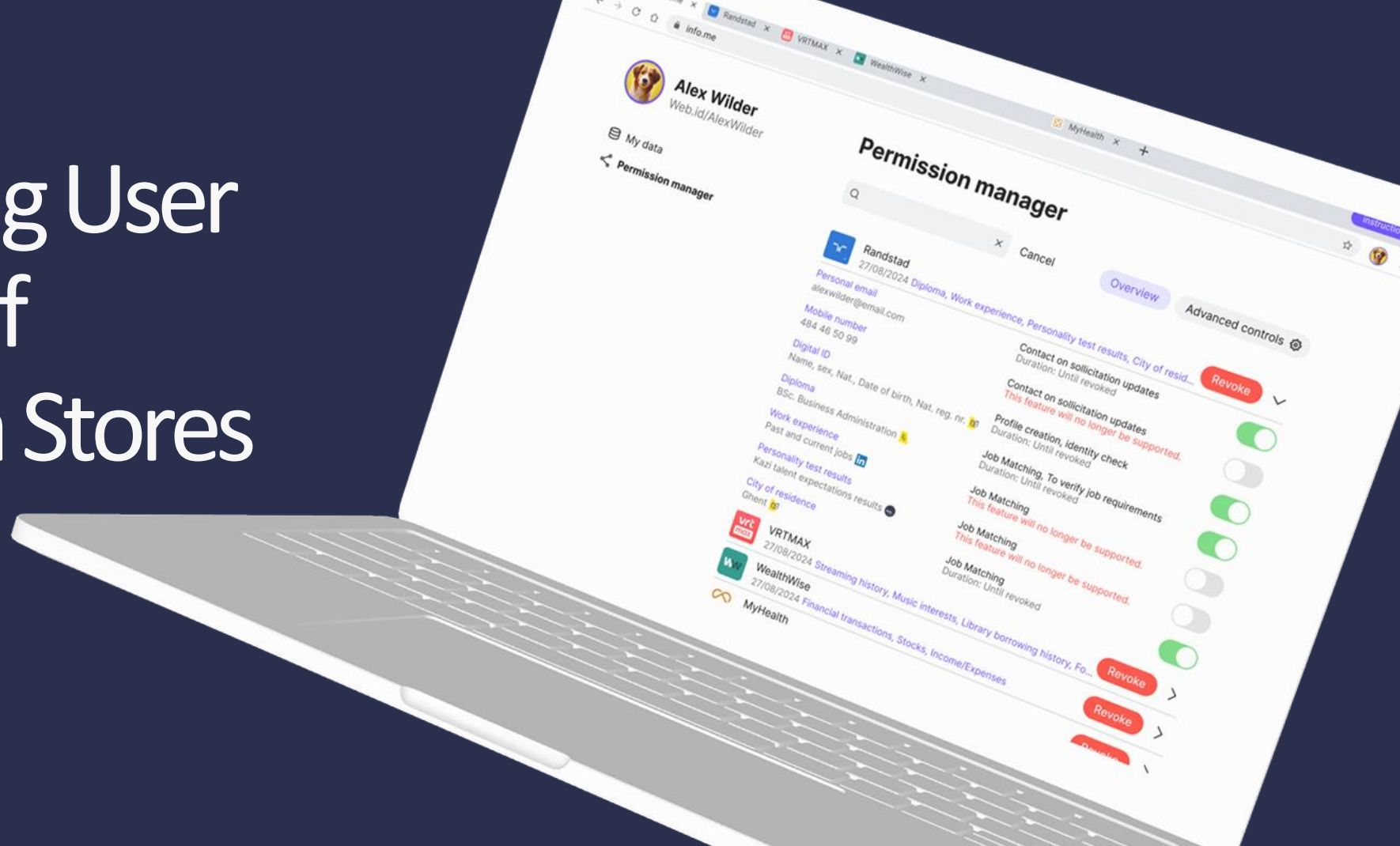


# Understanding User Perceptions of Personal Data Stores

Tim Theys  
Imec-Mict-Ugent



Vlaamse  
overheid



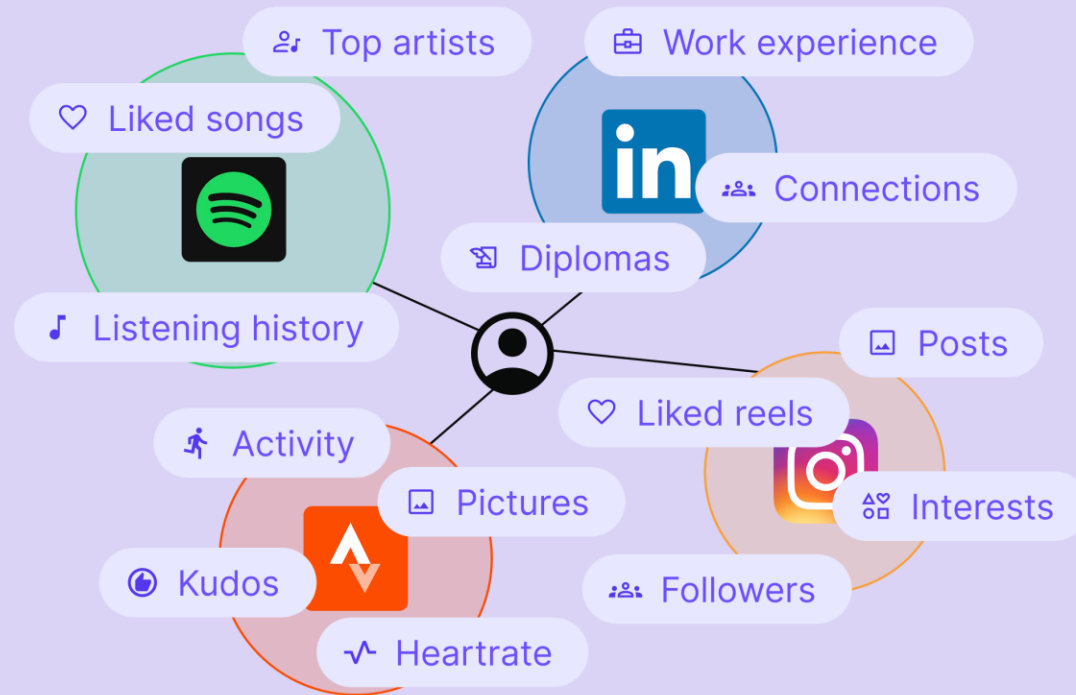
DEPARTMENT OF  
ECONOMY  
SCIENCE &  
INNOVATION



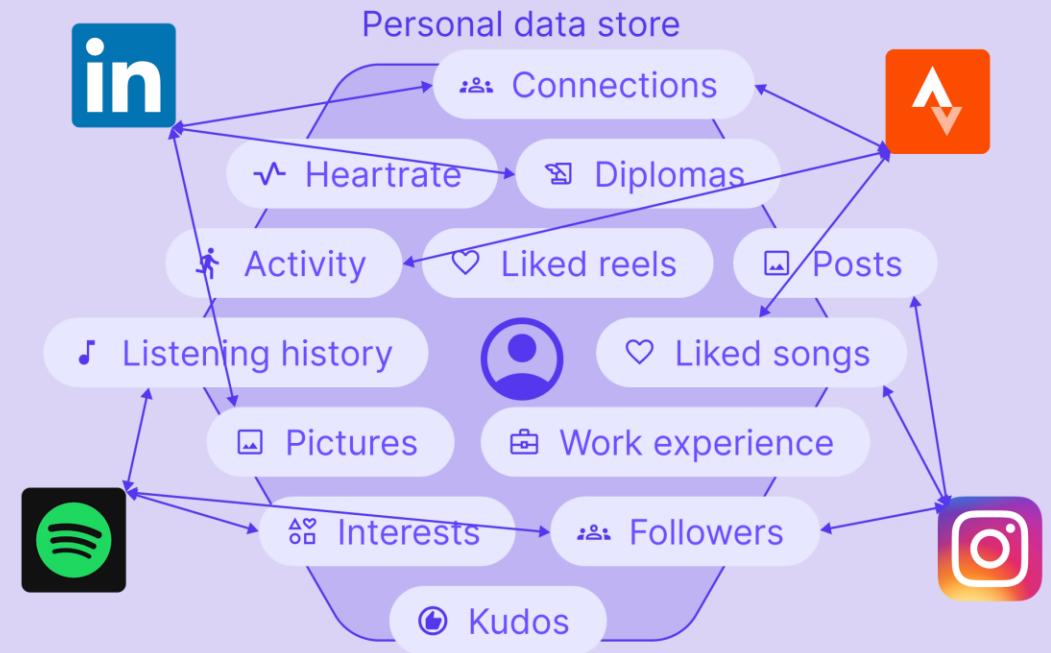
Gefinancierd door  
de Europese Unie  
NextGenerationEU

# A Personal Data Store (PDS) is

a technology that enables individuals to **collect, store, update, correct, analyse, and share** their **personal data**. A key feature of a PDS is its **granular consent** management, allowing users to grant or revoke third-party access at any time



Data stored by service providers



Data stored in a Personal Data Store (PDS)

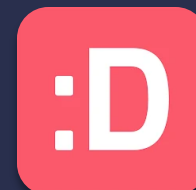


CitizenMe  
100K+



Digi.me  
100K+

MyData  
Certified PDS  
2023  
Number of  
Google Play Store  
Downloads



My:D  
100K+



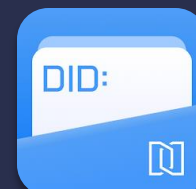
Ockto  
100K+



Yivi  
50K+



BitsAboutMe  
10K+



DID Wallet  
5K+



iGrant.io  
1K+



PolyPod  
1K+



Esatus  
1K+



Cozy Cloud  
500+



MyFairData  
100+



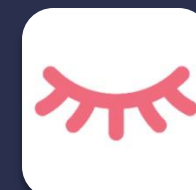
Financieel Paspoort  
100+



Geens  
100+



Meeco Wallet  
100+



Schluss  
100+



CitizenMe  
100K+ - 0



Digi.me  
100K+ - 0

MyData  
Certified PDS  
2023 - 2025  
Number of  
Google Play Store  
Downloads



My:D  
100K+ - 100K+



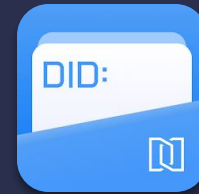
Ockto  
100K+ - 100K+



Yivi  
50K+ - 100K+



BitsAboutMe  
10K+ - 0



DID Wallet  
5K+ - 5K+



iGrant.io  
1K+ - 1K+



PolyPod  
1K+ - 0



Esatus  
1K+ - 1K+



Cozy Cloud  
500+ - 5K+



MyFairData  
100+ - 0



Financieel Paspoort  
100+ - 500+



Geens  
100+ - 100+



Meeco Wallet  
100+ - 0



Schluss  
100+ - 0

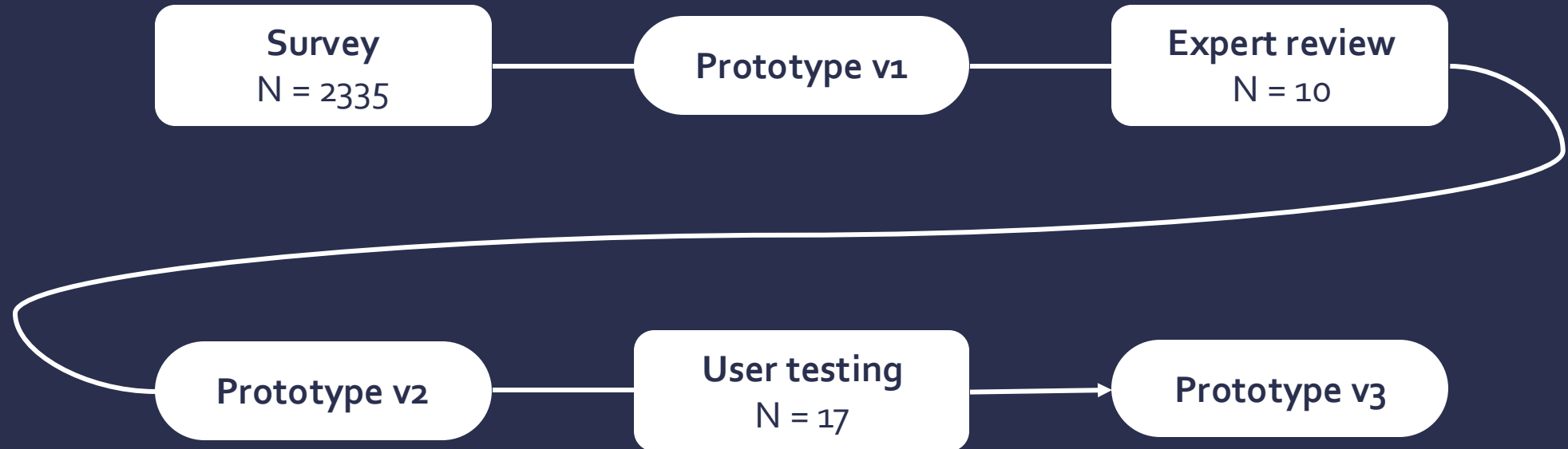


# Hurdles to PDS adoption

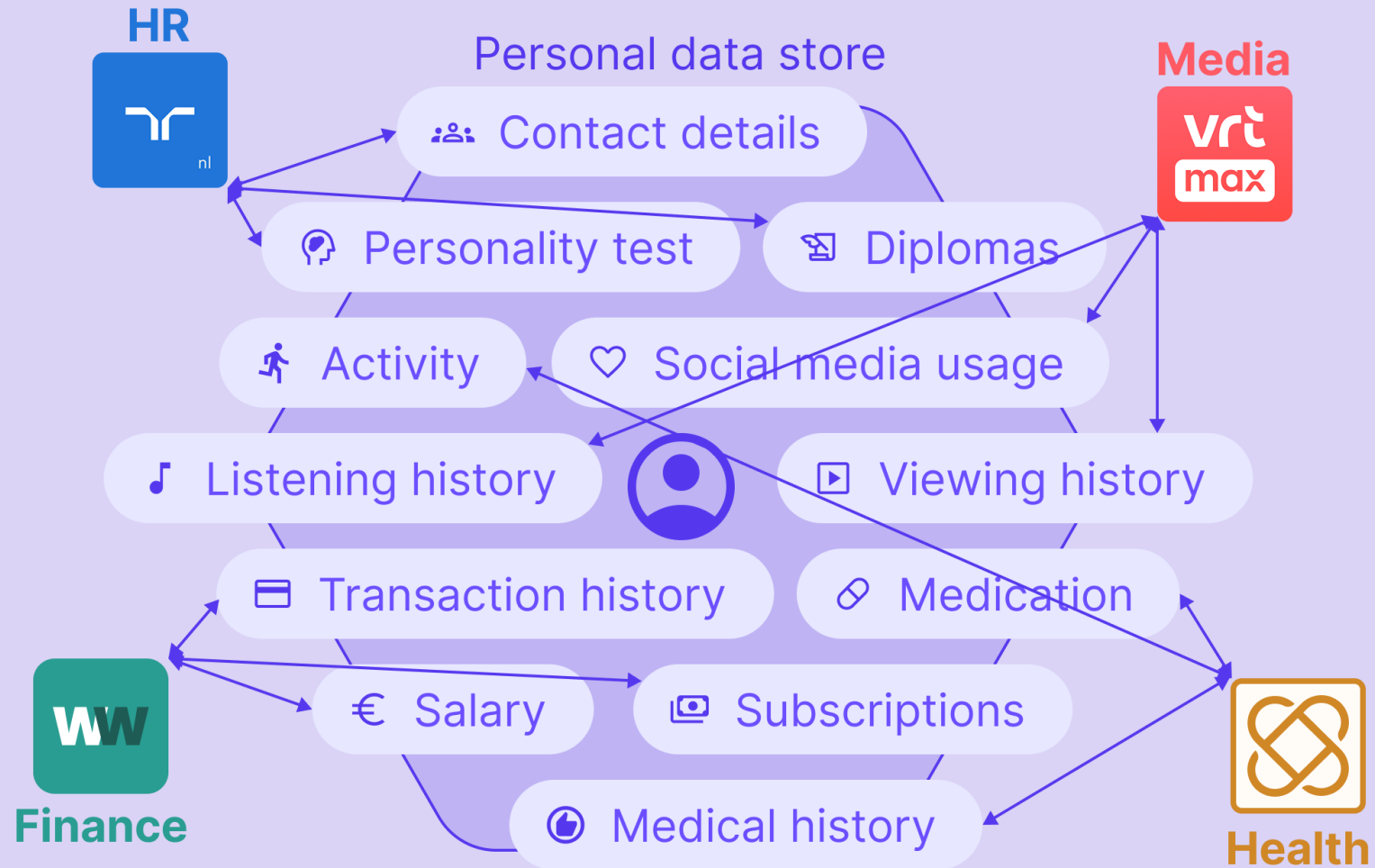
- Low user interest
- Lack of tangible experiences
- Trust concerns regarding PDS providers
- Fear of complex usability
- Perceived time burden
- Concerns about PDS security and hacking
- Expected financial costs



# Methodology



# Four use case scenarios



# Four use case scenarios



## HR

An online **career platform** uses data available in the PDS to **match candidates with relevant jobs** more effectively by accessing relevant career data with user permission.



## Media

A **streaming service** requests access to relevant data in the PDS to enable enhanced, more **personalized recommendations**.



## Finance

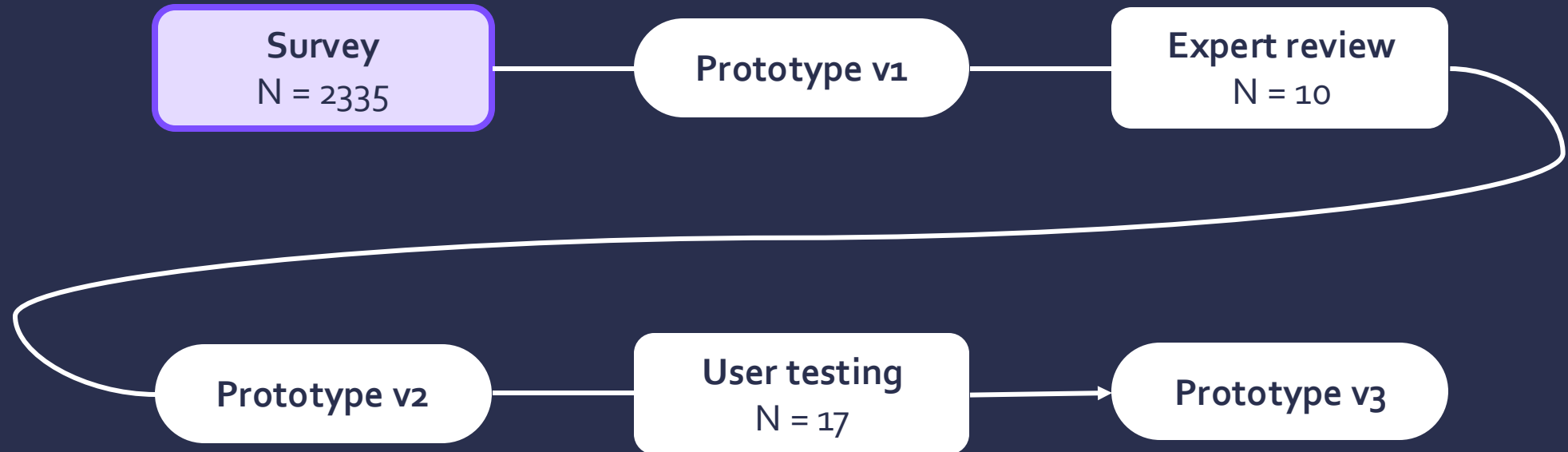
A **financial dashboarding platform** leverages PDS data to provide users with a **complete overview of their finances** across banks and investment platforms, helping them track income, expenses, and assets to achieve their financial goals.



## Health

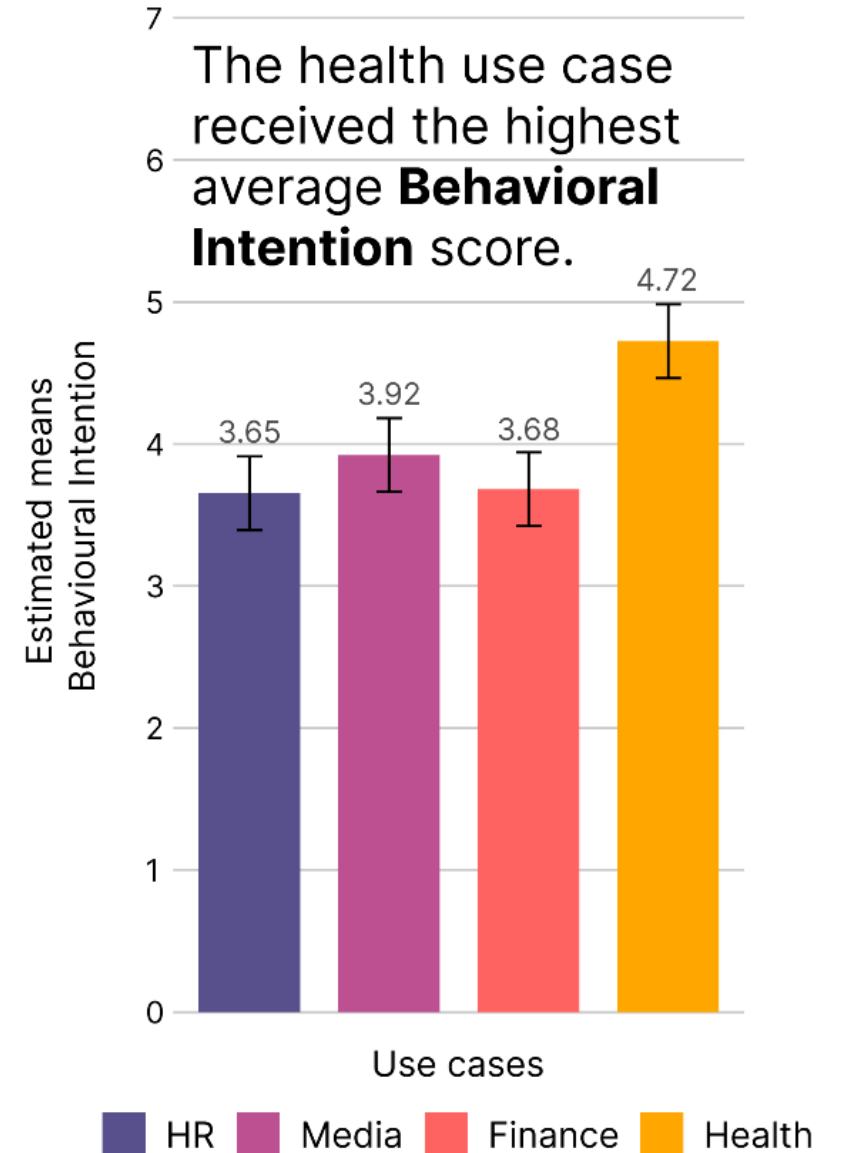
A health platform enables users to **share data** from their PDS **with doctors**, supporting more informed and **personalized health monitoring**.

# Methodology

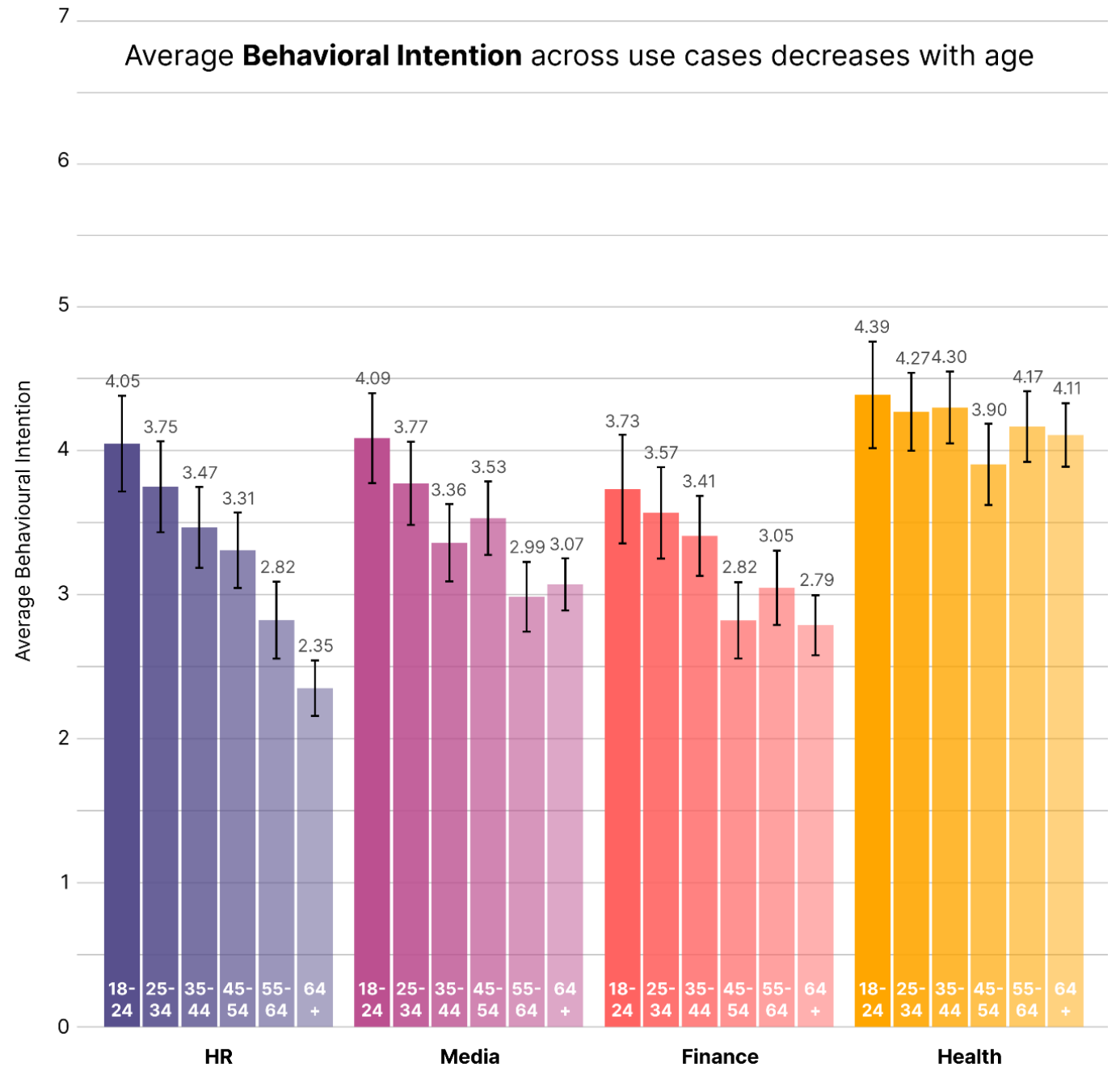


# Survey

- Evaluated the use cases based on a written scenario
- 2335 participants
- All 18+ years (average age = 51 years)
- Flanders



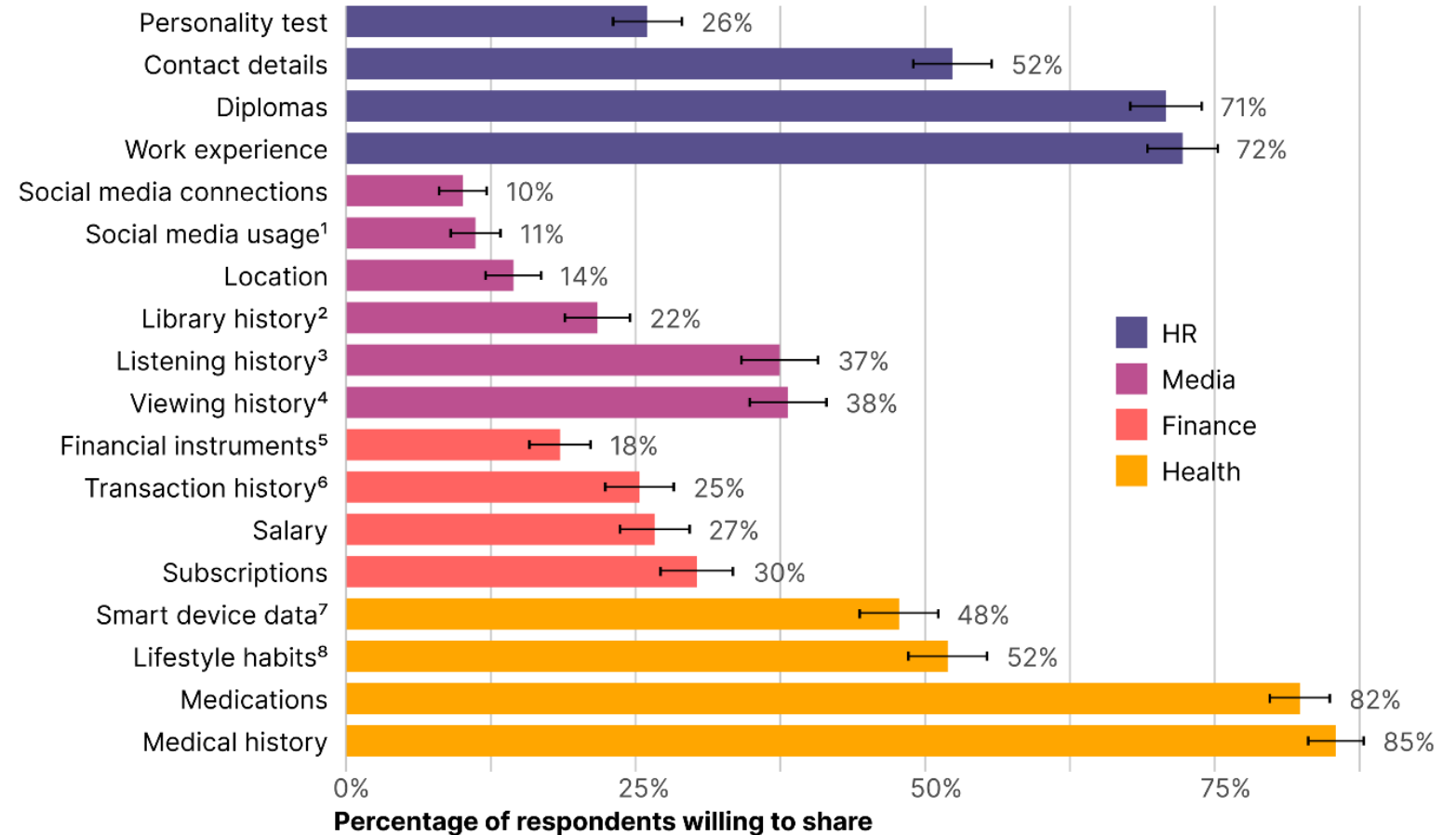
# Interest in the uses cases decreases with age





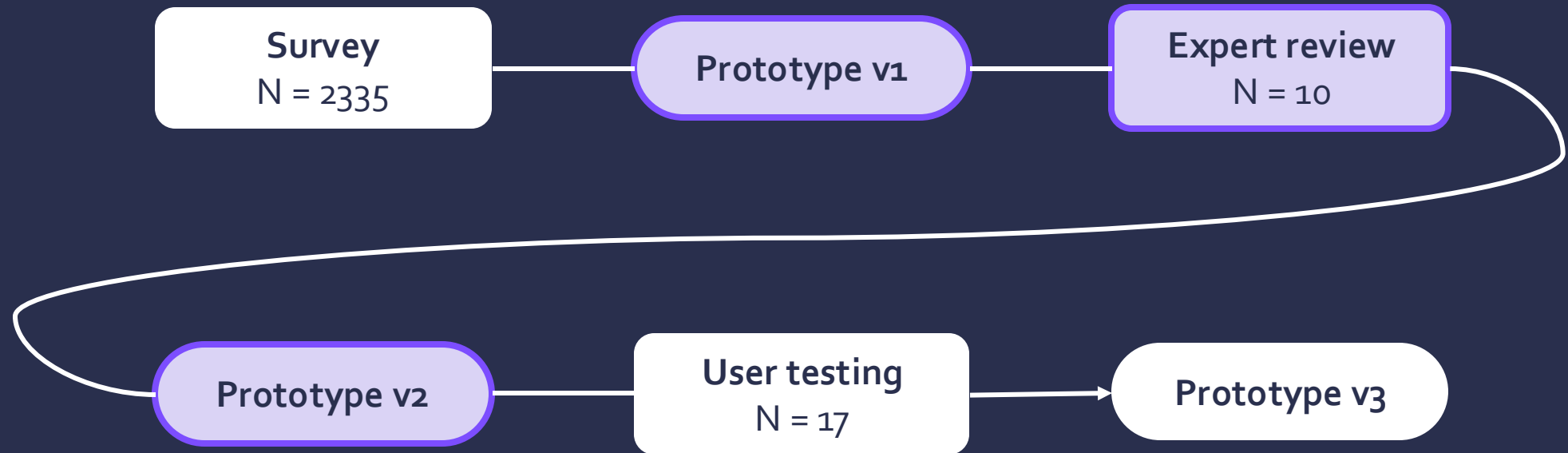
The willingness to share appears to be use case dependent rather than related to data sensitivity

**Willingness to share data** varies significantly across different use cases.



<sup>1</sup>following pages and saved posts; <sup>2</sup>books borrowed; <sup>3</sup>music and podcasts listened to; <sup>4</sup>series/films watched online; <sup>5</sup>stocks, funds, crypto, etc.; <sup>6</sup>purchases, expenses; <sup>7</sup>heart rate, weight, sleep measurements; <sup>8</sup>workouts, smoking, alcohol consumption

# Methodology



# Personal Data Store

Home x

Randstad x

VRTMAX x


WealthWise x

MyHealth x

+

instructions

info.me



Alex Wilder

Web.id/AlexWilder

My data

Permission manager

My data

Personal

Work & Study

Mobility

Financial

Body & Health

Media

Calendar

Identity

Address

Contact

Identity

Digital ID

Provided by Mijn Burgerprofiel

Name

Given names

Alex Wilder

Sex

Nationality

Date of birth

V BEL 25/11/1998

National register N°

25.11.98-293.28

Add an ID +


Address

Domicile

Provided by Mijn Burgerprofiel

Street

Number



FLANDERS

14

# Personal Data Store

Home x

Randstad x

VRTMAX x


WealthWise x

MyHealth x

+

instructions

info.me



Alex Wilder

Web.id/AlexWilder

My data

Permission manager

My data

Personal

Work & Study

Mobility

Financial

Body & Health

Media

Calendar

Identity


Address

Contact

Diplomas

Select the diplomas you want to add

BSc. Business Administration

 Provided by LED database

Degree

Field of study

Bachelor

Business Administration

Institution

Grade

Ghent University

Cum Laude


Date of issue

30/06/2020

Add selected diplomas

Cancel

Work experience



FLANDERS

15

# Personal Data Store

Home x

Randstad x

VRTMAX x


WealthWise x

MyHealth x


+

info.me

instructions





**Alex Wilder**  
Web.id/AlexWilder


 **My data**


Permission manager


## My data


 Personal


 Work & Study


 Mobility


 Financial


 Body & Health

 **Media**

 Caler

 **Music**

 Streaming

 Books

## Music


### Your top artists


Today


1W


**1M**


1Y





**Parcels** 





**The war on drugs** 



**Foo Fighters** 







**Eminem** 





**ABBA**


Connect more services +

Which service would you like to connect?

 Spotify

 Soundcloud

 YouTube music

## Streaming



# HR

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions

Randstad.be

NL FR EN

randstad

werknemers werkgevers mijn carrière workforce360 over ons kantoren

jobs voor studenten specialisaties professionals search & selection opleidingen

## samen vinden we werk dat goed voelt.

ik wil werken als waar? range

functietitel, trefwoord stad of postcode 10 km

zoek 4499 jobs

[gebruik huidige locatie](#)

**Start the job search**

Click on 'Share data and get matched'.

Let's find your perfect **jobmatch** in just 2 clicks

Share data and **get matched**



# HR

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions

Randstad.be

randstad

werknemers werkgevers mijn carrière workforce360 over ons kantoren

jobs voor studenten specialisaties professionals search & selection opleidingen

samen vinden we werk dat goed

ik wil werken als waar? range

functietitel, trefwoord stad of postcode 10 km

gebruik huidige locatie

Let's find your perfect **jobmatch** in just 2 clicks

Change acc.

**Randstad**  
requests access to the following data

Select all

- Diploma  
BSc. Business Administration
- Work experience  
Past and current jobs
- Personality test results  
Kazi talent expectations scan
- City of residence  
Ghent

Job matching

1D 1M 1Y

**Share the data**  
Click on the 'Share'

Share





# HR

Home x Randstad x VRTMAX x WealthWise x MyHealth x +

Randstad.be

NL FR EN

randstad

werknemers werkgevers mijn carrière workforce360 over ons kantoren

jobs voor studenten specialisaties professionals search & selection opleidingen

home > vacatures > administratie

trefwoord of titel

locatie of postcode

10 km

zoek 272 jobs

opslaan als job alert

3 vacancies found that **match with your profile**

datum

administratief bediende

zele, oost-vlaanderen

tijdelijk met uitzicht op vast

€2,200 - €3,000 per maand

93% Match

✓ Diploma requirements

✓ 3+ years work experience

account payable officer

Gent, oost-vlaanderen

tijdelijk

deme dredging

87% Match

✓ Diploma requirements

✓ 1+ years work experience

bank officer

Gent, oost-vlaanderen

tijdelijk

82% Match

✓ Diploma requirements

✓ 3+ years work experience



# HR

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions

Randstad.be

NL FR EN

randstad

werknemers werkgevers mijn carrière workforce360 over ons kantoren

jobs voor studenten specialisaties professionals search & selection opleidingen

home > vacatures > solliciteer

je gaat solliciteren voor:


## administratief bediende

**Skip the form and have your data collected automatically**

Click on 'Automatically collect data'

**aanmelden om te solliciteren**

Vul onderstaande gegevens aan om te sollicitatie te kunnen vervullen.

 Automatically collect data

of

**profielinformatie**

e-mail

paswoord

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions

Randstad.be

randstad

werknemers werkgevers mijn carrière work

jobs voor studenten specialisaties professie


home > vacatures > solliciteer

je gaat solliciteren voor:

# administratief be

aanmelden om te solliciteren

Vul onderstaande gegevens aan om te sollicitatie te kunnen vervullen.

 Gegevens automatisch ophalen

**Randstad requests access to the following data**

Select all

**Personal email**

alexwilder@email.com

**Mobile number**

484 46 50 99

**BSc. Business Administration**

Provided by LED database

|          |                         |
|----------|-------------------------|
| Degree   | Field of study          |
| Bachelor | Business Administration |

**Digital ID**

Provided by Mijn Burgerprof...

|                      |             |               |
|----------------------|-------------|---------------|
| Name                 | Given names |               |
| Alex                 | Wilder      |               |
| Sex                  | Nationality | Date of birth |
| V                    | BEL         | 25/11/1998    |
| National register N° |             |               |
| 25.11.98-293.28      |             |               |

Until revoked 1D 1M 1W 1Y

Cancel Share

€2,200 - €3,000 per maand

tijdelijk met uitzicht op vast



# HR

**End of use case**  
Use the **browser bar** to navigate to the **next use case**.

**sollicitatie bevestiging.**

Sollicitatie administratief bediende verzonden! We sturen je nog een sollicitatiebevestiging via e-mail.

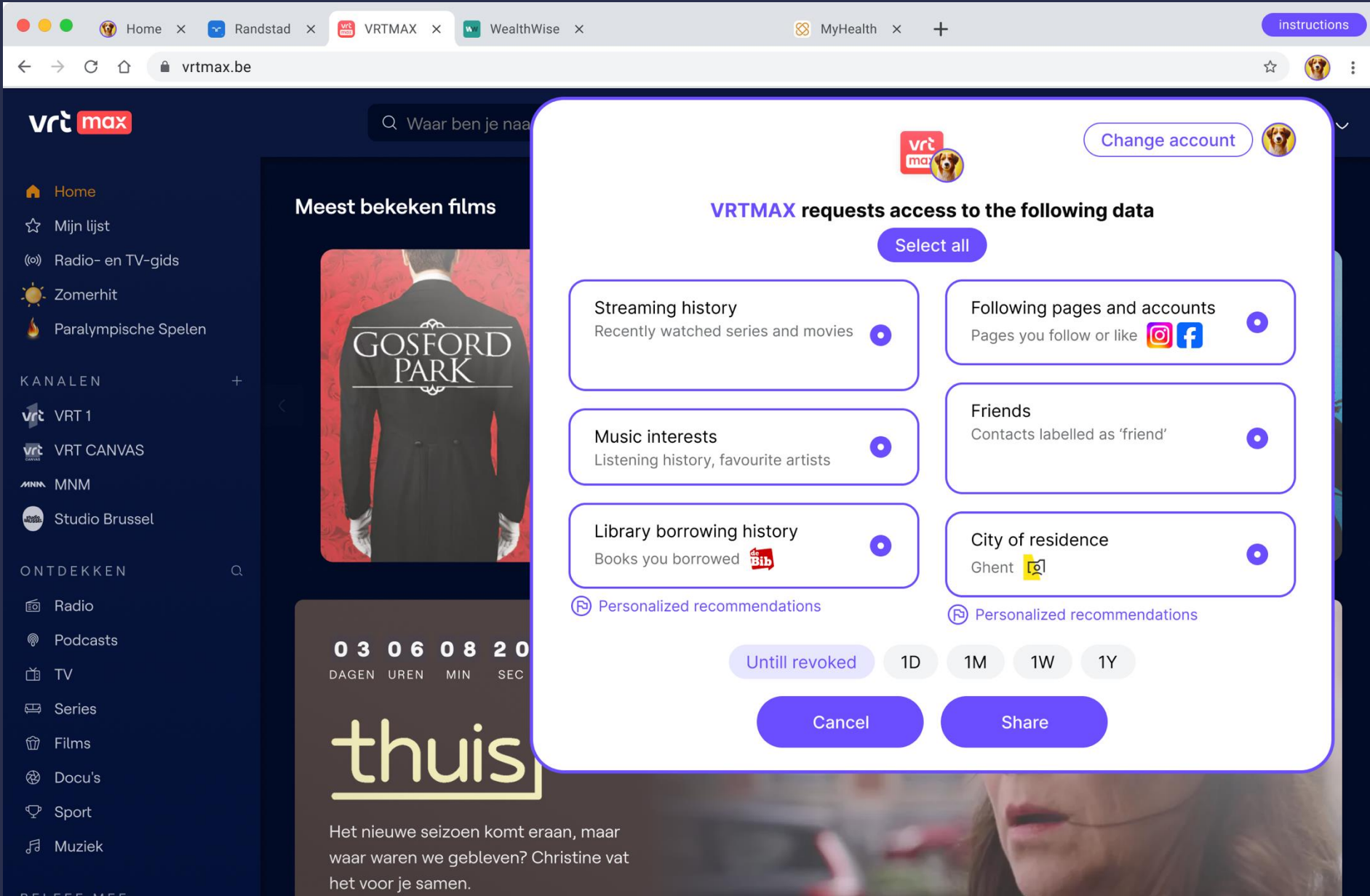
**Review your application**

Personal email  
alexwilder@email.com

Mobile number  
484 46 50 99

Diploma  
BSc. Business Administration

Digital ID  
25.11.98-293.28







# Media

Home x

Randstad x

VRTMAX x

WealthWise x

MyHealth x

+

instructions

vrtmax.be

☆

⋮

Waar ben je naar op zoek?

Kids ontdekken

⋮

Home

Mijn lijst

Radio- en TV-gids

Zomerhit

Paralympische Spelen

KANALEN

VRT 1

VRT CANVAS

MNM

Studio Brussel

ONTDEKKEN

Radio

Podcasts

TV

Series

Films

Docu's

Sport

Muziek

RELEASEE MEE

Personalized recommendations

Based on

Streaming history

Music interests

Following pages and accounts

Library borrowing history

Because you follow

Bob Marley

Because you read

Michelle Obama

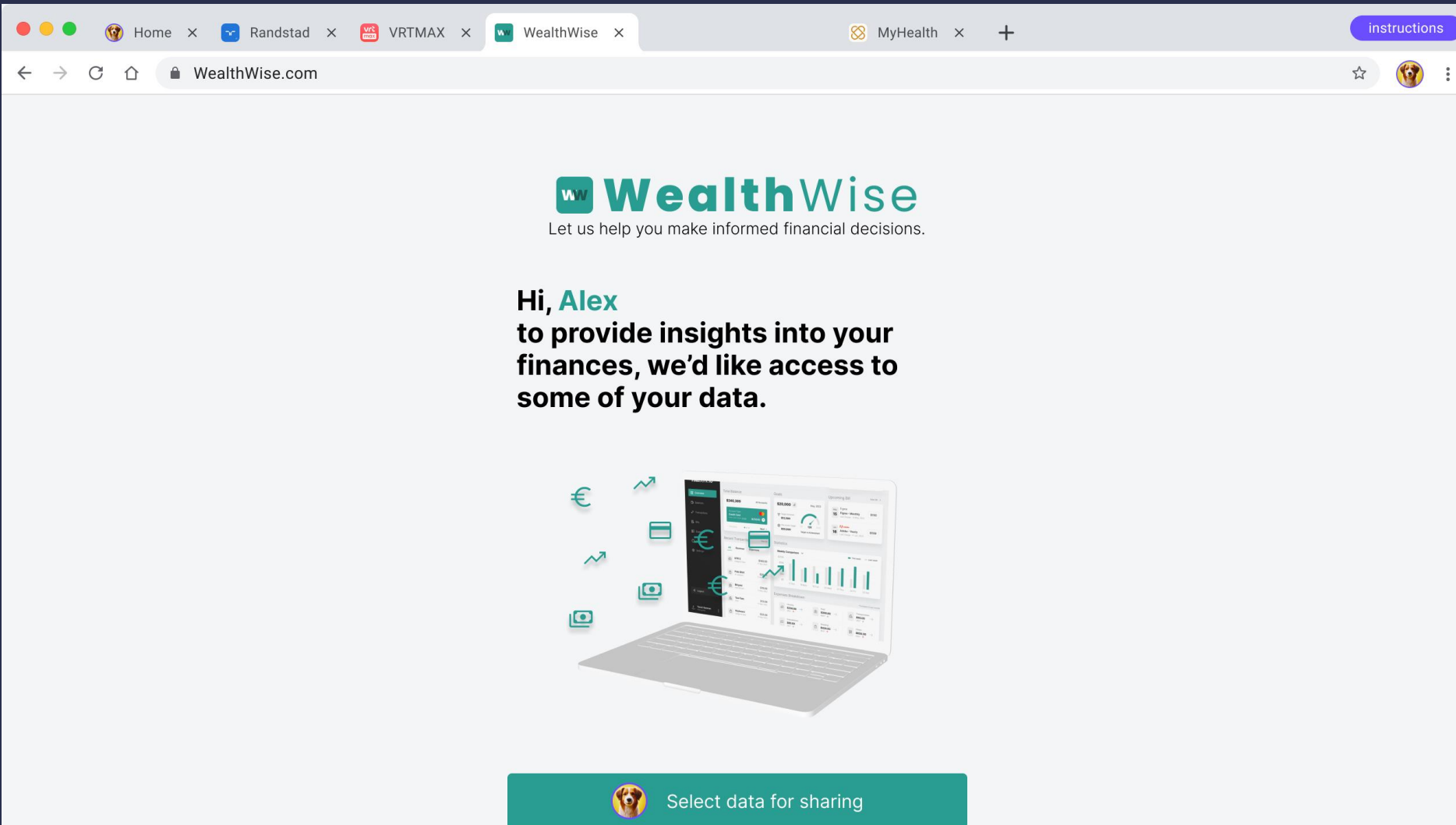
Because you follow

Nasa

Because you follow

Taylor Swift

Series your friends liked



The screenshot shows a web browser window with multiple tabs: Home, Randstad, VRTMAX, and WealthWise. The address bar shows 'WealthWise.com'. The page features the 'WW WealthWise' logo and the tagline 'Let us help you make informed financial decisions.' Below this, a personalized message reads: 'Hi, Alex to provide insights into your finances, we'd like access to some of your data.' An illustration of a laptop displays a financial dashboard with various charts and graphs, surrounded by floating icons of a Euro symbol, a credit card, and a smartphone. At the bottom, a teal button with a dog icon and the text 'Select data for sharing' is visible.

WW WealthWise

Let us help you make informed financial decisions.

Hi, Alex  
to provide insights into your  
finances, we'd like access to  
some of your data.

Select data for sharing



**ww WealthWise**  
Let us help you make informed financial decisions.

Hi, **Alex**  
to provide insights into your  
finances, we'd like access to  
some of your data.



Select data for sharing



Change acc.

**WealthWise**  
requests access to the following  
data

Select all

Financial transactions

Transactions for connected cards



Stocks

Your investments



Income/Expenses

Pay slips, subscriptions



Generating financial dashboard & insights

Untill revoked

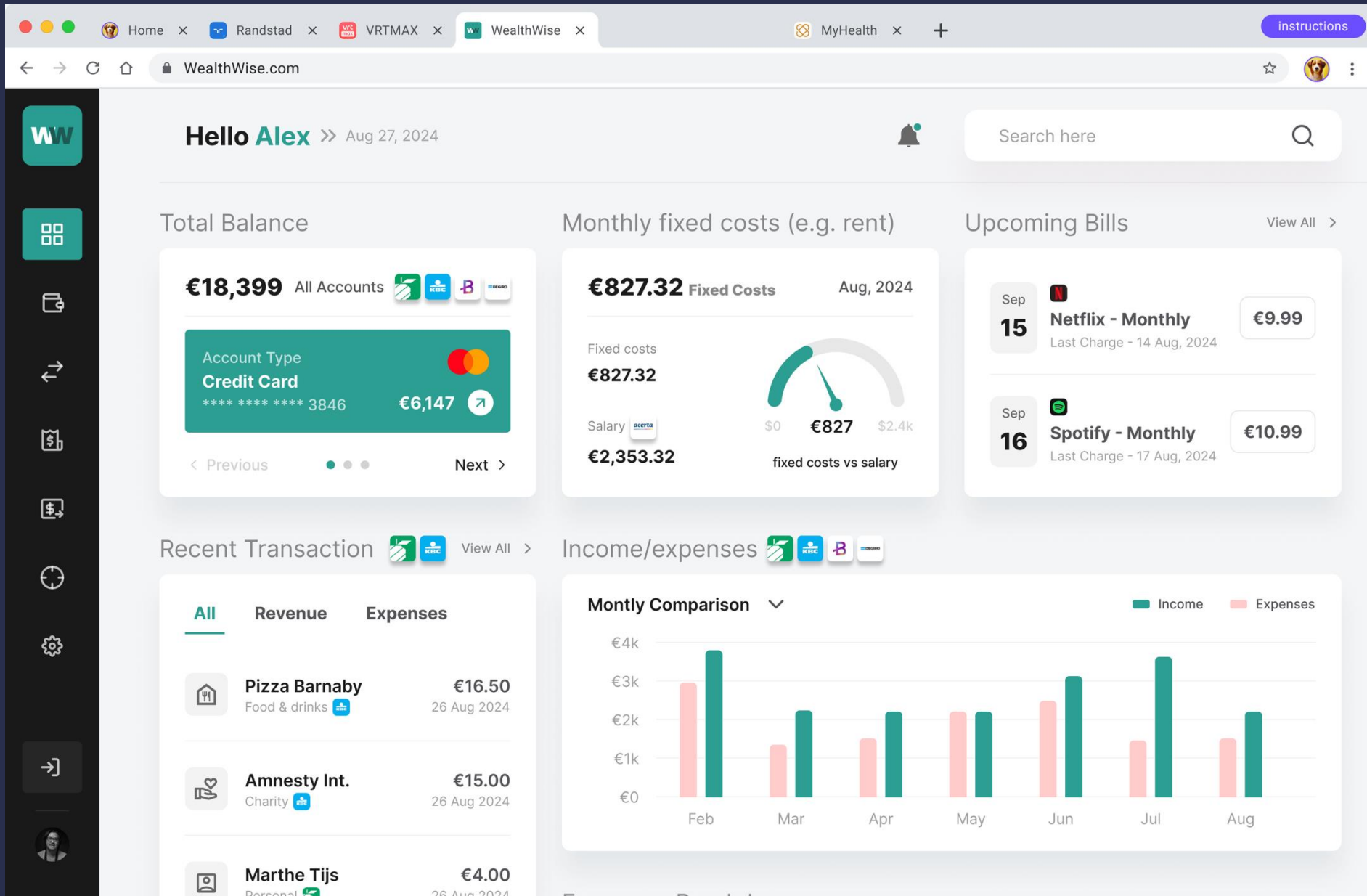
1D

1M

1Y

Cancel

Share







# Health


Home x Randstad x VRTMAX x WealthWise x MyHealth x +

MyHealth.be

instructions

☆  ⋮






## Welcome to MyHealth

Get the best care from your doctor by sharing important information such as your physical activities, blood pressure, and BMI.

**Login and find your doctor**

 Continue as Alex Wilder





# Health


Home × Randstad × VRTMAX × WealthWise × MyHealth × +

MyHealth.be

instructions

☆ 






Change acc.

**MyHealth**  
requests access to the following data

**Digital ID**

 Provided by Mijn Burgerprof...

Name

Given names

Alex Wilder

Sex

Nationality

Date of birth

V BEL 25/11/1998

National register N°

25.11.98-293.28

Ⓜ Identity check, finding your doctor

Until revoked

1D

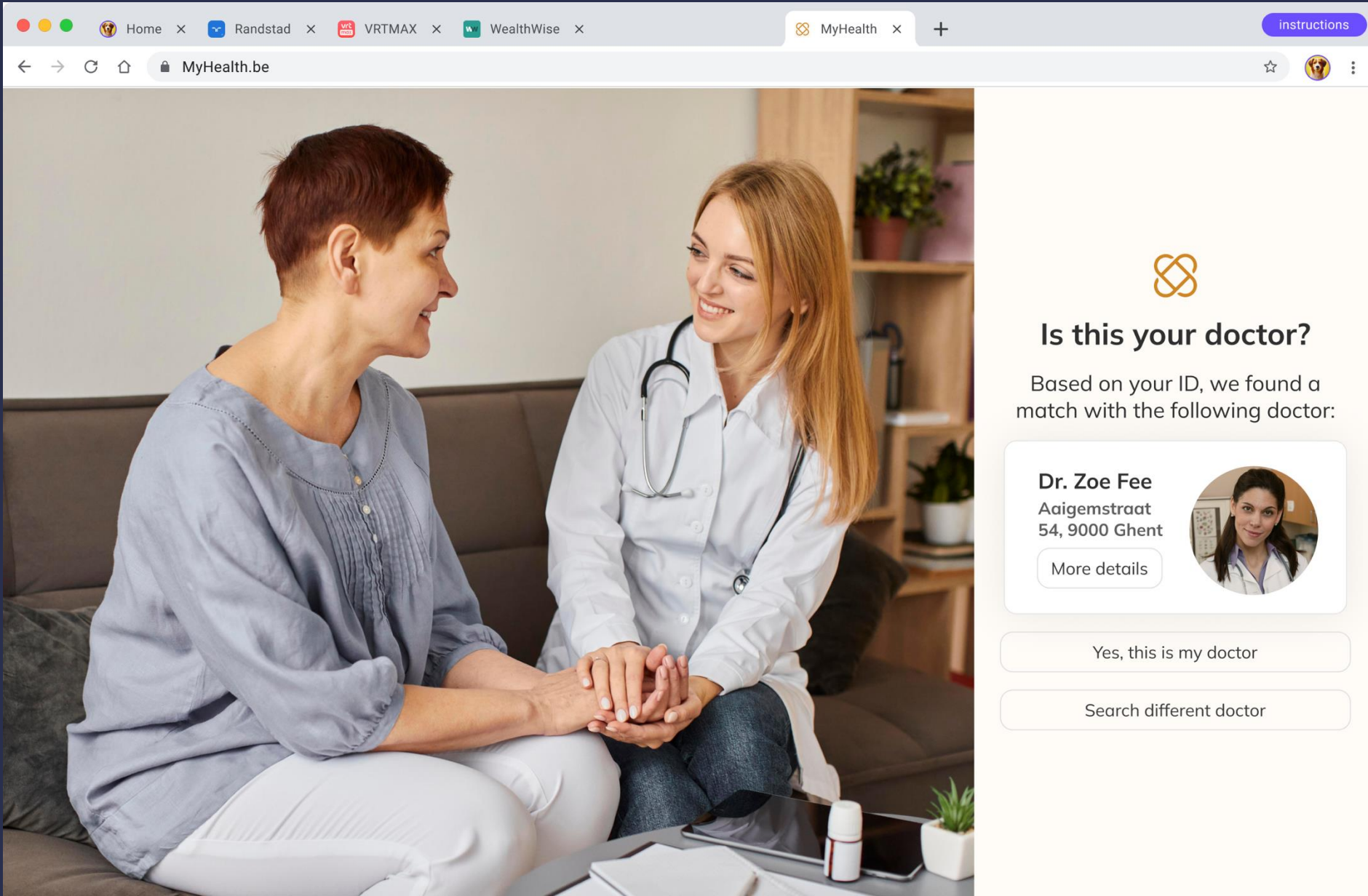
1M

1Y

Cancel


Share





Home × Randstad × VRTMAX × WealthWise × MyHealth × + instructions

MyHealth.be



### Is this your doctor?

Based on your ID, we found a match with the following doctor:

**Dr. Zoe Fee**  
Aaigemstraat  
54, 9000 Ghent

[More details](#)

[Yes, this is my doctor](#)

[Search different doctor](#)

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions

MyHealth.be

Change account

**Dr. Zoe Fee requests access to the following data**

Select all

- Activity**  
History of workouts
- Medication**  
Current treatments
- Vitals**  
Heart/respiratory rate/...
- Medical history**  
Vaccinations, allergies and treatments
- Body measurements**  
Body scan, weight and dimensions

Monitor health status

Until revoked 1D 1M 1W 1Y


Cancel Share

Home x Randstad x VRTMAX x WealthWise x MyHealth x + instructions



MyHealth.be



## Health Overview


August 27, 2024

**Blood Sugar**  
90 mg / dL  

It's time to visit your doctor to review your Tetanus vaccine.  
Book appointment

**Resting Heart Rate**  
58 bpm  
Normal  
Based on 

**Blood Pressure**  
140 / 90 mmhg  
Higher than usual  
Based on 

**Activity**  
Weekly  


| Activity | Jul 15-21 | Jul 22-28 | Aug 29-4 | Aug 5-11 | Aug 12-18 | Aug 19-25 | Aug 26-1 |
|----------|-----------|-----------|----------|----------|-----------|-----------|----------|
| Run      | 2h        | 2h        | 4h       | 3h       | 2h        | 1h        | 1h       |
| Ride     | 4h        | 6h        | 5h       | 4h       | 3h        | 2h        | 1h       |
| Swim     | 1h        | 1h        | 1h       | 1h       | 1h        | 1h        | 1h       |

**Your doctor**  
Dr. Zoe Fee  
Aaigemstraat 54, 9000 Ghent  
Contact  
Upcoming consult August 29, 2024  
Last consultation June 14, 2024

## BMI Calculator

BMI ▾

Height 178 cm

Weight 72 kg

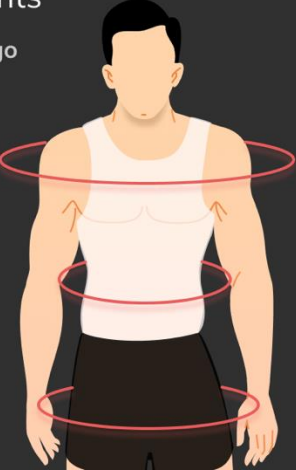
Body Mass Index (BMI) 22.7  
You're Healthy

## Body Measurements

Last checked 2 Days Ago

Inverted Triangle Body Shape

Chest (cm) 102 ↑





# Personal Data Store

Home x

Randstad x

VRTMAX x


WealthWise x

MyHealth x

+

info.me

instructions



Alex Wilder

Web.id/AlexWilder

My data

Permission manager

Permission manager


Q

x

Cancel

Overview

Advanced controls



Randstad

27/08/2024 Diploma, Work experience, Personality test results, City of resid...

Revoke

▼

Personal email

alexwilder@email.com

Contact on solicitation updates

Duration: Until revoked

☒

Mobile number


484 46 50 99

Contact on solicitation updates

This feature will no longer be supported.

☐

Digital ID


Name, sex, Nat., Date of birth, Nat. reg. nr. 

Profile creation, identity check

Duration: Until revoked

☒

Diploma


BSc. Business Administration 

Job Matching, To verify job requirements

Duration: Until revoked

☒

Work experience


Past and current jobs 

Job Matching

Duration: Until revoked

☒

Personality test results


Kazi talent expectations results 

Job Matching

This feature will no longer be supported.

☐


City of residence

Ghent 

Job Matching

Duration: Until revoked

☒




VRTMAX

27/08/2024 Streaming history, Music interests, Library borrowing history, Fo...

Revoke

>




WealthWise

27/08/2024 Financial transactions, Stocks, Income/Expenses

Revoke

>




MyHealth

27/08/2024 Digital ID

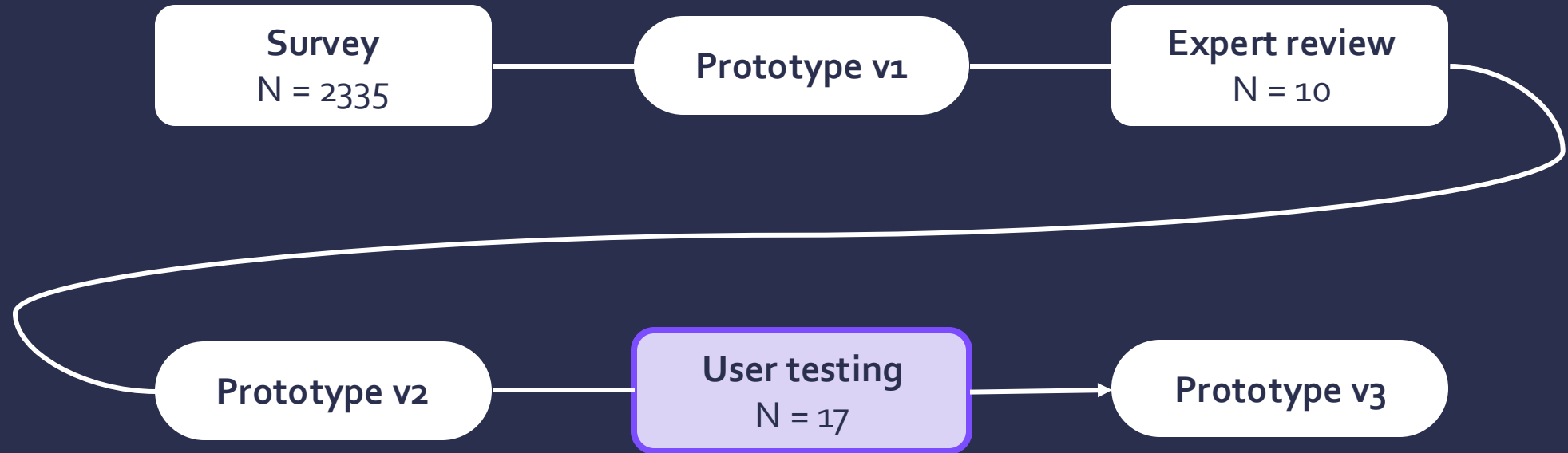
Revoke

>



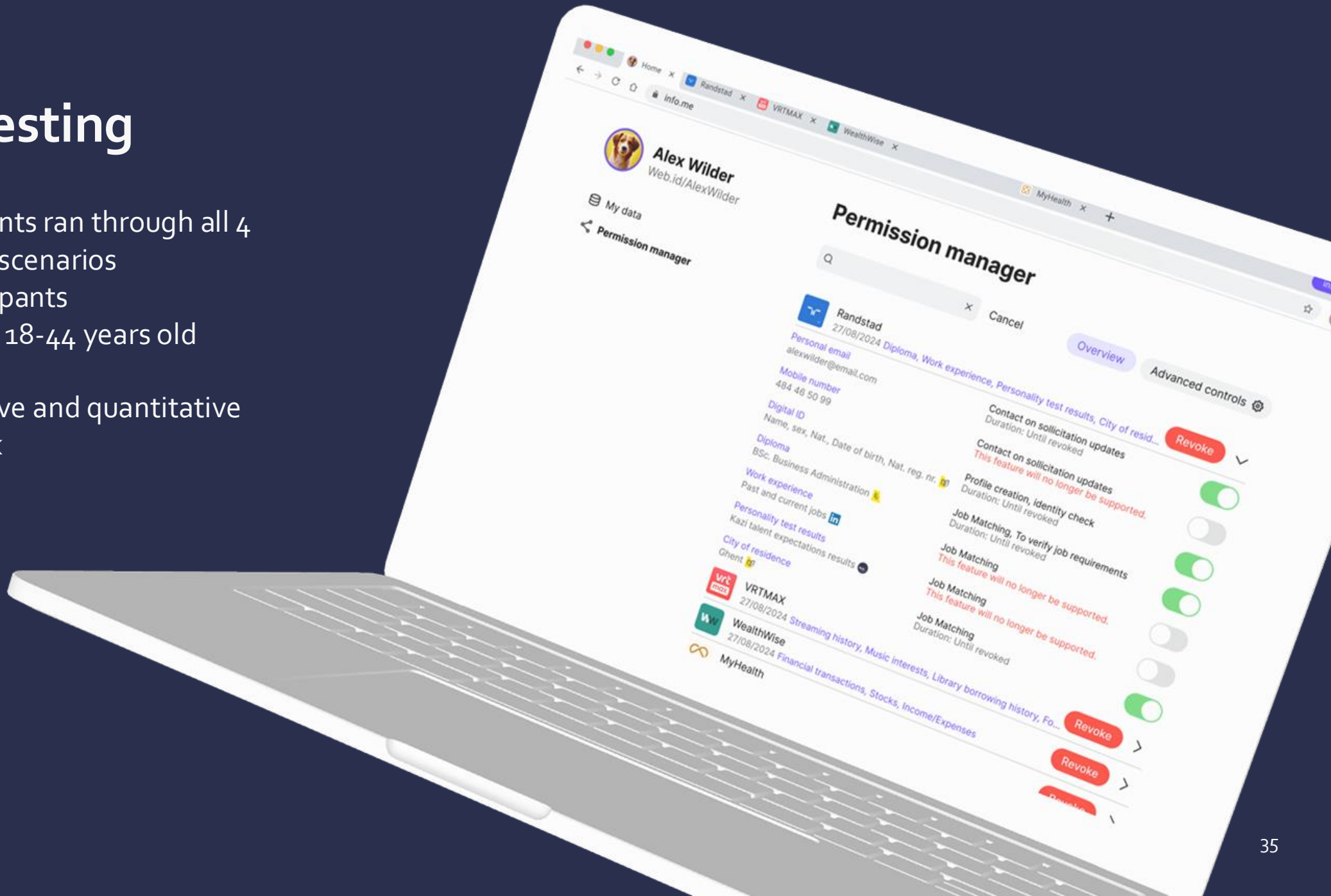
33

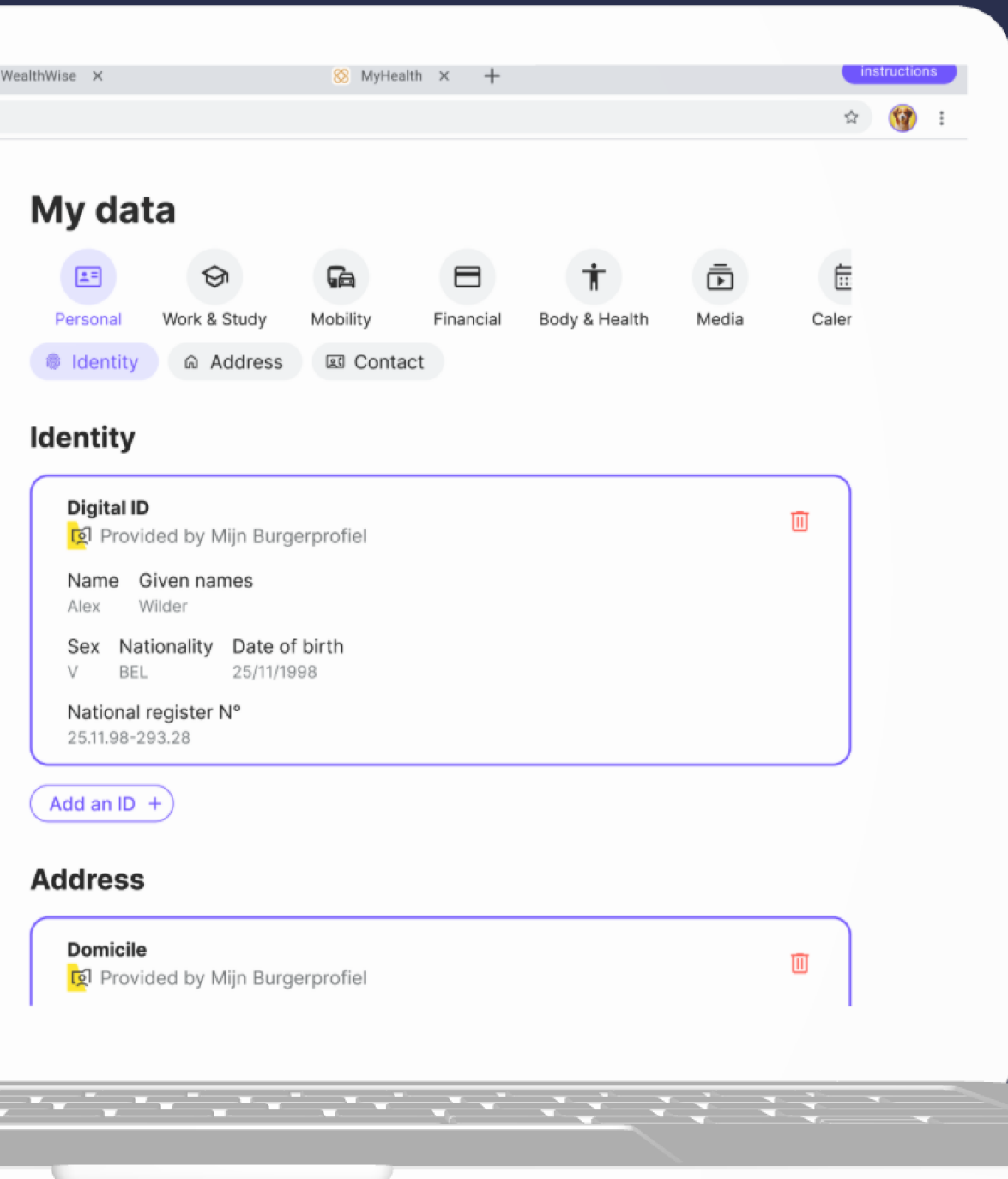
# Methodology



# User testing

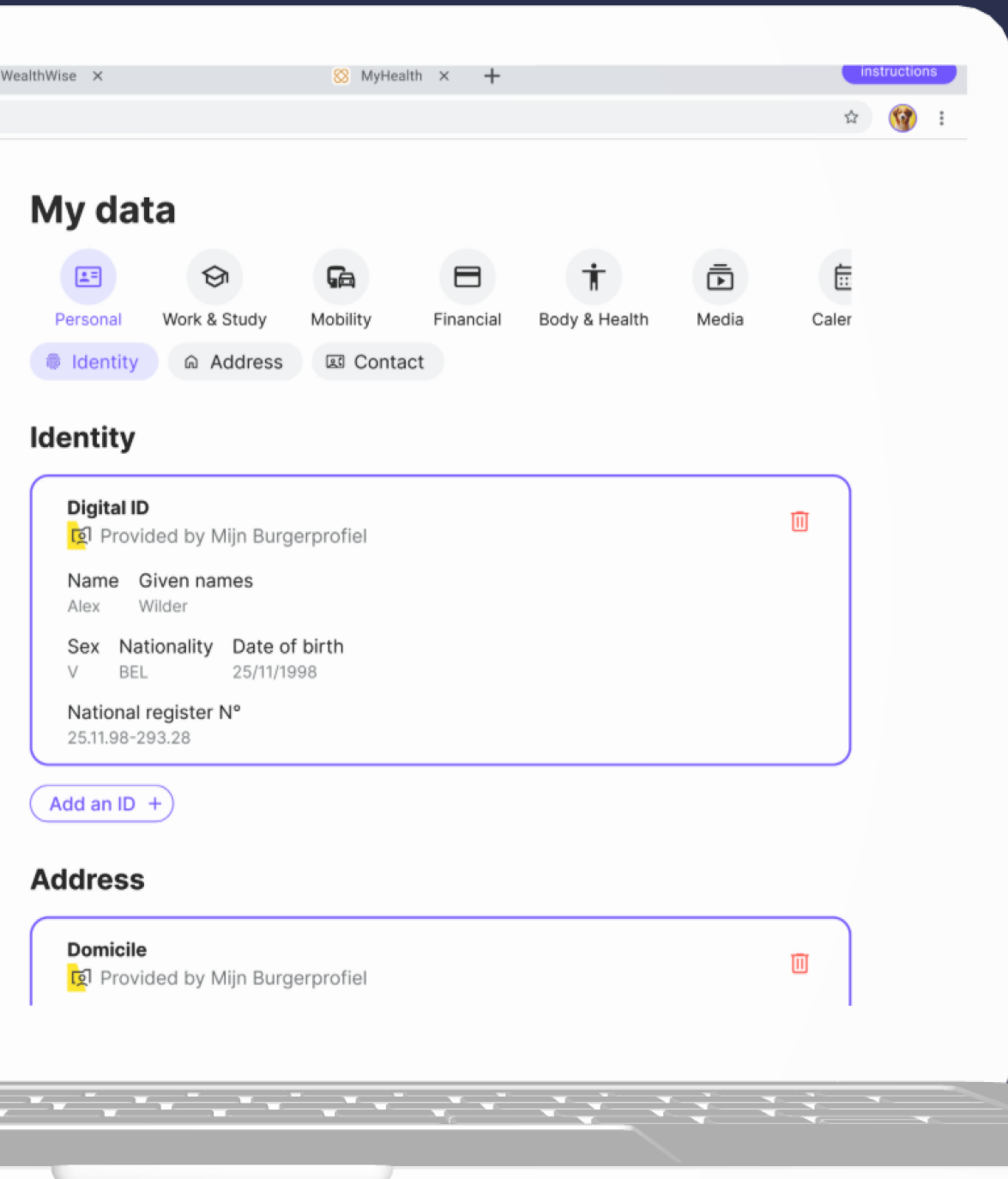
- Participants ran through all 4 use case scenarios
- 17 participants
- Between 18-44 years old
- Flanders
- Qualitative and quantitative feedback





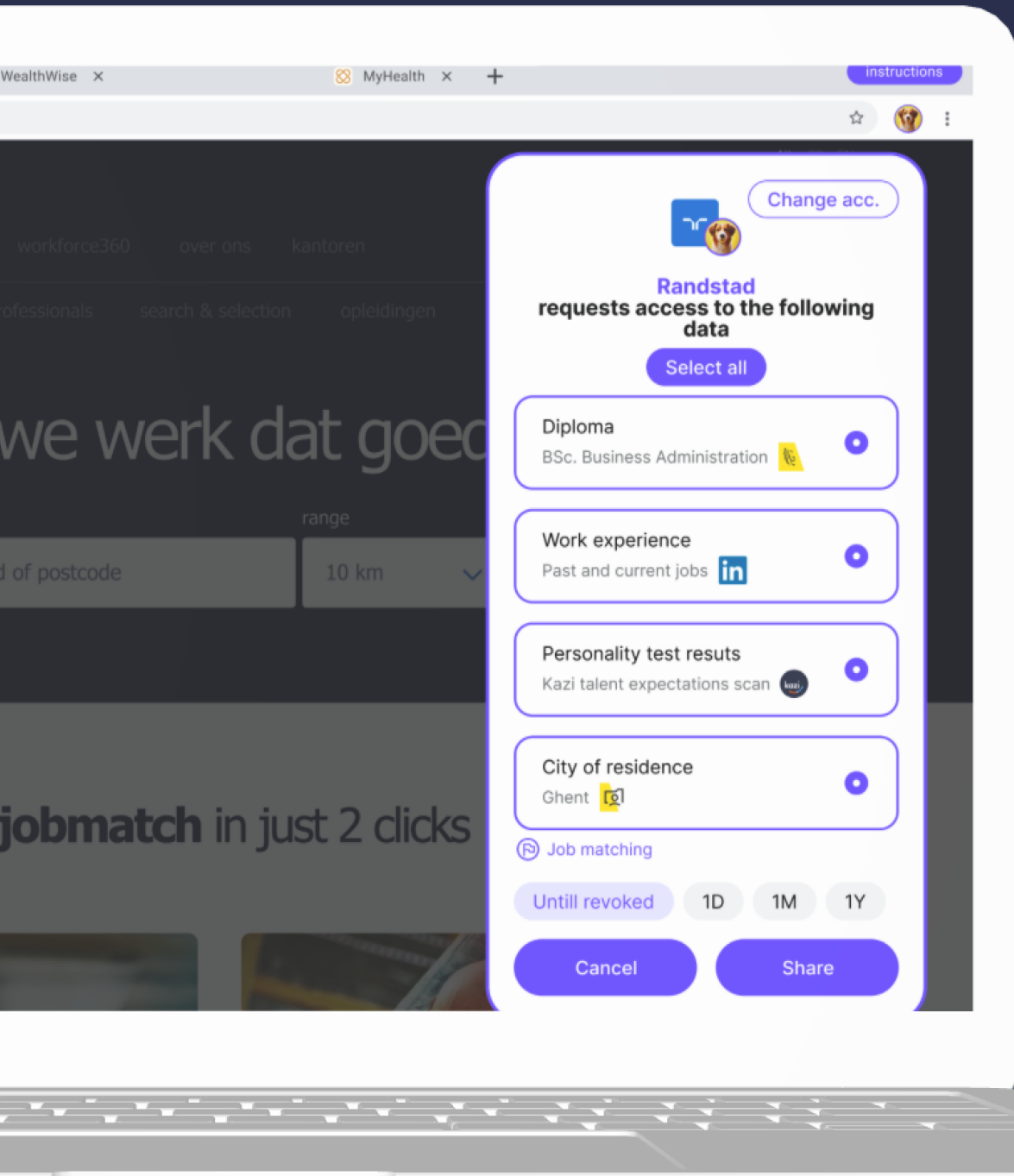
# Personal Data Store

- Positive reception overall: structure and efficiency
- **Major security concerns** due to data centralization
- Trust tied to provider
  - Government affiliation seen as essential for credibility
  - But doubts about **state involvement in leisure data**
- **Permission manager** well appreciated



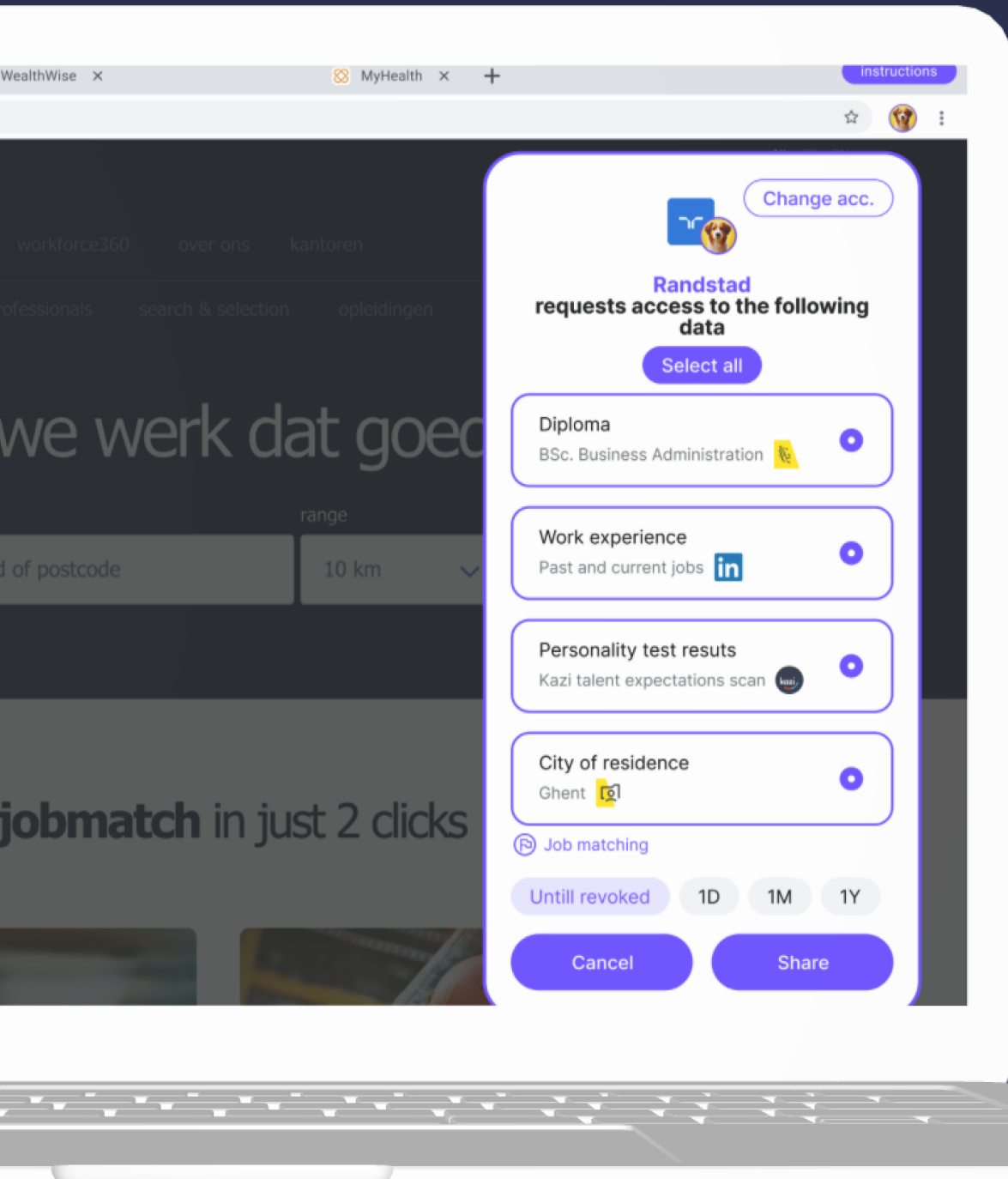
## Personal Data Store

*"Interesting to have that in one location instead of having 456 different apps for it."*



# HR

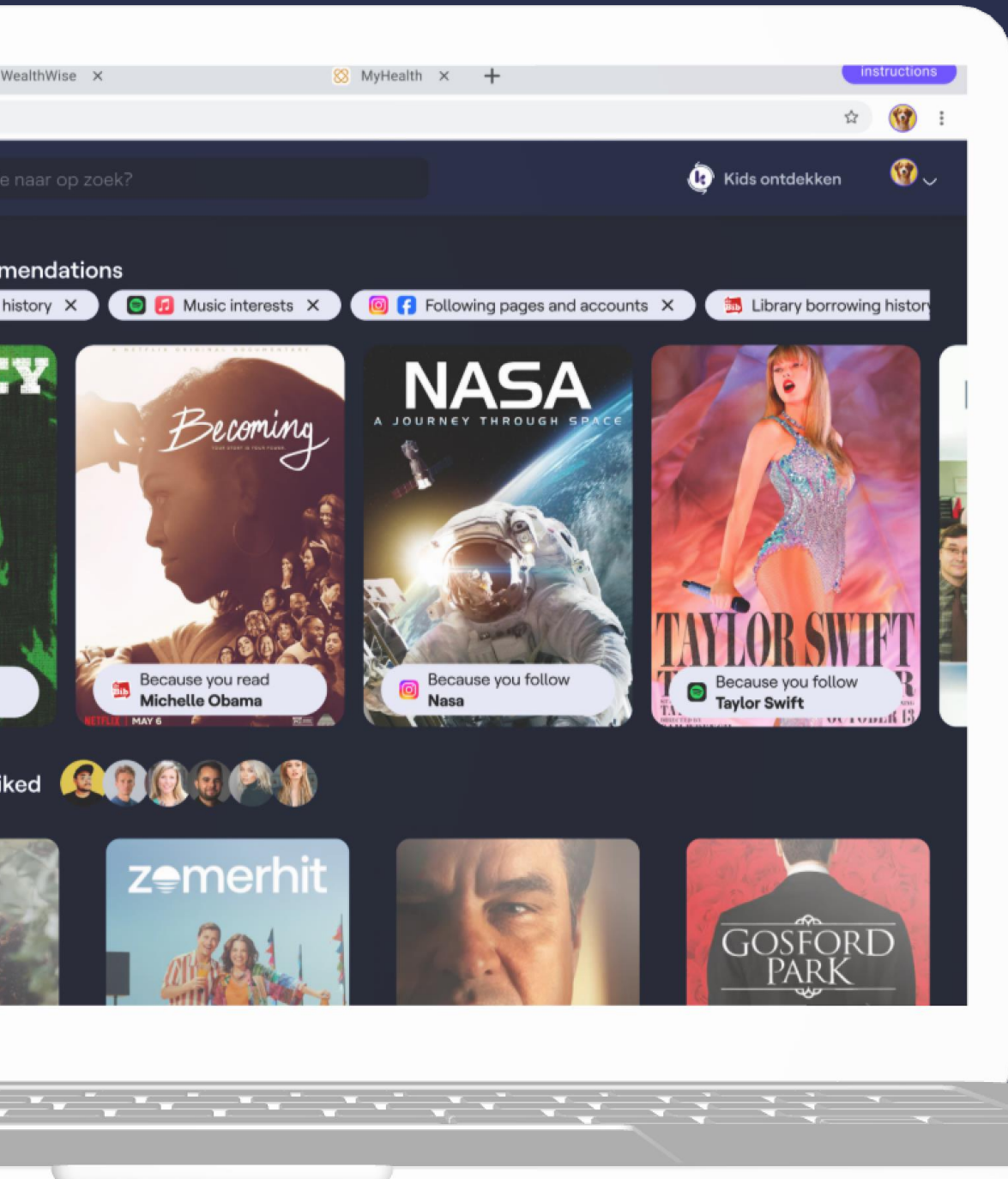
- **High willingness to share data** for job matching
  - Some doubts about **personality tests, sex and age**
- Appreciation for **data minimization** (e.g. city instead of exact address)
- **Desire for more control:** filters, keyword preferences
- **Positive overall:** fast, simple, efficient



HR

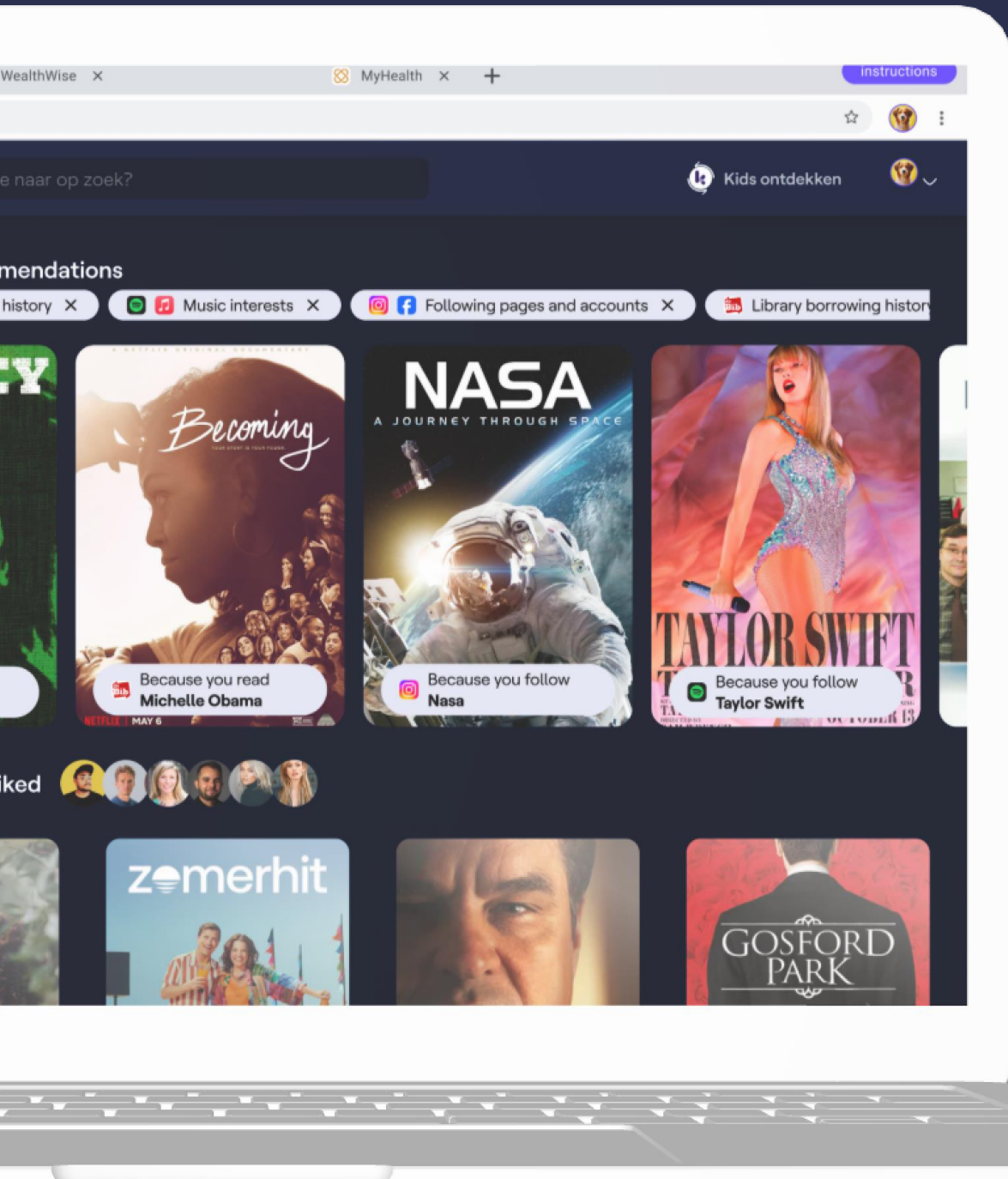
*"I just think it goes really fast, and it's just super simple like that. Check, check, check. [...] It's really super simple."*





## Media

- Initial scepticism about relevance of certain data (e.g. city, listening history)
- Strong reluctance to share social media data
- Trust in platform mattered
- Perception shifted after seeing recommendations
- Mixed reactions overall: **convenience VS fear of filter bubbles**

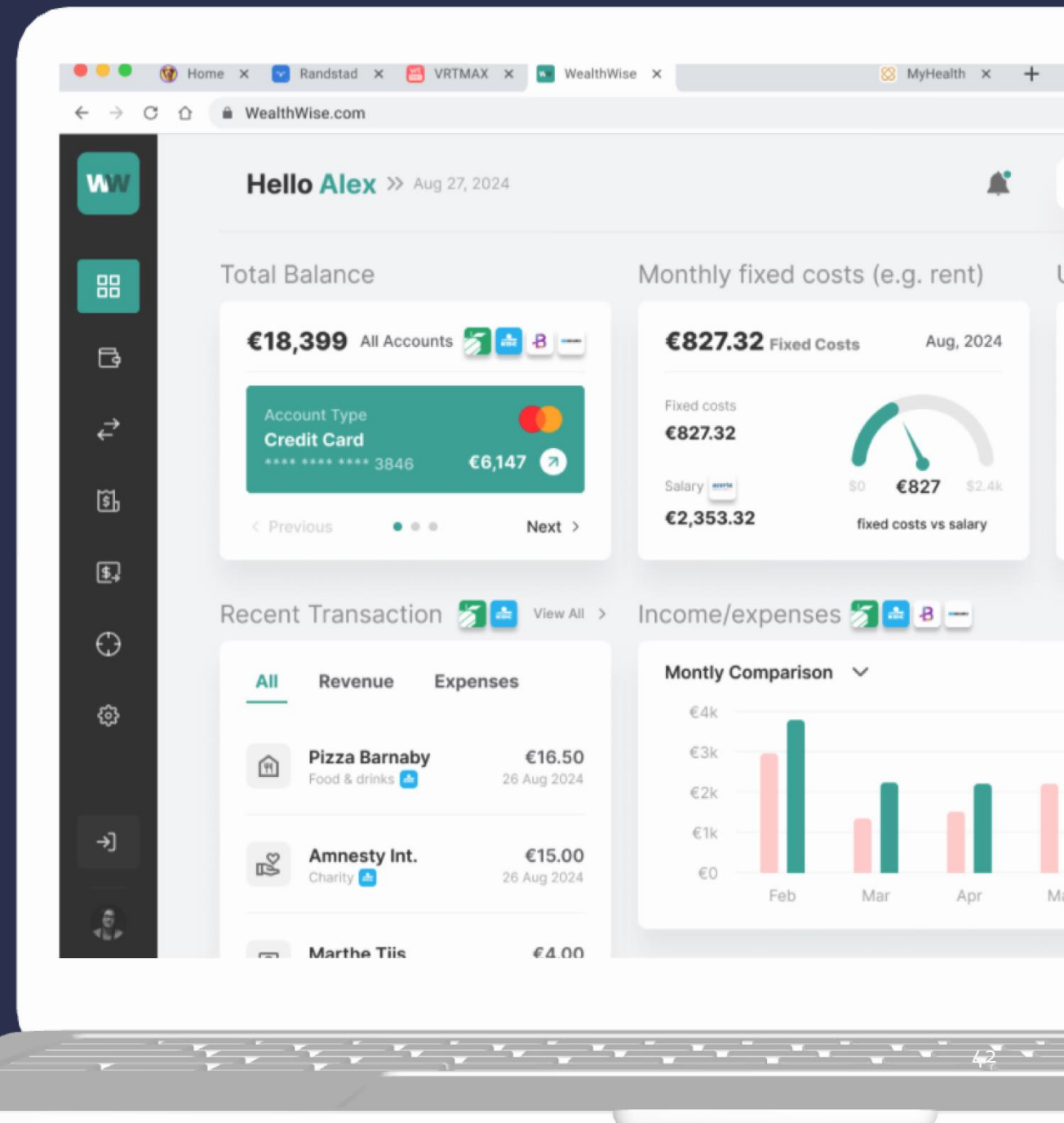


## Media

*"Sometimes you just want to watch a no-brainer, and then I wouldn't share because I think, wow, people would think I only watch silly series."*

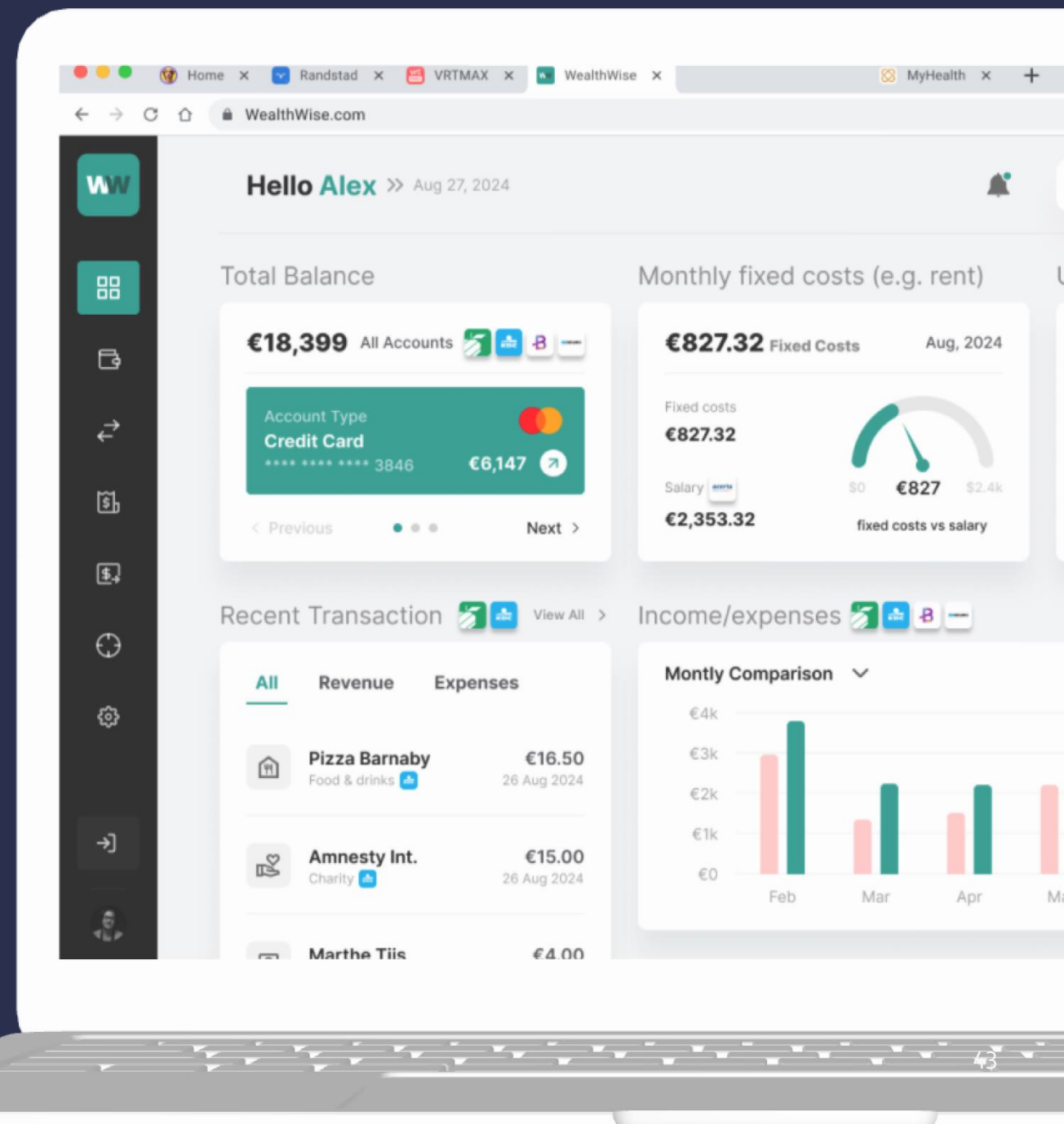
## Finance

- Initial caution due to platform unfamiliarity
- Participants were looking for a link with their bank
- Clear value in financial overview
- **Willingness to share increased** after using the tool
- **Lower relevance for some users** (e.g. students, single bank users)



## Finance

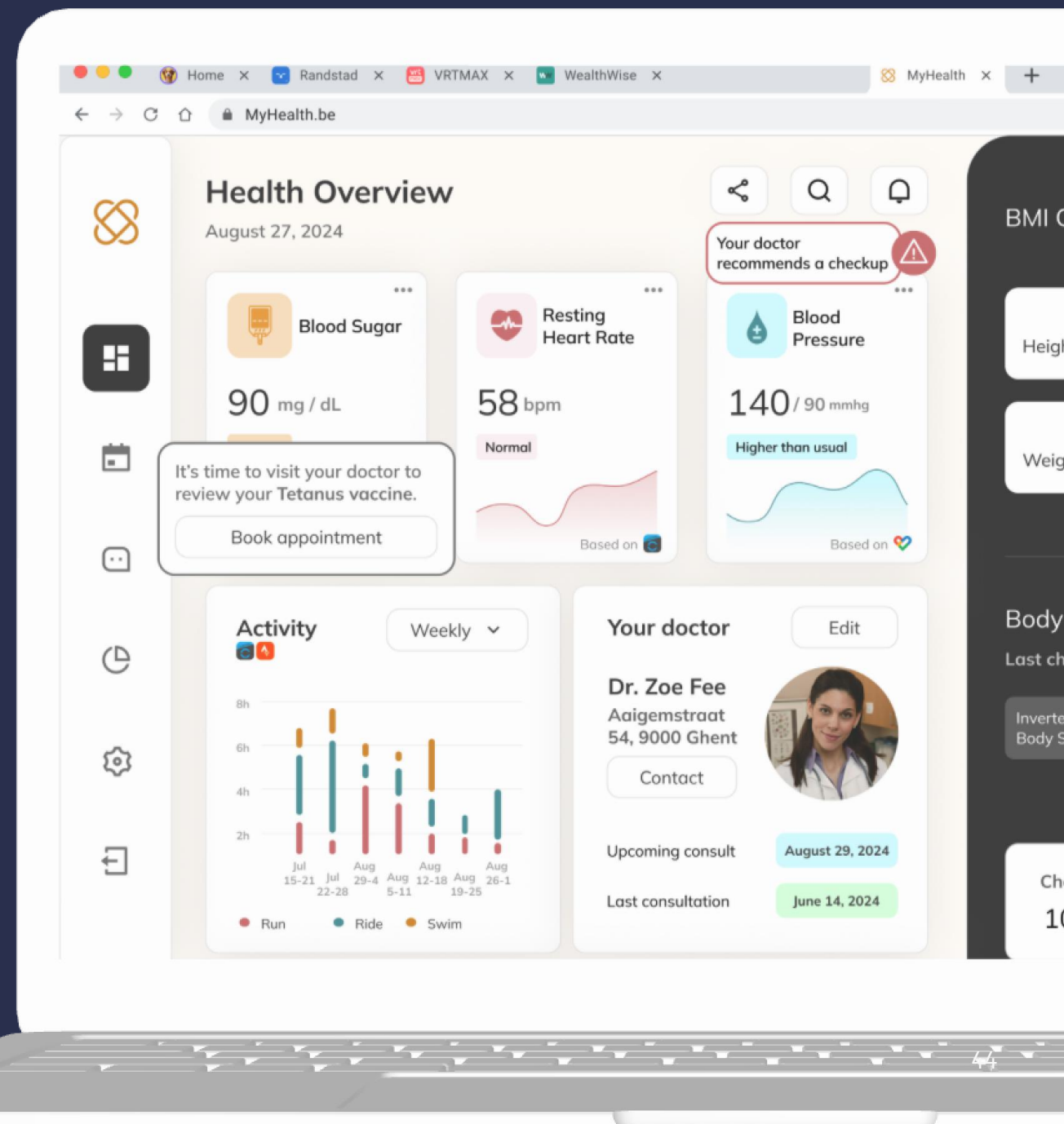
*"It must be really secure, because otherwise I would never use it. [...] If this doesn't look secure, then I would rather scroll through the various banking apps than open this."*





# Health

- “With your doctor you should be able to share everything” VS “If I do not have any issues, then he should not know when I’m exercising.”
- **High willingness to share**
- Strong appreciation for **admin simplification**
- **Proactive health alerts** and **clear dashboards** well received
- Concerns **insurance misuse**

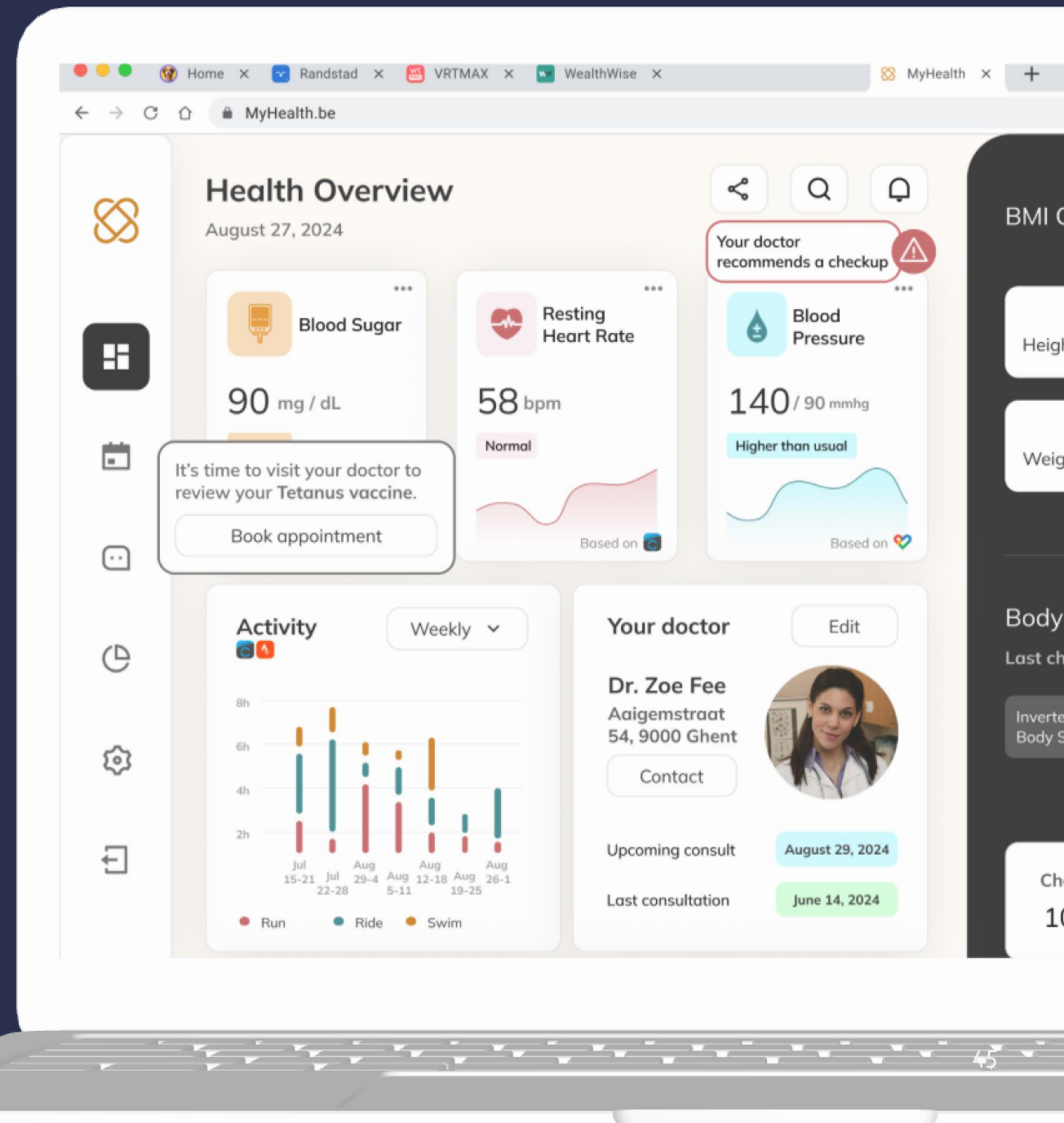






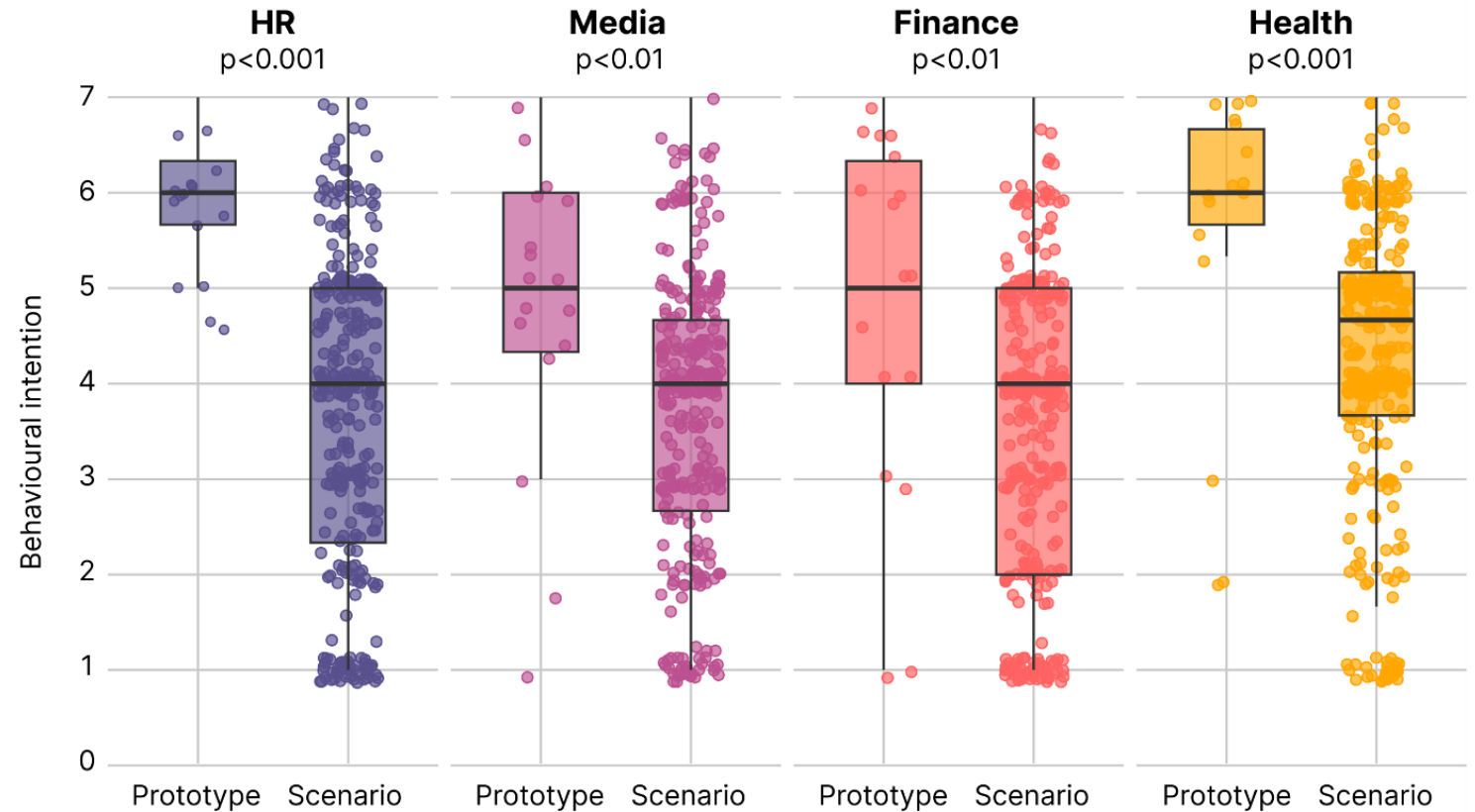
Health

*"I had surgery recently, and I had to do things on a thousand platforms and so on. So if those things were all clustered, that would be super practical."*

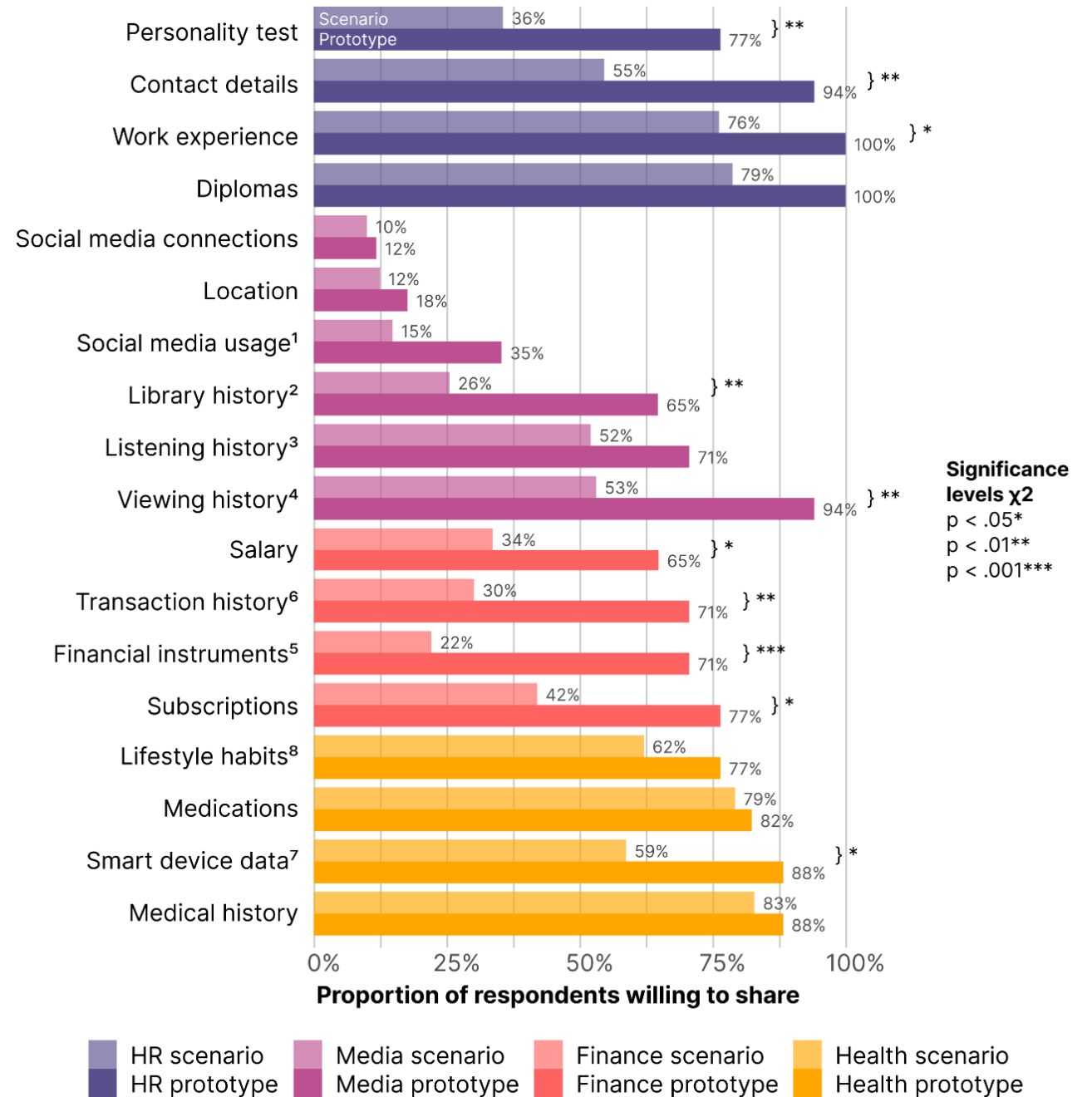


# Prototype interaction appears to heighten users' interest

Participants who interacted with the **prototype** report **higher behavioral intention** scores across all use cases compared to those who evaluated the written scenarios.



Participants who interacted with the prototype report a higher willingness to share data





# Conclusion

## 1. “Show don’t tell”

Tangible experiences increase adoption potential

## 2. Security is the top barrier

Thematic PDSs could reduce perceived risk but reduce PDS efficiency

## 3. Trust in provider is essential

Government affiliation increases credibility—but not for all data types

## 4. Users prefer utility over leisure

Stronger enthusiasm for Health and HR use cases

## 5. Simplicity vs. Control tension

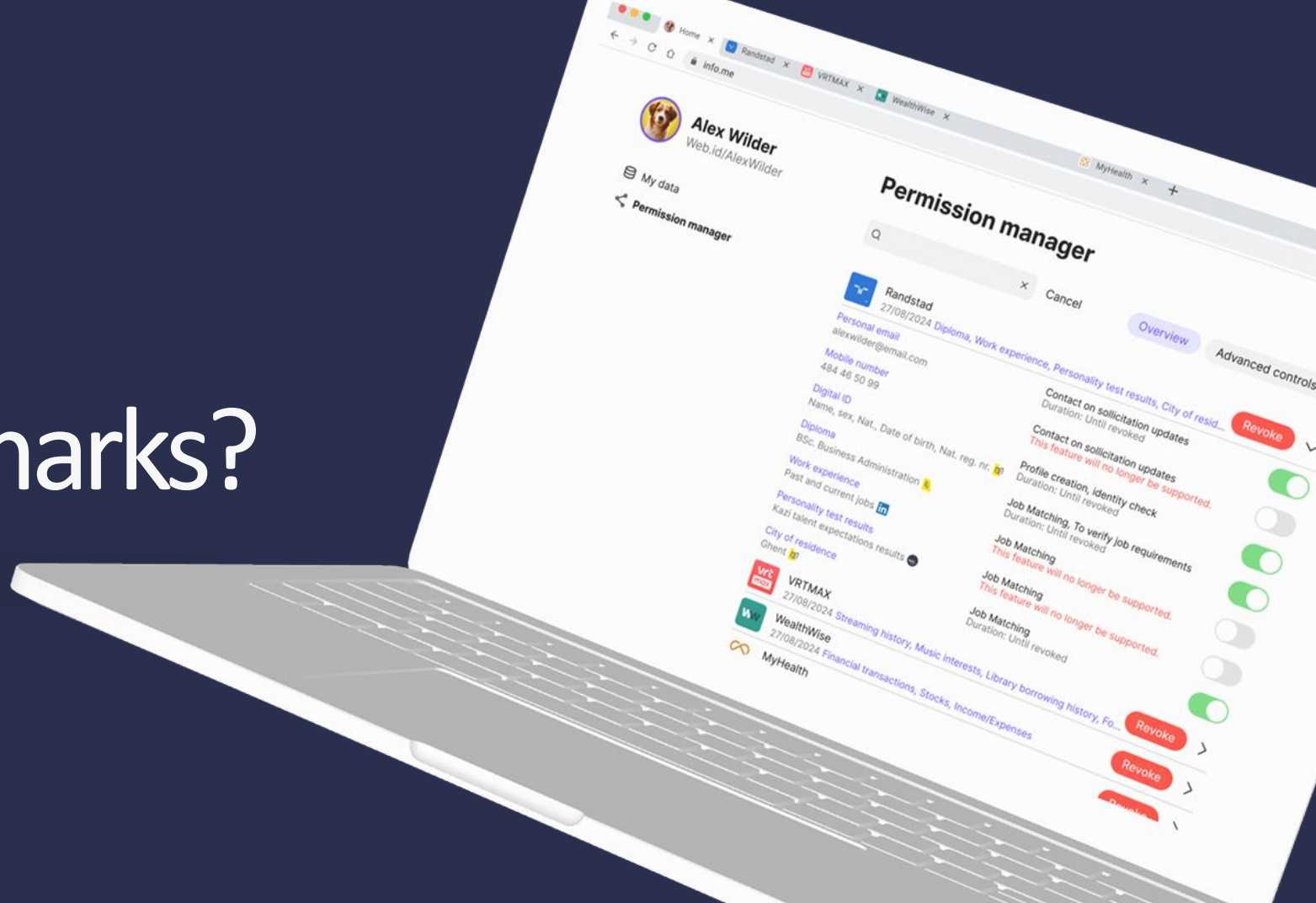
Personalization with transparency and control, data minimization and gradual onboarding

## 6. Usability ≠ main hurdle

Explainability—not usability—is the real challenge

# Questions or remarks?

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**Vlaamse  
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