

TNO innovation
for life

 kennisalliantie
inclusie en
technologie

 mariasteen


EUDIGIT

CITIZENS WITH A DISABILITY: DIGITAL DIVIDE AND OPPORTUNITIES

INCLUSIVE WORKPLACE & INCLUSIVE TECHNOLOGY

KIM KRANENBORG

HARRY DE BOER/LEENDERT BOS

BART DECLOEDT

KIM.KRANENBORG@TNO.NL

LBOS@CEDRIS.NL / HARRY.DEBOER@TNO.NL

BART.DECLOEDT@MARIASTEEN.BE

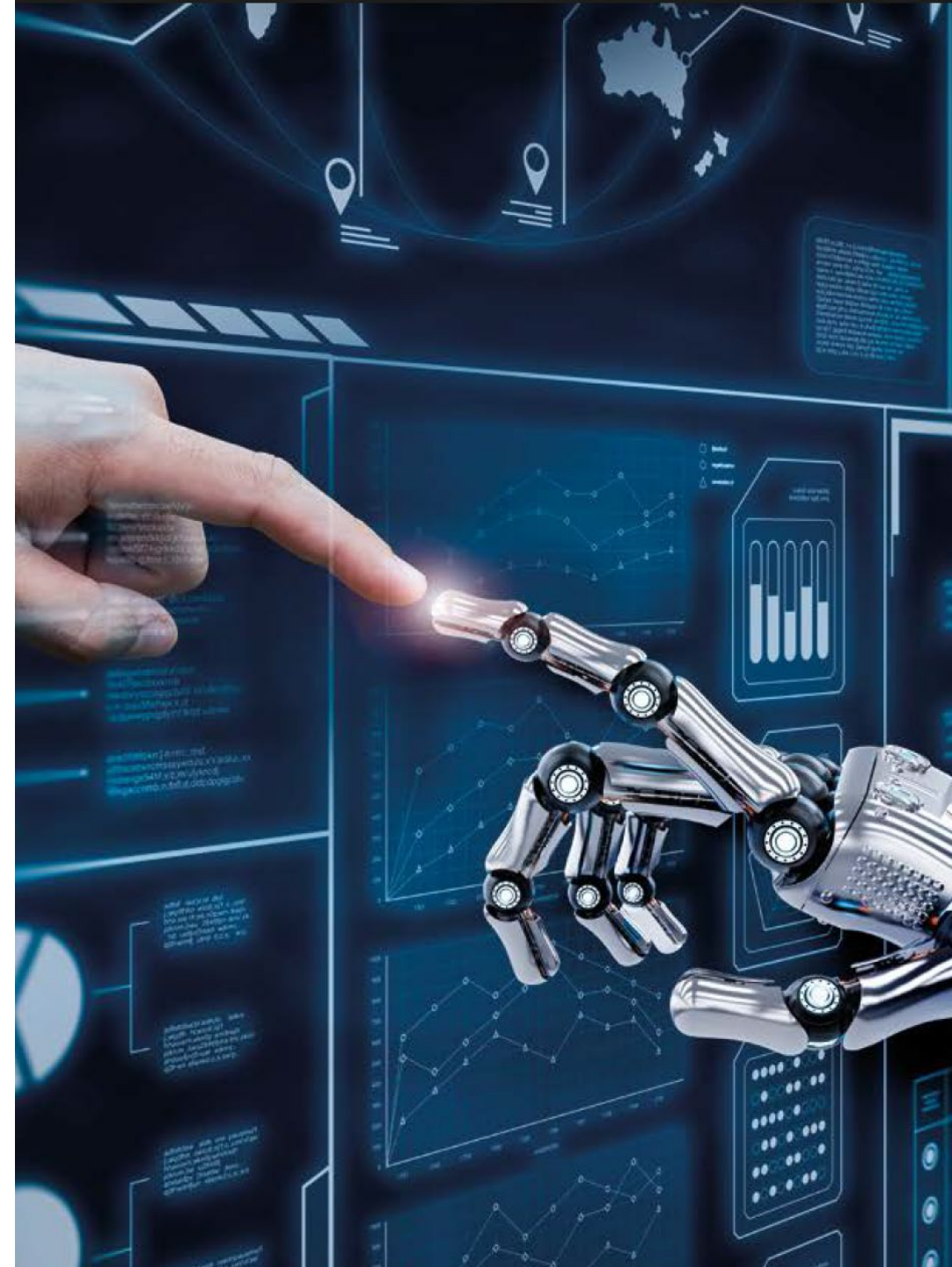
› WELCOME & INTRODUCTION

"Inclusive Technology" is technology that offers support to people who are in a vulnerable labor market position both in looking for and finding work....and the use of this technology in their work environment also contributes in staying at work in a sustainable way.

"Inclusive Technology" can **remove of reduce barriers** in the digital world. It gives those employees the **opportunity** to work in a level playing-field with co-workers, so they can use their **talents** just like other employees.

The menu for today:

we will show you various examples of what "Inclusive Technology" can do....it will challenge your minds!



› **PANEL 5: WORK**

- › How can we use technology to make a workplace more inclusive for citizens with a disability or a chronic illness?

Research and inspiring cases:

- › **Technology pilots for people with a cognitive disability**

- › Ms Kim Kranenburg and Mr Harry de Boer – advisors on
- › Inclusive technology at TNO and Knowledge Alliance Inclusion and Technology

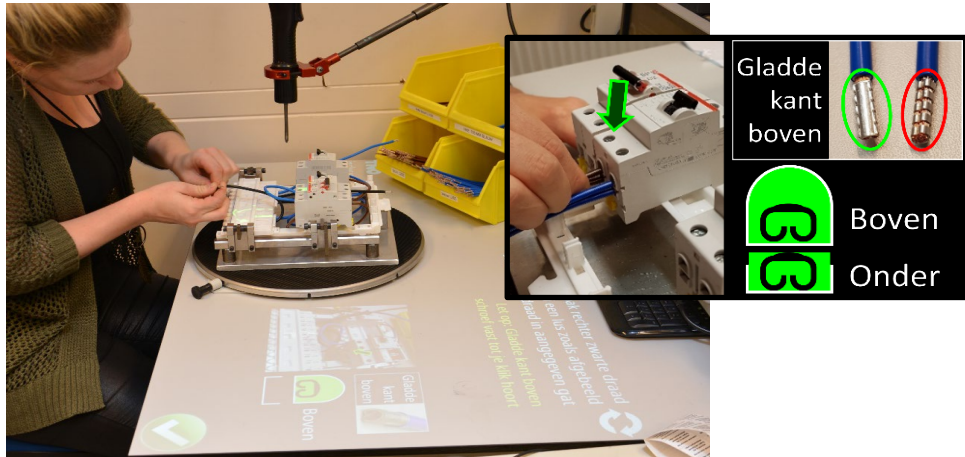


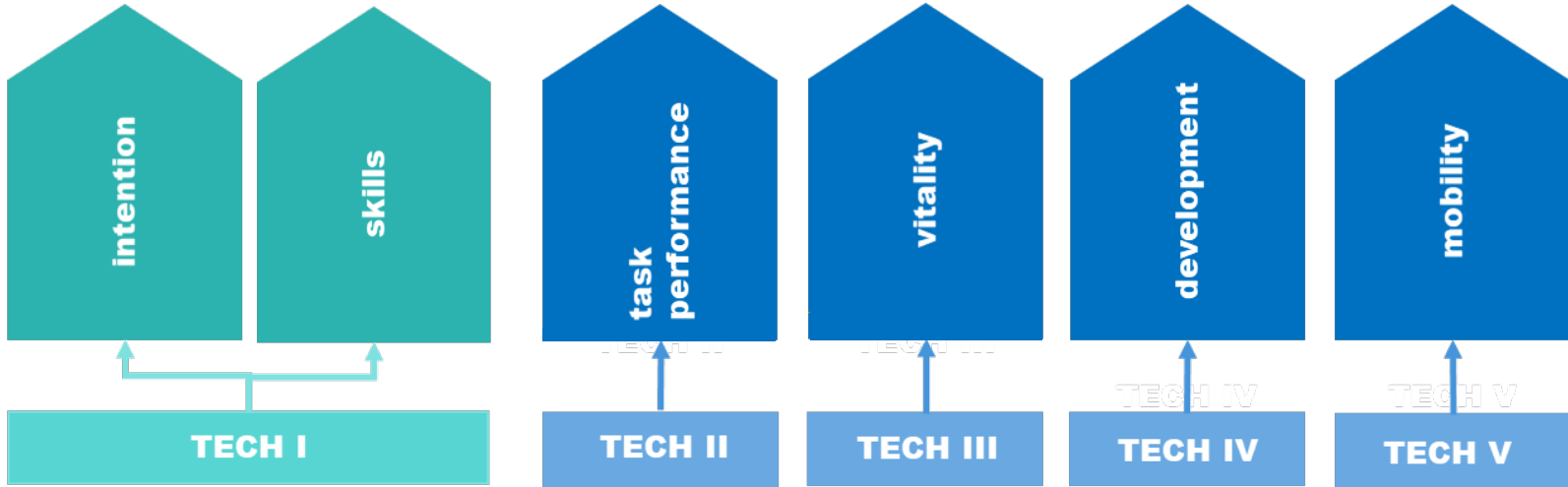
- › **Inclusive technology within the social workplace**

- › Mr Bart Decloedt, innovation manager at social working place
- › Mariasteen

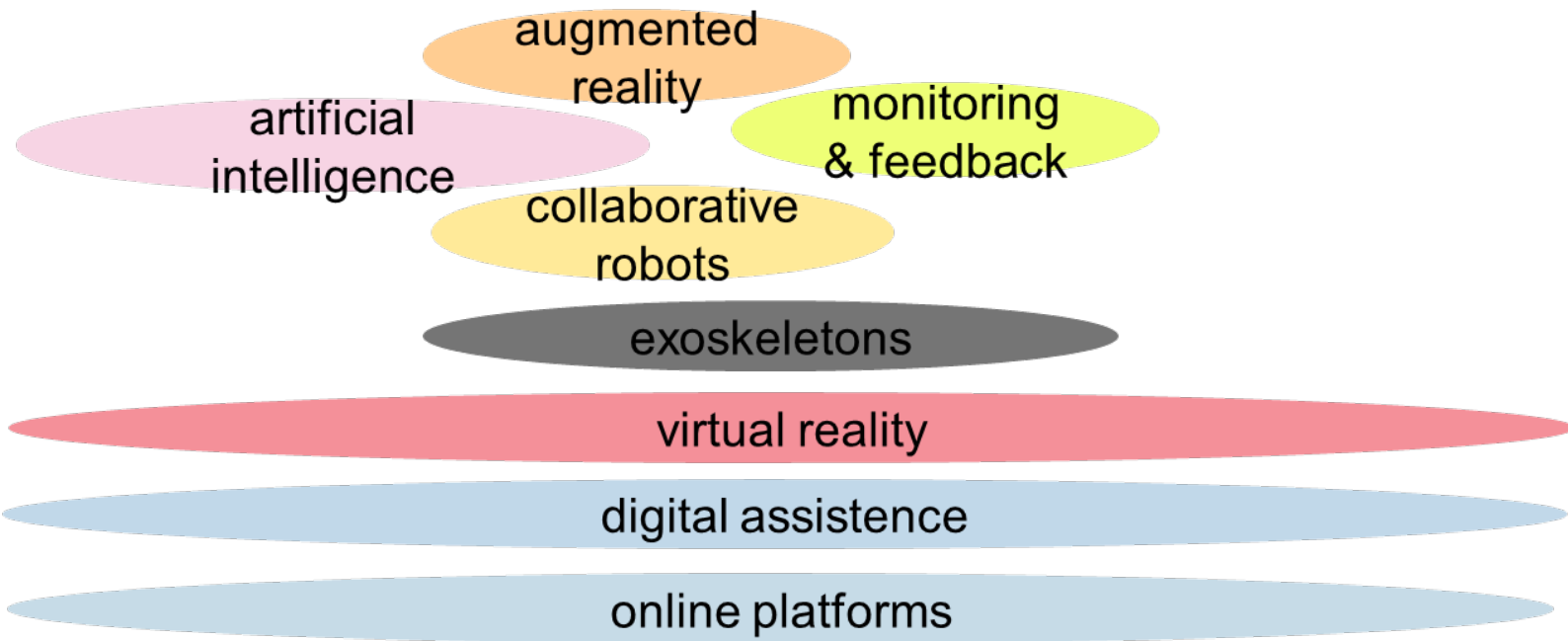


EXAMPLES TNO





INCLUSIVE TECHNOLOGY



HOW DO YOU CHOOSE AND PILOT THE RIGHT TECHNOLOGY?

Laevo
Laevo



Paexo back
Ottobock



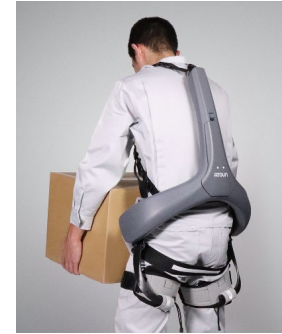
BackX
SuitX



LiftSuit
Auxivo



Model Y
ATOUN



Cray X
German Bionic

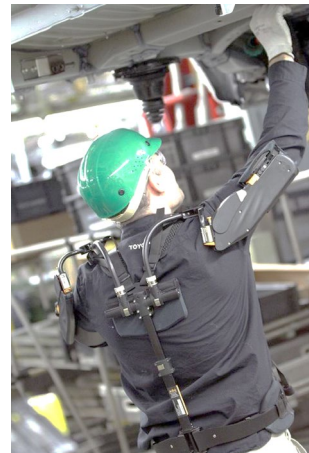
Skelex 360
Skelex



Paexo shoulder
Ottobock



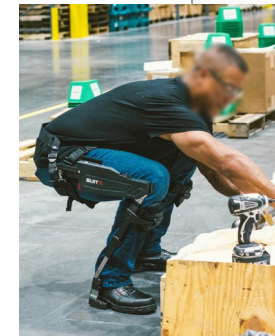
Airframe
Levitate



Mate
Comau



LegX
SuitX



Ironhand
Bioservo

Guardian XO
Sarcos



Chairless chair
Noonee



OPERATOR SUPPORT CANVAS

Ontwikkeld door
ROBO HOUSE
TNO Innovation for life

3 Scope

Lasergame pak 2v06

4 Proces

flatkabel samenstellen / boren / popwerk / solderen
 spanbanden
 speakers lijmen + foam plakken
 binnen kant

flatkabels afwerken en aansluiten, klikken
 display
 print plaat + speakers
 voorkant
 accupad
 achterkant
 personen
 rivettes en plakken + onderdelen kappen

Imago

Specialiseren v. management

1 Doel

Zelf organiserende team

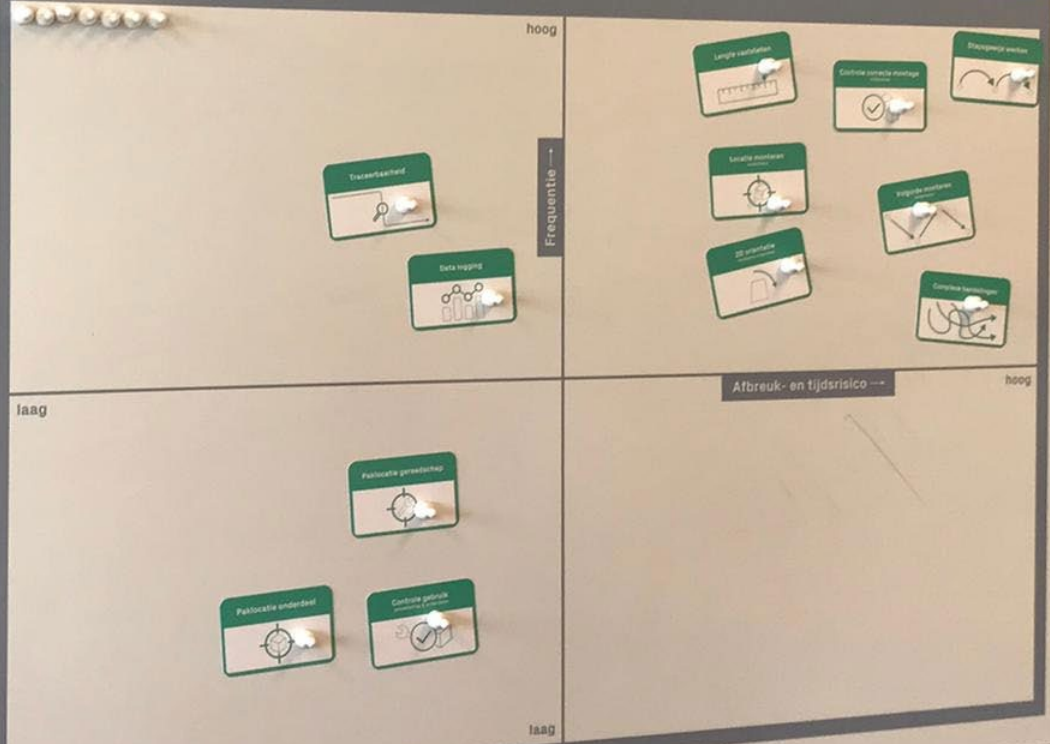
Kostenbaarheid organisatie ↓
 inleren ↑ sneller
 Productiviteit
 Productie efficiency
 Kwaliteit product
 Kwaliteit
 Ontwikkeling medewerkers
 Personeel
 Complexer producten
 vergroten zelfstandigheid

2 Doelgroep

doorstromen verpakkings naar montage.
 Cognitieve beperking mensen v. dagbesteding

- Volgende onthouden
- Wtfe verkrijgen
- Werk moet uitdagend blijven

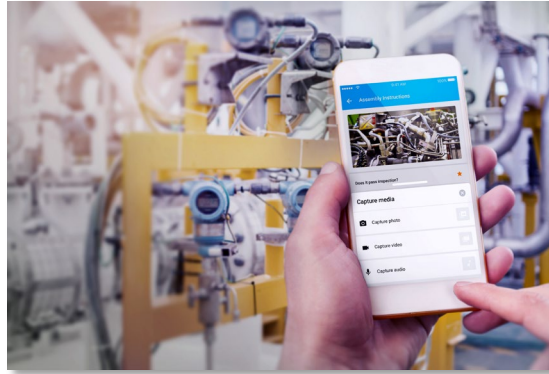
5 Informatiebehoefte in het proces



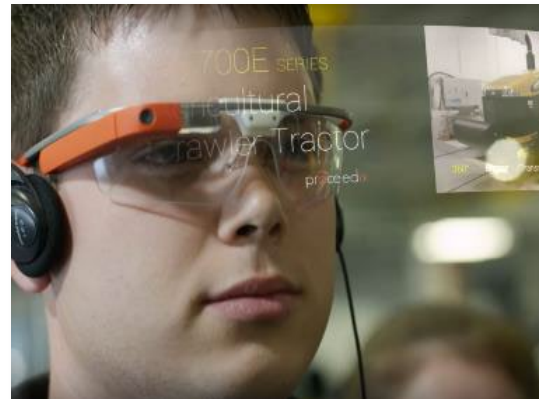
1 Remote assistance



2 Digital workinstructions



3 Instructional reality



4 Augmented Reality (AR)



› WHAT DOES TECHNOLOGY ACHIEVE (EFFECTIVITY)?

SOCIETY/SECTOR

- › labor participation

COMPANY/EMPLOYEE

- › accessibility of work / employability of the employee
 - › match job requirements
 - › Competencies, learning speed and guidance time
 - › performance: productivity and quality

EMPLOYEE

- › quality of work (→ acceptance)
- › self confidence/efficacy

PILOT: SUPPORT DURING LANDSCAPING



CAUSE

- › Difficult to determine quality
- › more digitization desired

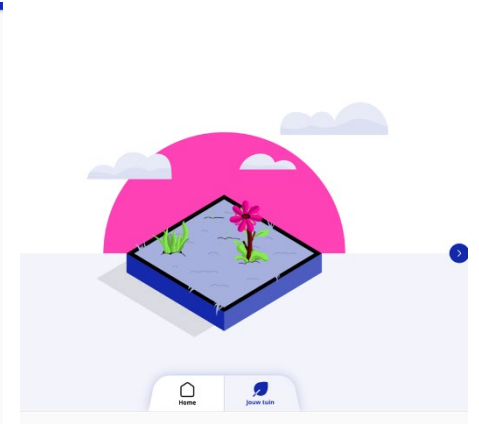
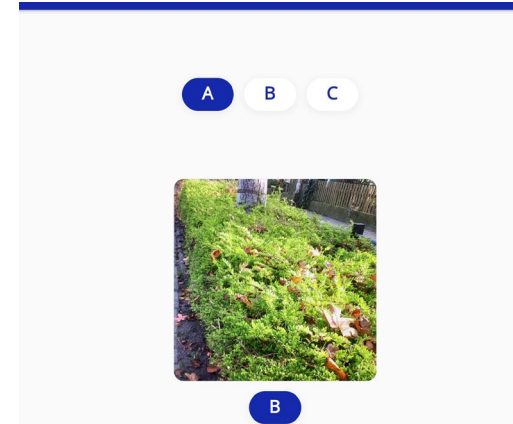
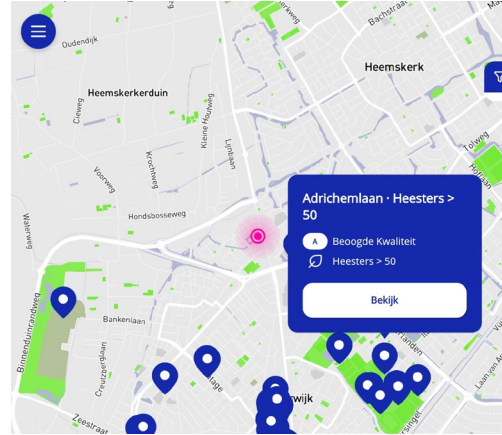
NEEDS

- › find the location and route
- › know what needs to be done
- › realizing the right quality
- › capturing information

› TECHNOLOGY - VIDEO

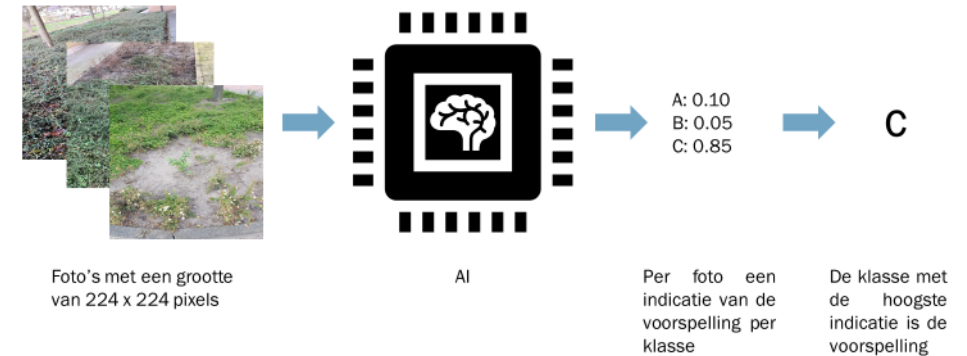


Groen Werkt! app – YouTube



TECHNOLOGY

- › Development of the app in co-creation
- › Implementation
- › Evaluation



› LESSONS LEARNED

- › Major change in the way of working
- › Concern: what happens to the information
- › Professional group is included in digitization
- › First result positive

Follow up

- › App become standard (no more paper)
- › A lot of interest in the app
- › Development AI model

- › [Article](#)



“The app helps me in my work.”

“I can better determine the quality.”

“It helps me remember where I've been”

› PILOT: SUPPORT FOR JOB ORIENTATION



CAUSE

- › Difficult to find and get a good idea of a suitable job for unemployed people

NEEDS

- › 'Experience' what reality is like
- › Realistic idea of a profession

› TECHNOLOGY - VIDEO



[Video VR glasses \(2:45-3:53\)](#)

TECHNOLOGY

- › VR glasses
- › 30 3D images/movies of jobs/working job environments
- › Accessible

› LESSONS LEARNED & RESULTS

- › Effectiveness VR glasses for job orientation
 - › Open to using VR glasses
 - › Mostly positive experience
 - › Great effect on the image of the profession
 - › Less clear picture for effect on attitude, self-efficacy and intention

Follow up

- More research into effects
- Develop and pilot deployment in the reintegration process
- Upscaling: use by more organizations
- Extend to other applications of populations (autism, anxiety disorder)

[Report](#) & [Article](#)

“VR has real added value. When I read a vacancy, I don't immediately see what to do.”

“You really feel like you are in the garage, it comes to life.”

“I don't know if this profession is right for me and if I have the patience for it.”

› TIPS

- › A lot of interest in the technology at other social work companies
- › Start with the people and their specific needs...
- › Involve people in the development...
- › Substantiation of effects for growth and upscaling.
- › inclusievetechologie.nl

Thanx to:



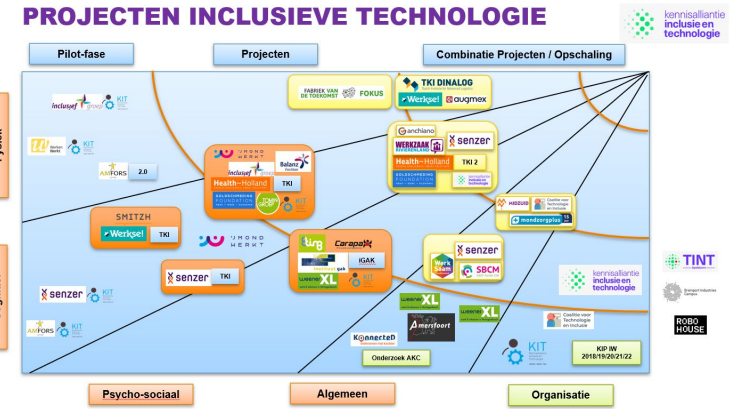
'MONDWERKT



HOW DO WE INITIATE INCLUSIVE TECHNOLOGY?

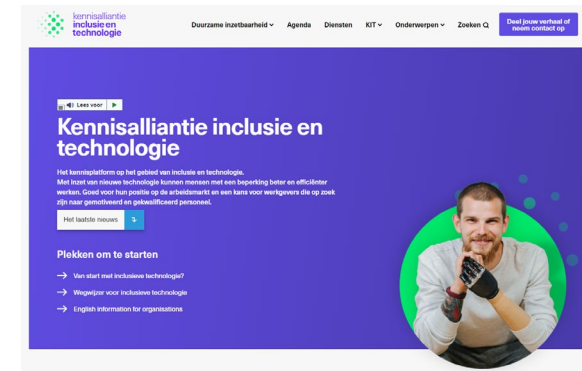
Started in 2017 Knowledge Alliance Inclusive Technology (KIT)

- Cedris
- SBCM
- TNO



Main goal : Collect and spread knowledge in NL (and also in co-operation with Flanders)

- A knowledge portal : [Kennisalliantie Inclusie en Technologie \(inclusievetechnologie.nl\)](https://inclusievetechnologie.nl)
- Set up regionale TechnoHub Inclusieve Technologie ([TINT](https://www.tint.nl)) : locations where we show concrete (pilot)projects in co-operation with (social) companies, educators, advisors end knowlegde organisations.



› QUESTIONS?

- › Do you know organizations in your own country that use inclusive technology?
- › What type of technology do they use?
- › Are the examples interesting for organizations in your country?

› REFERENCES

› Video's

- › [Kennisclip over Handreiking technologie en psychosociale belemmeringen TNO – YouTube](#)
- › [Groen Werkt! app - YouTube](#)
- › [Operator Support bij Senzer](#)
- › [Technologische innovatie binnen Inclusief Groep - YouTube](#)

› Webarticles

- › [De rol van TNO in de pilot smart beamer bij Inclusief Gresbo \(inclusivetechnologie.nl\)](#)
- › [Artificial Intelligence in de groenvoorziening: pilot IJmond Werkt! \(inclusivetechnologie.nl\)](#)
- › [Hoe meet je zelfeffectiviteit bij mensen met een cognitieve beperking? \(inclusivetechnologie.nl\)](#)
- › [Helpt technologie mensen met cognitieve beperking bij hun werk? \(inclusivetechnologie.nl\)](#)
- › [Gebruik inclusieve technologie bij Senzer - 3 jaar later](#)

› Publications

- › [Meer mensen aan het werk door inclusieve technologie – KIT](#)
- › [Technologie voor mensen met een afstand tot de arbeidsmarkt](#)



› **BEDANKT VOOR
UW AANDACHT**

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