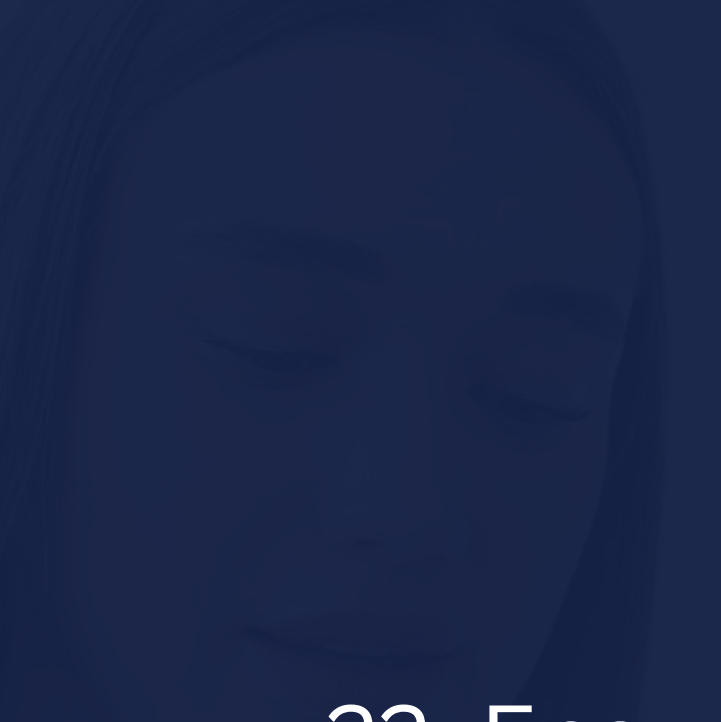
**E.g.** Individuals with disabilities were historically excluded from data-sets which are predominantly based on generalizations and "proxies"

20. Ensuring **transparency and explainability** (ability to explain the system's decisions, outcomes, semantics)



**E.g.** It was reported, that some hiring and screening platforms automatically fired some employees and were not able to provide the "justification"

21. Ensuring **accountability**, including end-to-end answerability (who is accountable) and auditability (how they are accountable).



22. Ensuring that AI systems and **assistive technologies** are actually **accessible**, can be purchased and used by individuals with disabilities



23. Ensuring that AI systems truly  
**benefits everyone**

**E.g.** AI algorithms are known to be biased against particular age-groups, elders, individuals on the spectrum - ADHD, Dyslexia, cognitive diversity

24. Prohibiting **unacceptable risk systems** that threaten human's life and safety such as autonomous weapons, warfare and policing systems

**E.g.** UN Special Rapporteur raised concerns and emergent call-to-action addressing disability and rapidly evolving autonomous systems



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