

# UNIVERSITY OF TWENTE.

## SPOTTING GOOD PEOPLE ANALYTICS

NINE TIPS AND TRICKS.

# STATEMENTS

„Recognise company crises and critical developments in human resources at an early stage and take appropriate action.“ (\*)

„People Analytics is evidence-based decision-making. Great potential!“

„You can improve the employee experience, recruit the right talent and reduce the fluctuation rate in a targeted manner.“ (\*)

„My job is to prevent what you are proposing.“ (Frank Bsirske, former head of ver.di)

„Scepticism about such software is still widespread in Germany at present.“ (\*\*)

(\*) von <https://www.personio.de/hr-lexikon/people-analytics/#1>

(\*\*) <https://interaktiv.br.de/ki-bewerbung/>

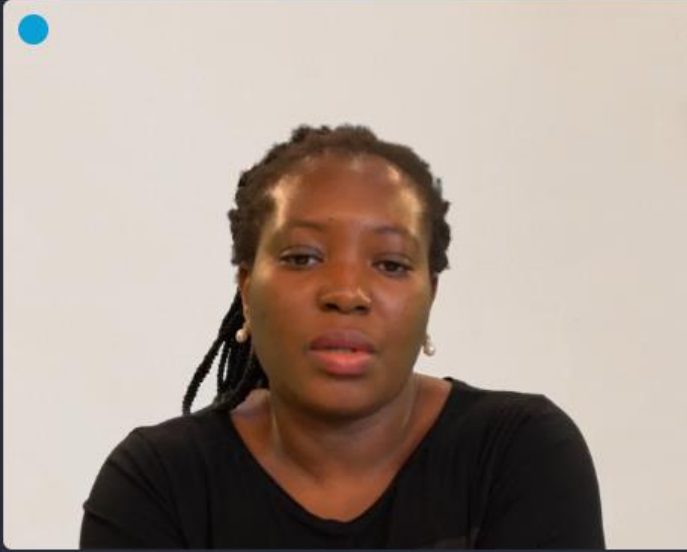


You want to use **People Analytics** to make data-driven Human Resources decisions.

*and then...*

<https://interaktiv.br.de/ki-bewerbung/>

## HELLIGKEIT



## BIG FIVE ERGEBNIS

● Original ● Bearbeitet

Offenheit

Gewissenhaftigkeit

Extraversion

Verträglichkeit

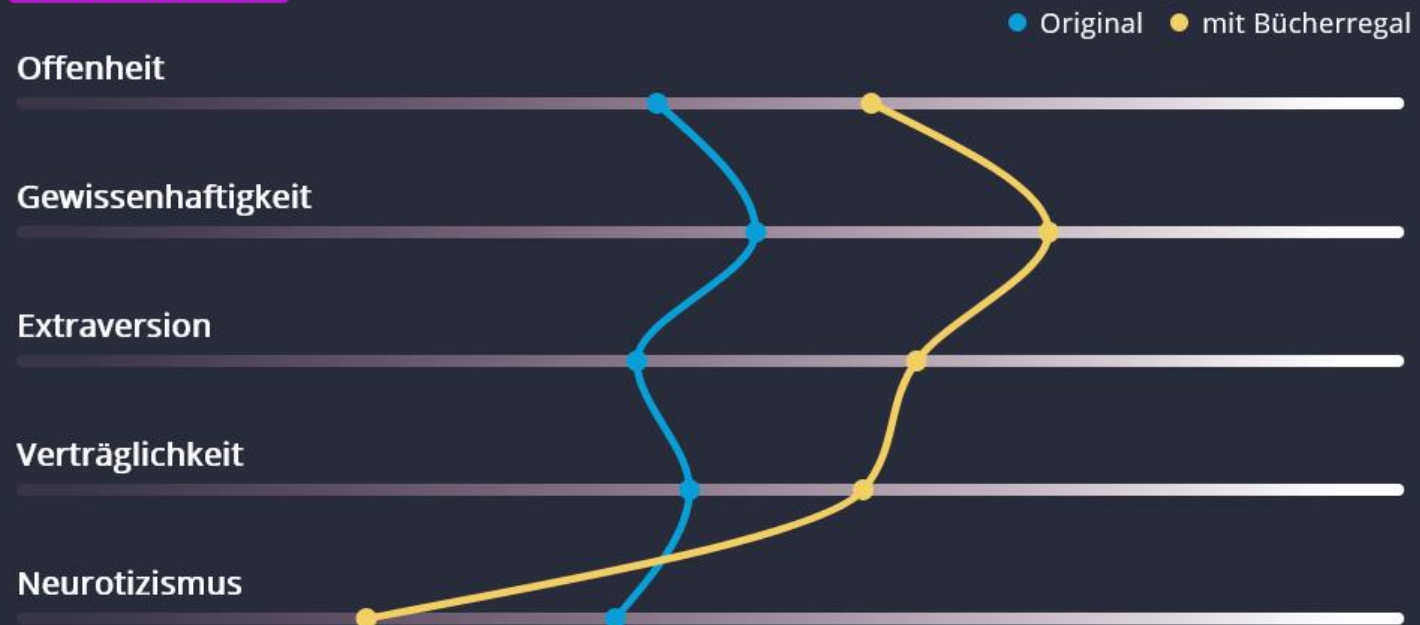
Neurotizismus



## HINTERGRUND



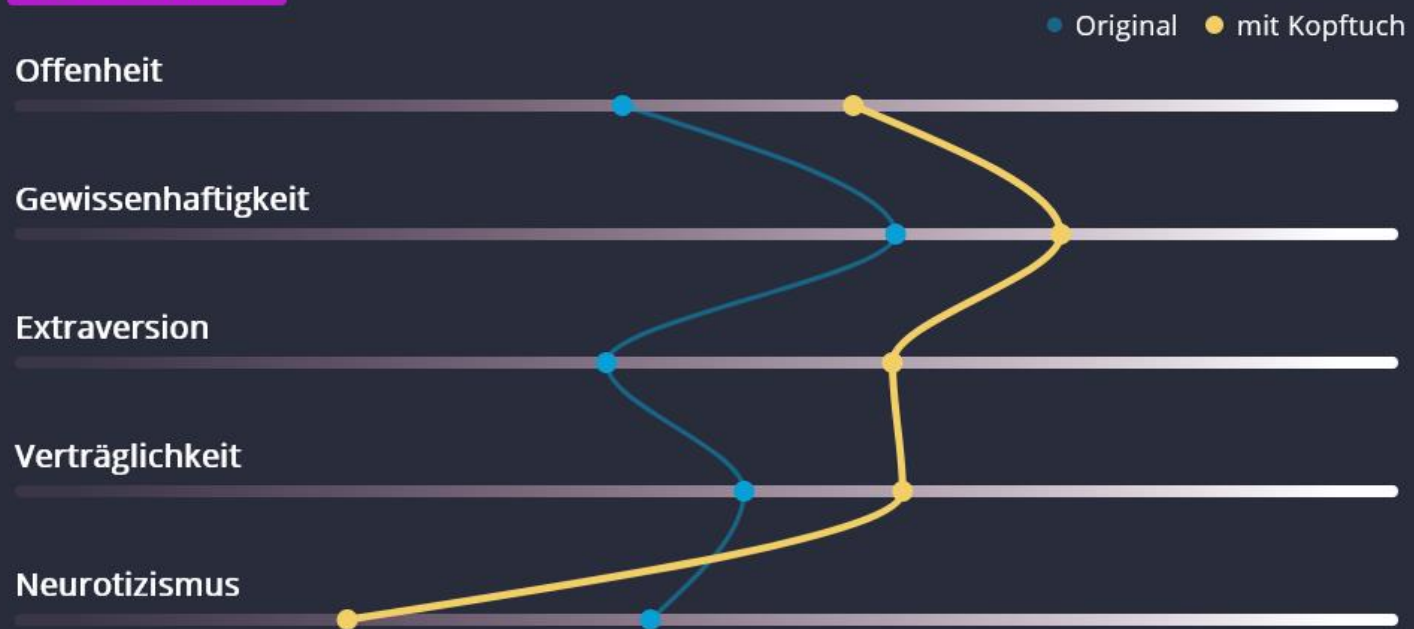
## BIG FIVE ERGEBNIS



## KOPFTUCH



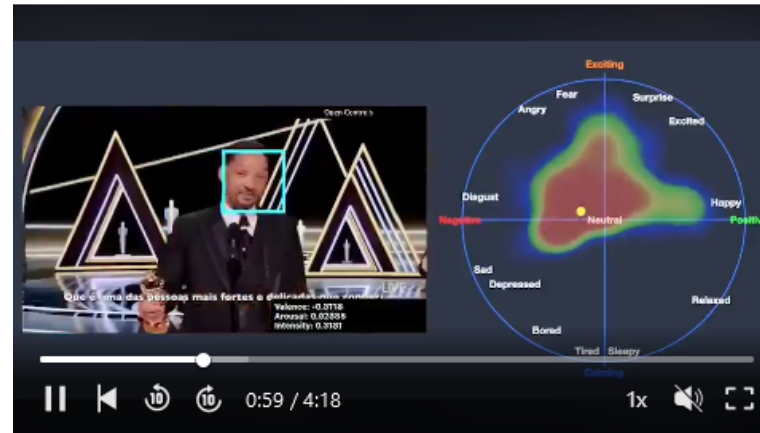
## BIG FIVE ERGEBNIS



Dirk Wunder • 2.  
Vice President Corporate Marketing | Brand Obsessed | Digital...  
8 Std. • Bearbeitet • [+ Folgen](#)

#ArtificialIntelligence evaluates emotional posture and mood in real time based on facial variation in a heat map. Imagine being in a difficult video conference and you are able to analyze now beside the talk the real mood and emotion of your customer or who else...

Credit to Rondinelli Morais



40

4 Kommentare • 3 Shares

[Gefällt mir](#) [Kommentar](#) [Teilen](#) [Senden](#)



Kommentar hinzufügen ...



Relevanteste ▾



Robert Peters • 3, +

1 Std. ...

Expert bei Institut für Innovation und Technik (iit)

An inspiring thought. Unfortunately, these systems lack the necessary reliability, as I was able to show for the [Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag \(TAB\)](#). (see article - in German: <https://www.bundestag.de/resource/blob/848996/b0a0e4dc737c35ee2626cdf2ffc8d31d/Themenkurzprofil-048-data.pdf>) Even a perfectly working system that recognizes faces and facial movements with a high degree of reliability is still no guarantee that AI systems can actually recognize human emotion. As the AI Now Institute puts it in a nutshell, "There remains little to no evidence that these new affect-recognition products have any scientific validity. (see report: [https://ainowinstitute.org/AI\\_Now\\_2019\\_Report.pdf](https://ainowinstitute.org/AI_Now_2019_Report.pdf))

[Gefällt mir](#) | [Antworten](#)

(Vom 31.03.2022)



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There are many black sheep in the market of People Analytics...

You still want to make **data-driven** Human Resources decisions.

How can you recognise good people analytics?



# AGENDA

1. Motivation ✓
2. About People Analytics
3. Types of People Analytics
4. Nine Tips and Tricks





# ABOUT ME

**Dr. Joschka Hüllmann**

Assistant Professor at University of Twente (NL)

## Research Topics:

- Future of Work with new Technologies
- People Analytics and Algorithmic Management
- Analysis of Digital Traces
- Social Process Mining

Follow me on Twitter: [@johuellm](https://twitter.com/johuellm)



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# ABOUT PEOPLE ANALYTICS

People Analytics is defined as:

Socio-technical systems and associated processes that enable data-driven (or algorithmic) decision-making to optimise people-related business outcomes.

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People Analytics is defined as:

**Socio-technical systems** and associated processes that enable data-driven (or algorithmic) decision-making to optimise people-related business outcomes.

Socio-technical:

Not a simple IT artefact, but the combination of people, tasks and technology.

# ABOUT PEOPLE ANALYTICS

People Analytics is defined as:

**Socio-technical systems** and **associated processes** that enable data-driven (or algorithmic) decision-making to optimise people-related business outcomes.

Processes:

Use of the system over time, embedded in the company's activities.

# ABOUT PEOPLE ANALYTICS

People Analytics is defined as:

**Socio-technical systems** and **associated processes** that enable **data-driven** (or algorithmic) **decision-making** to optimise people-related business outcomes.

Data-driven:

The system and decisions are based on the collection and analysis of data.

# ABOUT PEOPLE ANALYTICS

People Analytics is defined as:

**Socio-technical systems** and **associated processes** that enable **data-driven** (or algorithmic) **decision-making** to optimise **people-related** business outcomes.

People-related:

→ Data refers to people's behaviours and attitudes.





# TYPES OF PEOPLE ANALYTICS

# TYPES OF PEOPLE ANALYTICS

1. Goals
Performance
Collaboration
Recruiting und Retention
On- and Offboarding
Health and Wellbeing
Employee Experience / Engagement
Compensation
Compliance
Learning and Development
Long-term Workforce Planing
Succession Planning / Talent Management

2. Data
Digital Traces
Sensors (Hardware & Software)
Surveys
Pulse Surveys
Interviews
HR Information Systems
Video/Audio Data
External Data Sets

3. Methods
Clustering
Network Analysis
Hypothesis Testing
Machine Learning (Video, Audio, Text)
Thematic Discourse Analysis
Workshops

# TYPES OF PEOPLE ANALYTICS

## Network and Collaboration Analysis

Innovisor  
Polinode  
Humanyze   Aware   StarLinks  
ConnectedCommons   TyGraph  
Cognitive Talent Solutions   Worklytics  
Swoop Analytics   TrustSphere  
Isaak

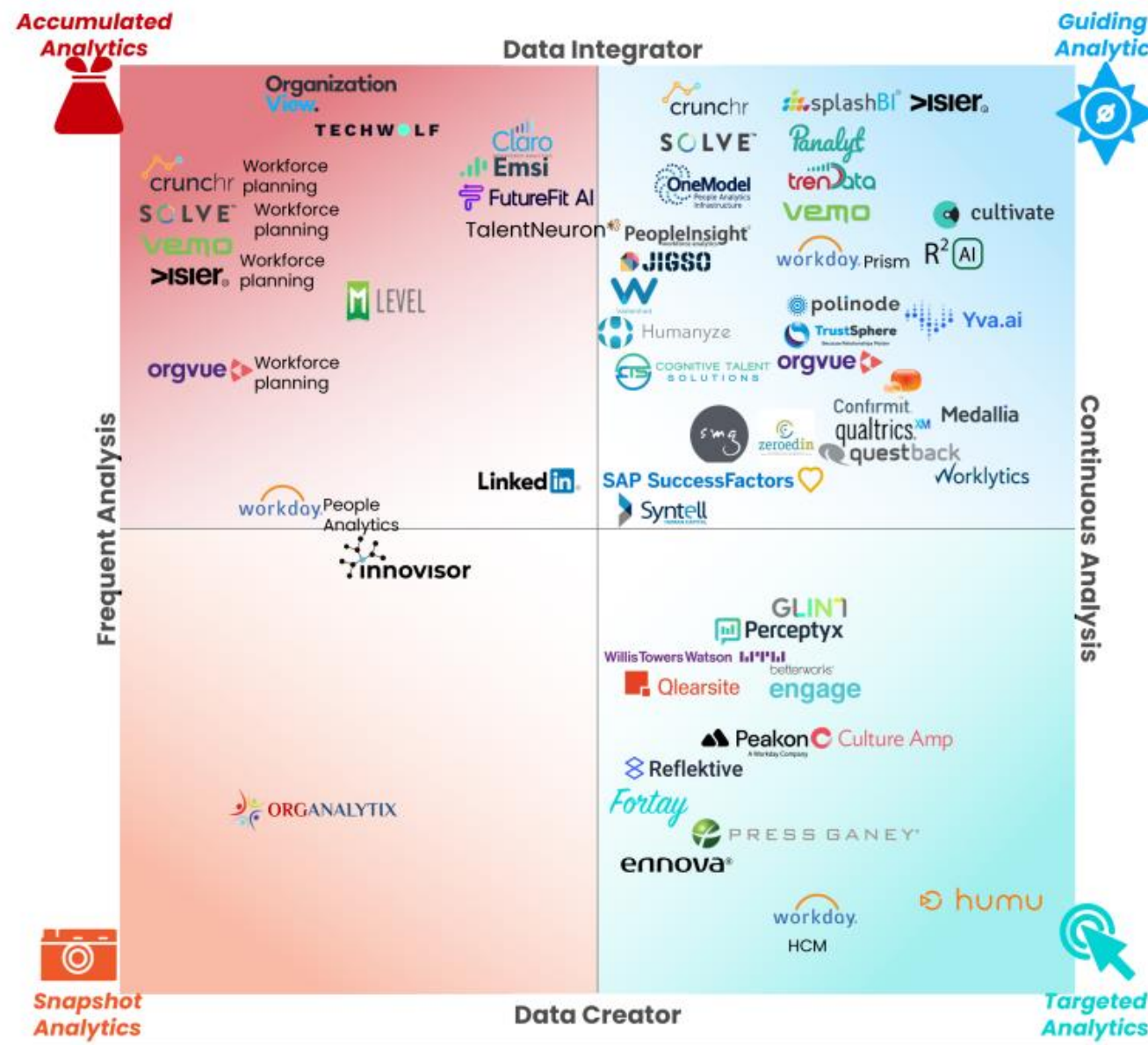
## Human Resources Analysis

MS Workplace Analytics  
Noventum HR Analytics   CultivateAI  
Sapience  
Claro   HireVue   PeakOn   QuantifiedCommunications  
SAP Success Factors   Visier  
Pymetrics   Synd   Org Vitality   Zoomi  
Workday   Humu  
Ascendify   Oracle HCM   Glint Inc

## Surveillance

Interguard Software  
Teramind

# TYPES OF PEOPLE ANALYTICS



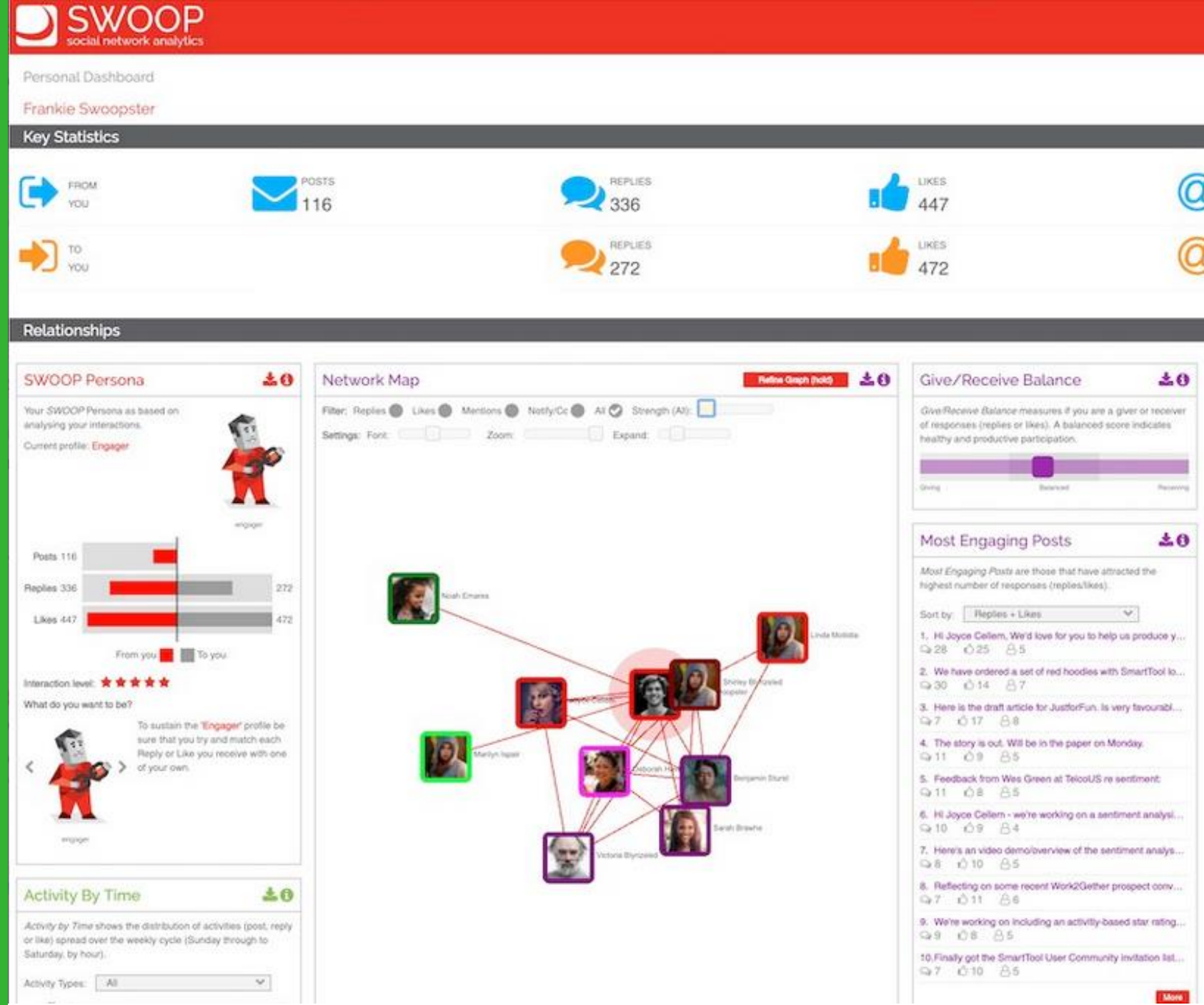
# EXAMPLES

An abstract graphic featuring a series of thin, grey, wavy lines that flow across the page. Overlaid on these lines are several green, three-dimensional geometric shapes, primarily triangles and polygons, some of which are shaded to create a sense of depth. The shapes are scattered across the upper right portion of the image.



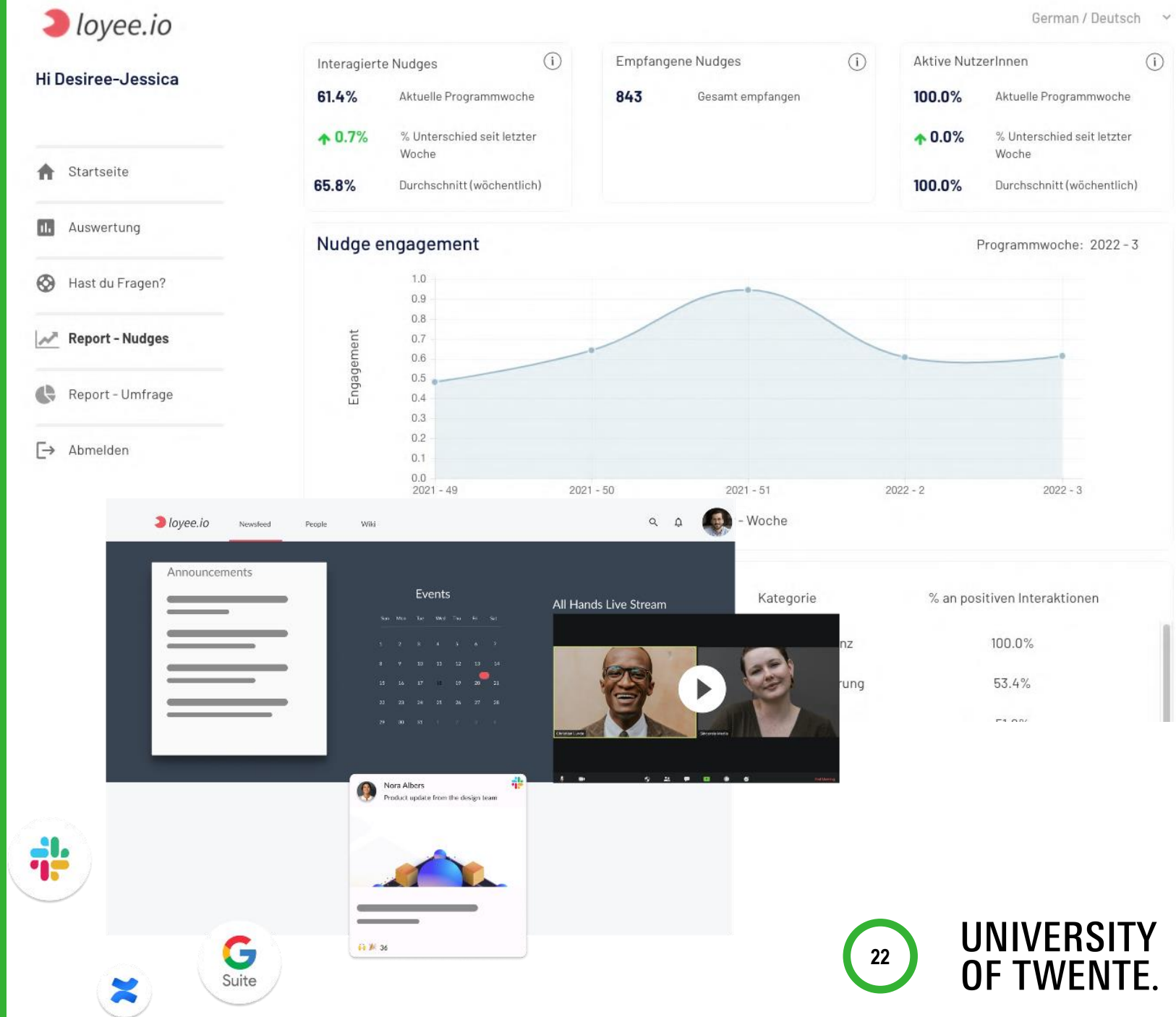
# Collaboration and Network Analysis

- Analysis of Digital Traces Fußspuren (e.g., communication log data)
- Estimate communication profiles and rankings
- **Goal:** Improve Collaboration
- **Validity:** Based on established research
- Added value is meagre.



# Behavioral Analytics and Nudging

- Based on Richard Thaler's Behavioral Economics (Nobel prize 2017)
- Analyse human behavior and manipulate it using small stimuli
- **Goal:** broad, typically digital behavior
- **Validiy:** yes, but nudges must be evaluated independently,



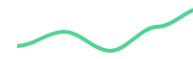


# Survey und Pulse Surveys

- Typical Employee Surveys
- Pulse: small & continuous (Sentiment-) queries
- **Ziel:** broad
- **Valide:** typically based on established scales from psychological research
- Risk that negative results are identified

## Team Zufriedenheit

96% ↑ 4%



## Team Leistung

88% ↑ 4%



Modul	Status
Vertrauen	<span>● Fertig</span>
Verantwortung	<span>● Fertig</span>
Achtsamkeit	<span>● Fertig</span>
Kommunikation	<span>● Ausstehend</span>
Resilienz	<span>● Gesperrt</span>
Motivation	<span>● Gesperrt</span>
Emotionale Intelligenz	<span>● Gesperrt</span>
Selbstwirksamkeit	<span>● Gesperrt</span>

## Deine Persönlichkeitsanalyse

### Persönlichkeit

Verträglich und extravertiert



Deine höchsten Ausprägungen hast du in Verträglichkeit und Extraversion.

[Erfahre mehr](#)

### Werte

Holistisch

Das Wohlergehen aller Menschen in der Welt steht ganz vorne an. Du liebst es, anderen zu helfen und sie zu unterstützen.

[Erfahre mehr](#)

### Rolle

Macher:in



Macher:innen geben gern den Ton an.

[Erfahre mehr](#)

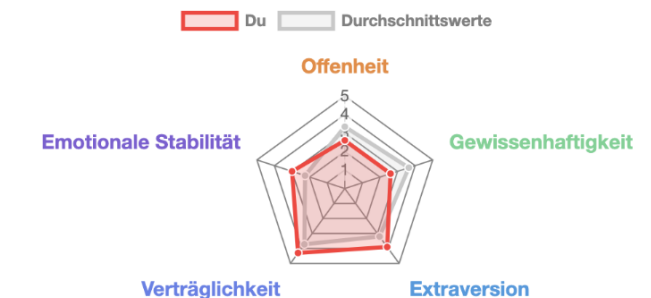
### Bevorzugte Kommunikationsweise

Konstruktiv

In einem Team ist es wichtig, dass man mal was sagt und seine Meinung äußert. Du solltest konstruktiv sein und deine Meinung äußern.

[Erfahre mehr](#)

## Persönlichkeit



### Verträglich

Deine höchsten Ausprägungen hast du in Verträglichkeit und Extraversion.

Im Vergleich mit anderen hast du eine hohe Ausprägung in Verträglichkeit und Extraversion.

Im Vergleich mit anderen hast du eine niedrige Ausprägung in Emotionale Stabilität und Gewissenhaftigkeit.

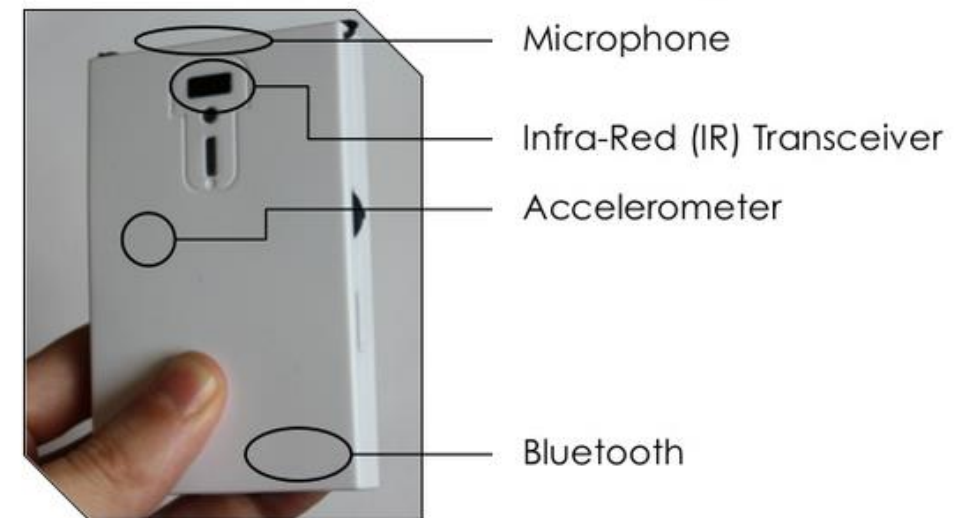
## Hardware Sensors

- Based on small sensors
- Coined by Ben Waber at MIT (2013)
- **Goal:** Spatial Office Layout and Design, Collaboration
- **Validity:** based on established research
- High efforts and costs



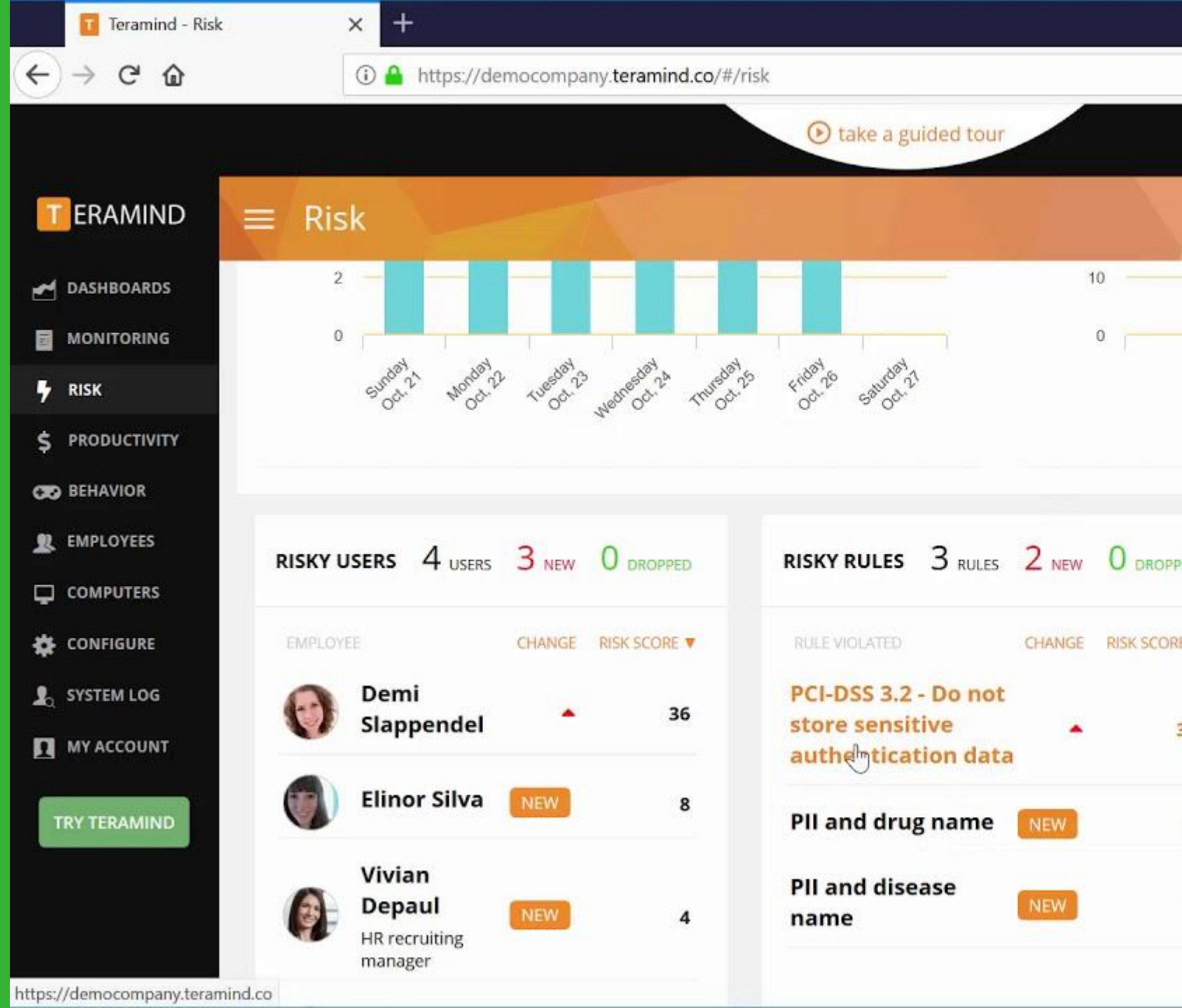
sociometric  
solutions

### Sociometric Badge



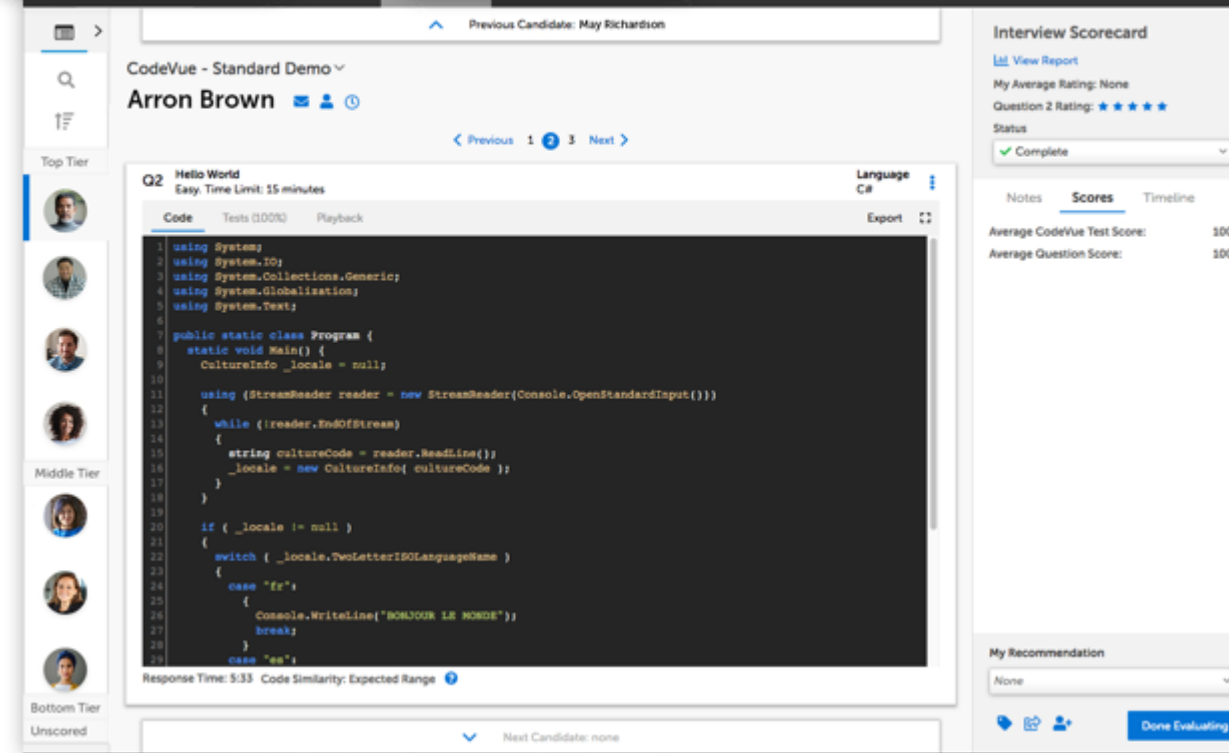
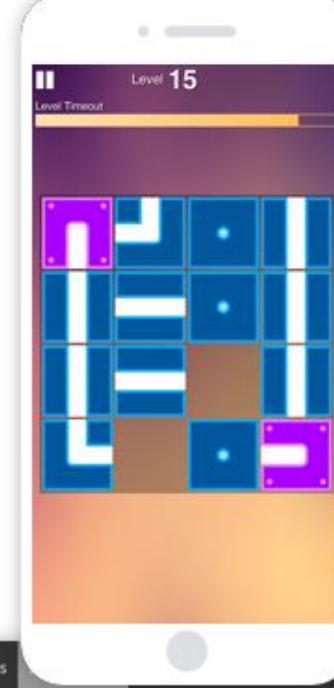
# Employee Surveillance

- Surveillance disguised as People Analytics
- Arbitrary log on to employee's desktops
- **Goal:** Compliance and Performance
- **Validity:** works technically, but risks with regards to legal and organisational implications; value proposition questionable



# AI-based Performance- Assessments (Gamification)

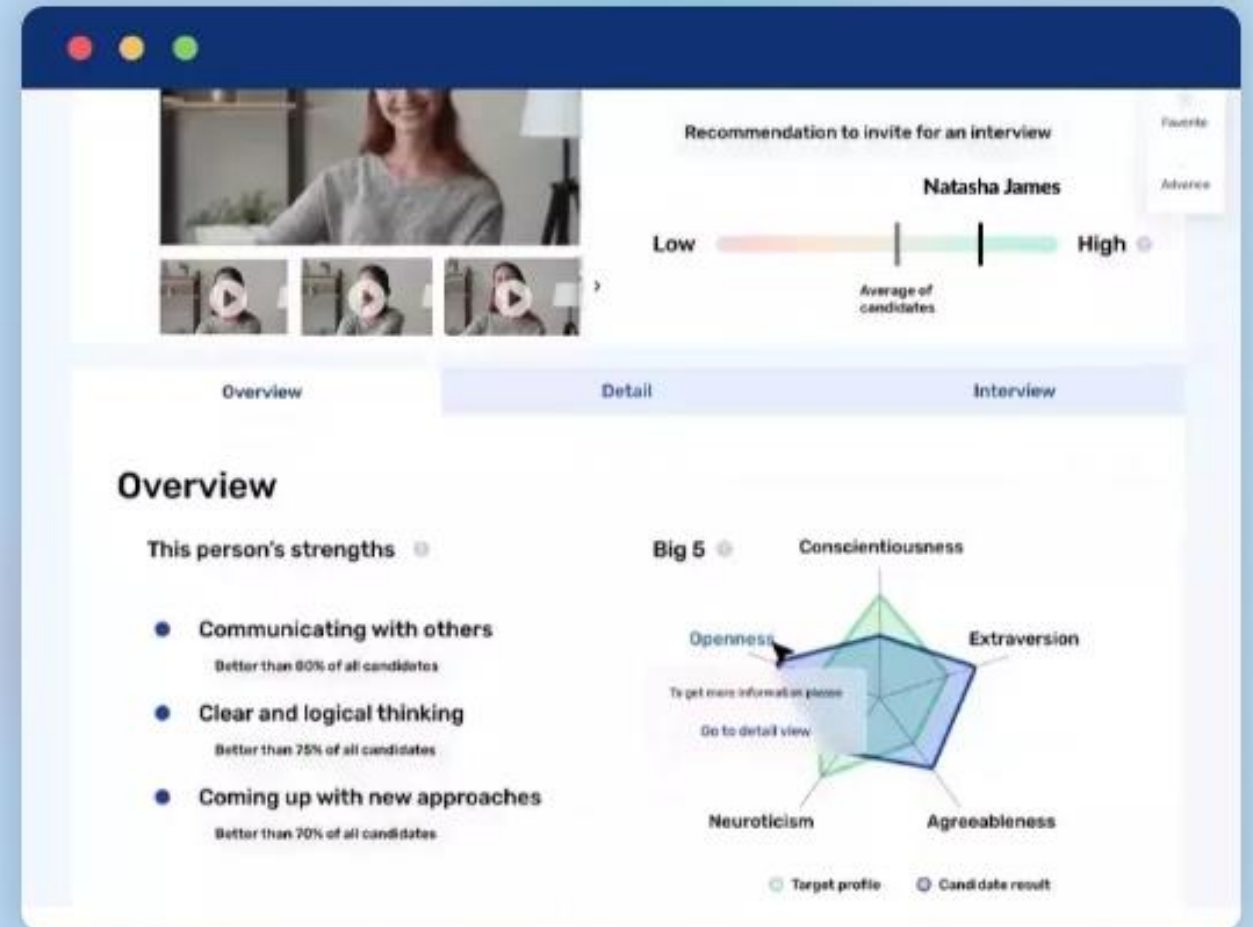
- Gamification and Competence-Assessments
- **Goal:** e.g., Coding- or analytics for assessing competencies and fit to team
- **Validity:** can work, but depends on type of assessment. For some there is evidence that it works, for some that it doesn't work. Case-by-case decision needed!





# AI-based Audio und Video Assessments

- Based on machine learning, e.g., Deep Convolutional Neural Networks
- **Goal:** broad, for example, fit to team
- **Validity:** doesn't work, clear evidence against it.  
(face recognition generally works, but not the link to personality or performance)



# Hypothesis Testing

## A/B Tests

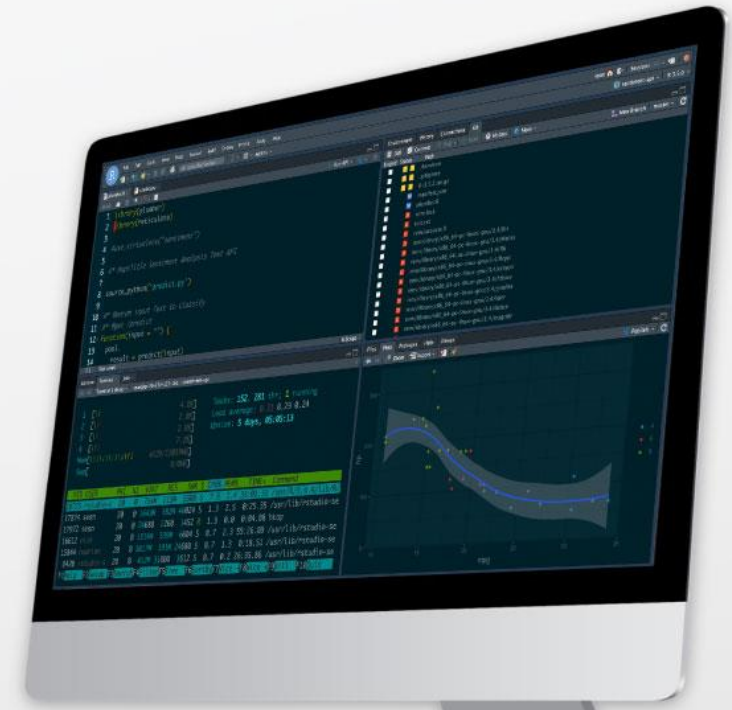
- Find evidence for your intuition
- Correlative or causal designs are possible
- **Goal:** broad
- **Valide:** de-facto method of science
- Risks of errors during analysis or negative results

IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help

Visible: 10 of 10 Variables

	customer_id	gender	age	education	income	reside	hometype	addresscat	service_type	service_usage
1	1979-OPAUG	Female	18-30	At least s...	Under \$45	2	Single-family	More than 15	Television	No service
2	1979-OPAUG	Female	18-30	At least s...	Under \$45	2	Single-family	More than 15	Telephone (la...	Other provider
3	1979-OPAUG	Female	18-30	At least s...	Under \$45	2	Single-family	More than 15	Internet	Other provider
4	5932-UOEWEY	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Television	Service with c...
5	5932-UOEWEY	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Telephone (la...	Service with c...
6	5932-UOEWEY	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Internet	Service with c...
7	5923-SEERQ	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Television	No service
8	5923-SEERQ	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Telephone (la...	Other provider
9	5923-SEERQ	Female	31-40	College d...	Under \$45	2	Single-family	More than 15	Internet	Other provider
10	6940-TFFWO	Female	41-50	College d...	Under \$45	2	Multiple-Family	More than 15	Television	No service
11	6940-TFFWO	Female	41-50	College d...	Under \$45	2	Multiple-Family	More than 15	Telephone (la...	Other provider
12	6940-TFFWO	Female	41-50	College d...	Under \$45	2	Multiple-Family	More than 15	Internet	No service
13	8125-CLCWR	Female	51-60	College d...	Under \$45	3	Mobile Home	More than 15	Television	Service with c...
14	8125-CLCWR	Female	51-60	College d...	Under \$45	3	Mobile Home	More than 15	Telephone (la...	Service with c...
15	8125-CLCWR	Female	51-60	College d...	Under \$45	3	Mobile Home	More than 15	Internet	Service with c...
16	9082-VEGIB	Female	61-70	College d...	Under \$45	2	Single-family	More than 15	Television	Service with c...
17	9082-VEGIB	Female	61-70	College d...	Under \$45	2	Single-family	More than 15	Telephone (la...	Service with c...
18	9082-VEGIB	Female	61-70	College d...	Under \$45	2	Single-family	More than 15	Internet	Service with c...
19	5925-XYDVY	Female	18-30	At least s...	Under \$45	1	Single-family	6 to 15	Television	No service
20	5925-XYDVY	Female	18-30	At least s...	Under \$45	1	Single-family	6 to 15	Telephone (la...	Service with c...
21	5925-XYDVY	Female	18-30	At least s...	Under \$45	1	Single-family	6 to 15	Internet	Other provider
22	9544-WXCXY	Female	31-40	College d...	Under \$45	4	Single-family	Less than 6	Television	Other provider
23	9544-WXCXY	Female	31-40	College d...	Under \$45	4	Single-family	Less than 6	Telephone (la...	Service with c...
24	9544-WXCXY	Female	31-40	College d...	Under \$45	4	Single-family	Less than 6	Internet	Other provider
25	8347-AKFL	Male	46-60	College d...	Under \$45	2	Single-family	More than 15	Television	Service with c...
26	8347-AKFL	Male	46-60	College d...	Under \$45	2	Single-family	More than 15	Telephone (la...	Service with c...
27	8347-AKFL	Male	46-60	College d...	Under \$45	2	Single-family	More than 15	Internet	Service with c...



## Market Research and External Data Sets

- Established market research with third party data sets, e.g., from LinkedIn
- **Goal:** external perspective, for example, find fitting recruits
- **Validity:** based on simple descriptive analysis or more advanced statistical designs

## The Rise of Analytics in HR

The era of talent intelligence is here





# Qualitative Approaches (Workshops, Interviews)

- These approaches sometimes are also considered People Analytics
- Systematic collection and analysis of qualitative data in workshops, interviews, ethnographies
- **Goal:** addressing complex and unstructured problems
- **Validity:** less „objective“ than quantitative analyses
- Further away from the „spirit“ of People Analytics



# SUMMARY

An abstract graphic featuring a series of thin, grey, wavy lines that flow across the page. Overlaid on these lines are several green, three-dimensional geometric shapes, including triangles and polygons, some of which are shaded to create a sense of depth. The shapes are arranged in a way that suggests a path or a sequence of events.



# SUMMARY

Example	Risks*	Added Value
Collaboration and Network Analysis	Low	
Behavioral Analytics and Nudging	Medium	
Surveys and Pulse Surveys	Low to Medium	
Hardware Sensors	Low	
Employee Surveillance	High	
AI-based Performance-Assessments (Gamification)	Medium	
AI-based Audio und Video Assessments	Very High	
Hypothesis Testing A/B Tests	Medium	
Market Research and External Data Sets	Low	
Qualitative Approaches (Workshops, Interviews)	Medium	

(\* risks, that it doesn't work!)



# GENERAL PROBLEMS WITH PEOPLE ANALYTICS

## Reduction of Reality

- No Truth
- Indicators without Context
- “Gaming the System”
- Impression Management







## Data- and Analysis

- „Streetlight Effect“
- Bias in the Data
- Human Analysis Decisions
- Human Interpretation of Results
- No Theory or plausible Explanations
- Measurement Constructs



## Legal and Ethics

- Data privacy
- Surveillance
- Discrimination
- Appropriation

## Technology

- Data extraction
- Sensors
- Survey-Software

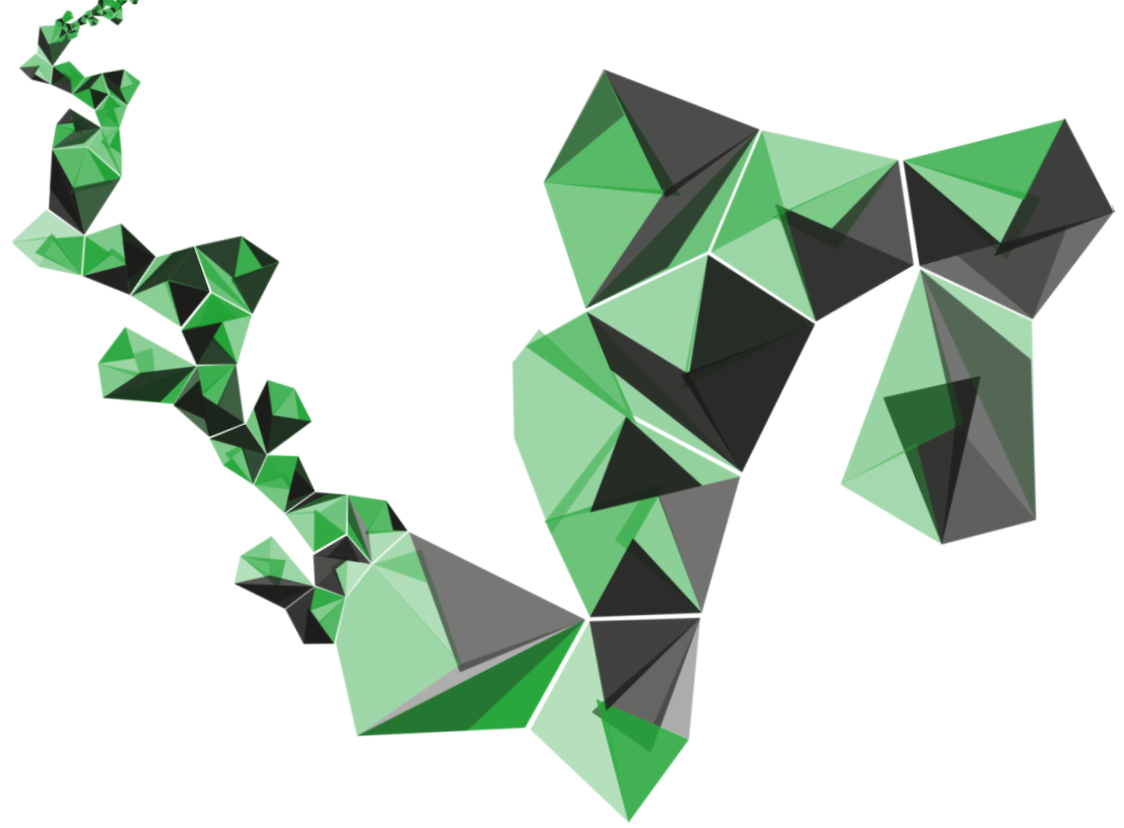
## Organisational

- Change Management
- Acceptance and Resistance
- Cost-Benefits
- Limited Generalizability





# 9 TIPS AND TRICKS



# TIPS AND TRICKS

## 1. Choose low risk

- See previous summary.

## 2. Demand transparency from vendors

- Request information to methods and theory.
- Check evidence that product works.

## 3. Reflect on data origin

- Question the data generating process.
- Question causal relationships.
- Consider bias in the data.



# TIPS AND TRICKS



## 4. Choose low risk

- No AI-based Video or Audio Assessments!!
- No employee surveillance.
- Caution when using Nudging or gamified AI-assessments.
- Consider risk of negative result for surveys, hypothesis testing, & Co.

## 5. Establish controlling for People Analytics

- Continuously check whether value is actually being added.
- Adjust if needed.

## 6. Think about change management

- Talk with the employees.
- Live transparency.
- Develop trust.

# TIPS AND TRICKS



## 7. Consider reduction of reality

- Understand People Analytics as indicator, not as truth!
- Think about the context of data collection and analysis.

## 8. Recognize complementarity

- Don't avoid intuition and experience, but appreciate the complementarity between data and experience.

## 9. Ask experts

- Accept the multidisplinary.
- Bring domain and data experts together.
- Get external expertise if needed.



# UNIVERSITY OF TWENTE

THANK YOU

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“R2-D2, You Know  
Better Than To Trust A  
Strange Computer”

