

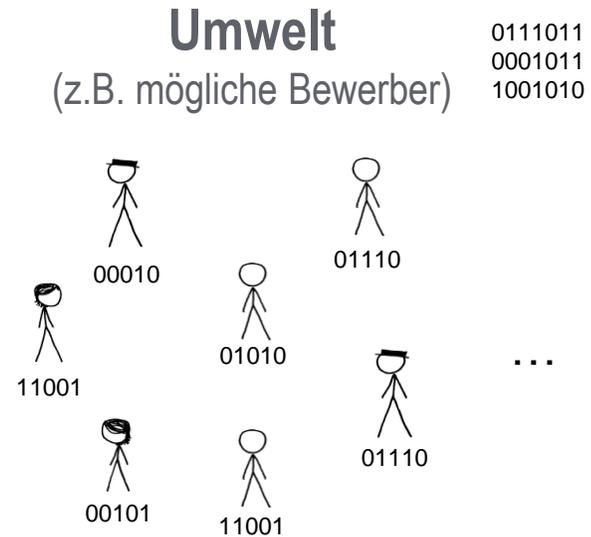
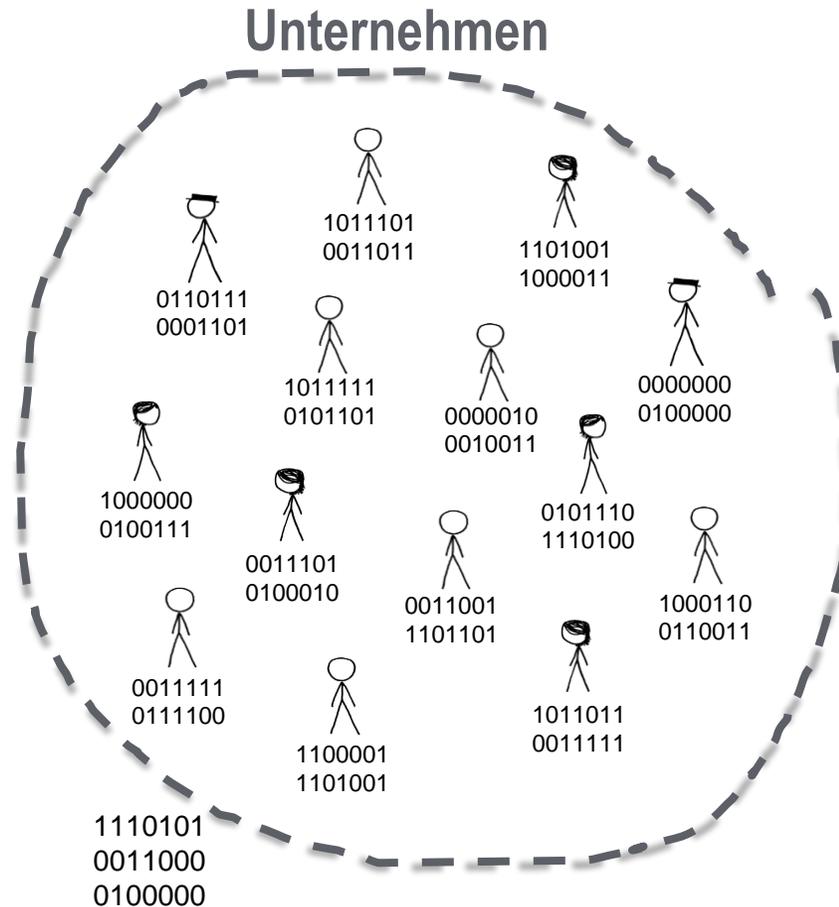


# People Analytics - Wie People Analytics helfen kann, die mentale Gesundheit der Mitarbeitenden zu fördern

Torsten Biemann, Universität Mannheim

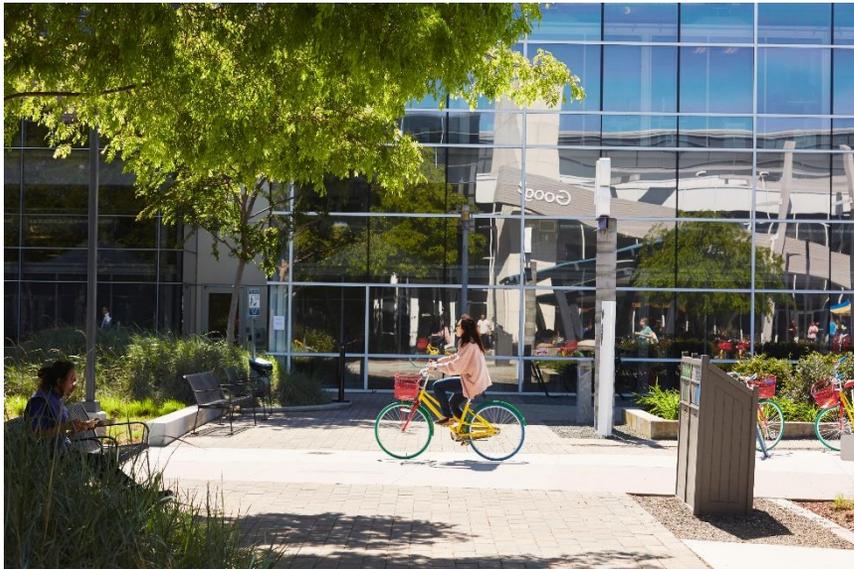
18. November 2024

# Daten als Startpunkt für People Analytics



## Was macht eine gute Führungskraft aus?

Data-Mining von performance evaluations, feedback questionnaires, awards, ...

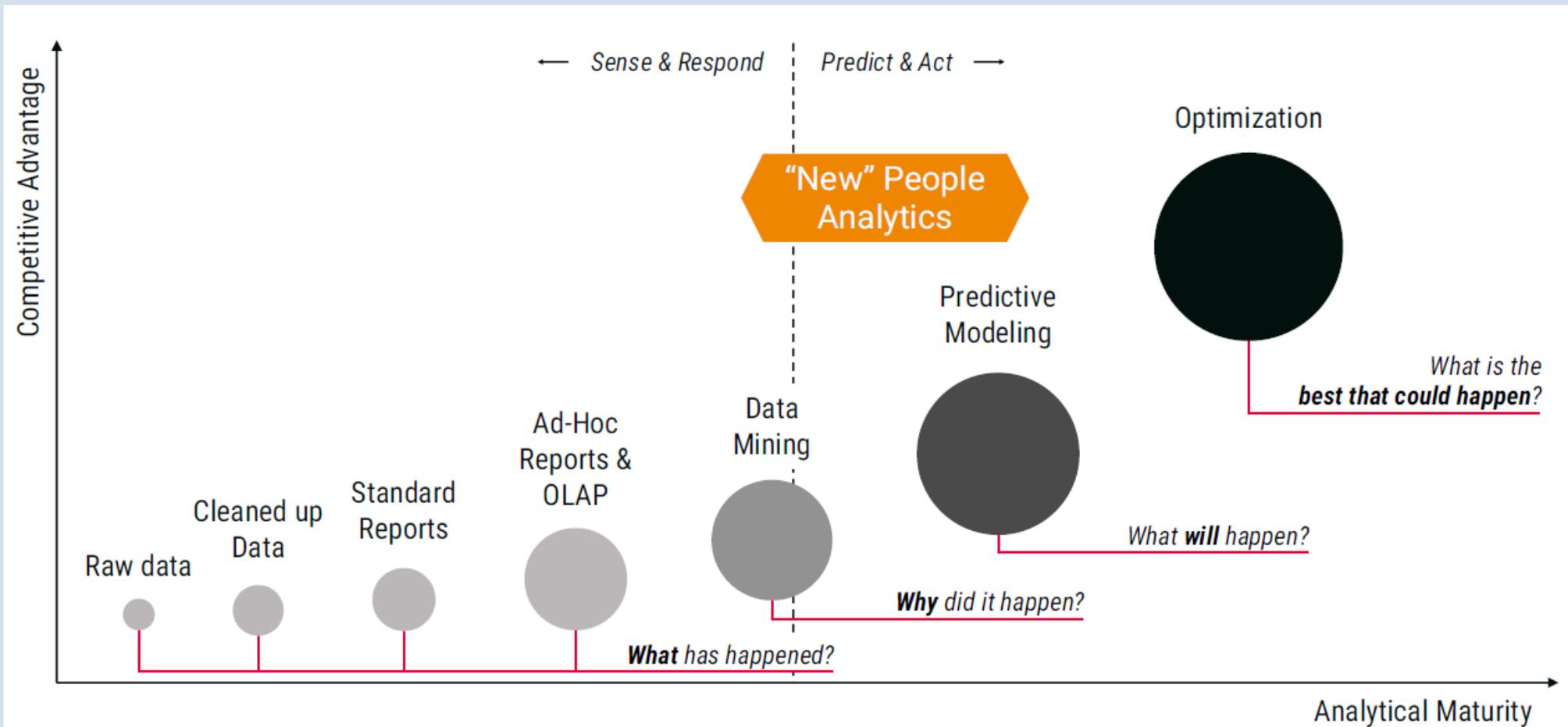


Source: Google.

## Ten good behaviors (Oxygen 10)

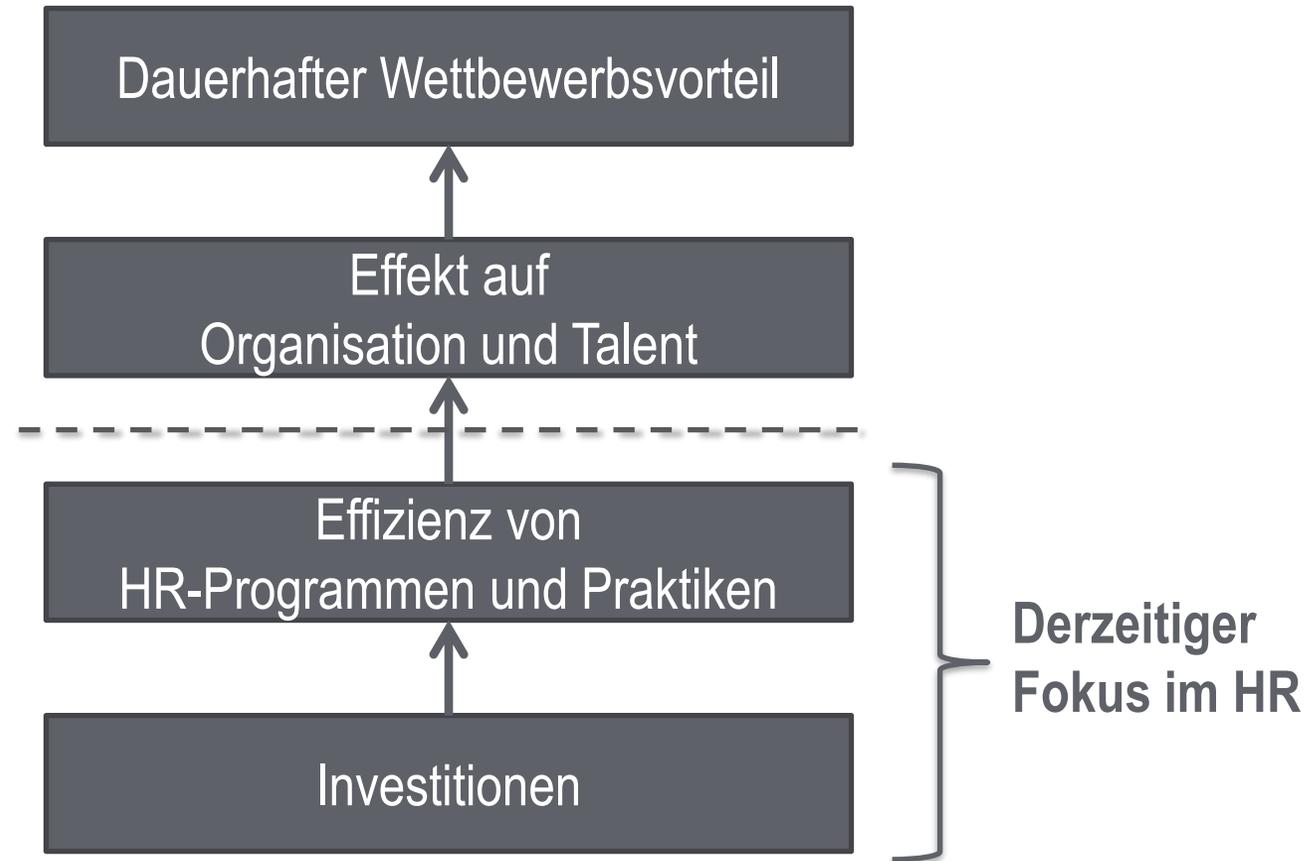
- # 1 Is a good coach
- # 2 Empowers team and does not micromanage
- # 3 Creates an inclusive team environment, showing concern for success and well-being
- # 4 Is productive and results-oriented
- # 5 Is a good communicator — listens and shares information
- # 6 Supports career development and discusses performance
- # 7 Has a clear vision/strategy for the team
- # 8 Has key technical skills to help advise the team
- # 9 Collaborates across Google
- # 10 Is a strong decision maker

# People Analytics: Degrees of analytical maturity



Source: SAP

# Was können Big Data und People Analytics leisten?



# How People Analytics can be used in organizations

## Some examples



### Recruitment, Selection, & Onboarding

What are the most effective recruiting channels?  
How to select high performers?

### Strategic Workforce Planning

Where do we expect shortages?  
How can we increase the number of female leaders?

### Performance Management

How can we increase employee performance?  
Which compensation packages are most effective for leaders and employees?



### Training & Development

Are our trainings effective?  
Who should receive a training?

### Absenteeism

Is absenteeism a problem?  
What are reasons for absenteeism and how can we reduce it?

### Leadership

What are characteristics of a good leader?  
How can we train leaders effectively?



### Engagement

How can we improve employee engagement?  
Is engagement linked to performance and employee turnover?

### Employee Turnover

Why do employees leave the organization?  
What are effective measures to reduce employee turnover?

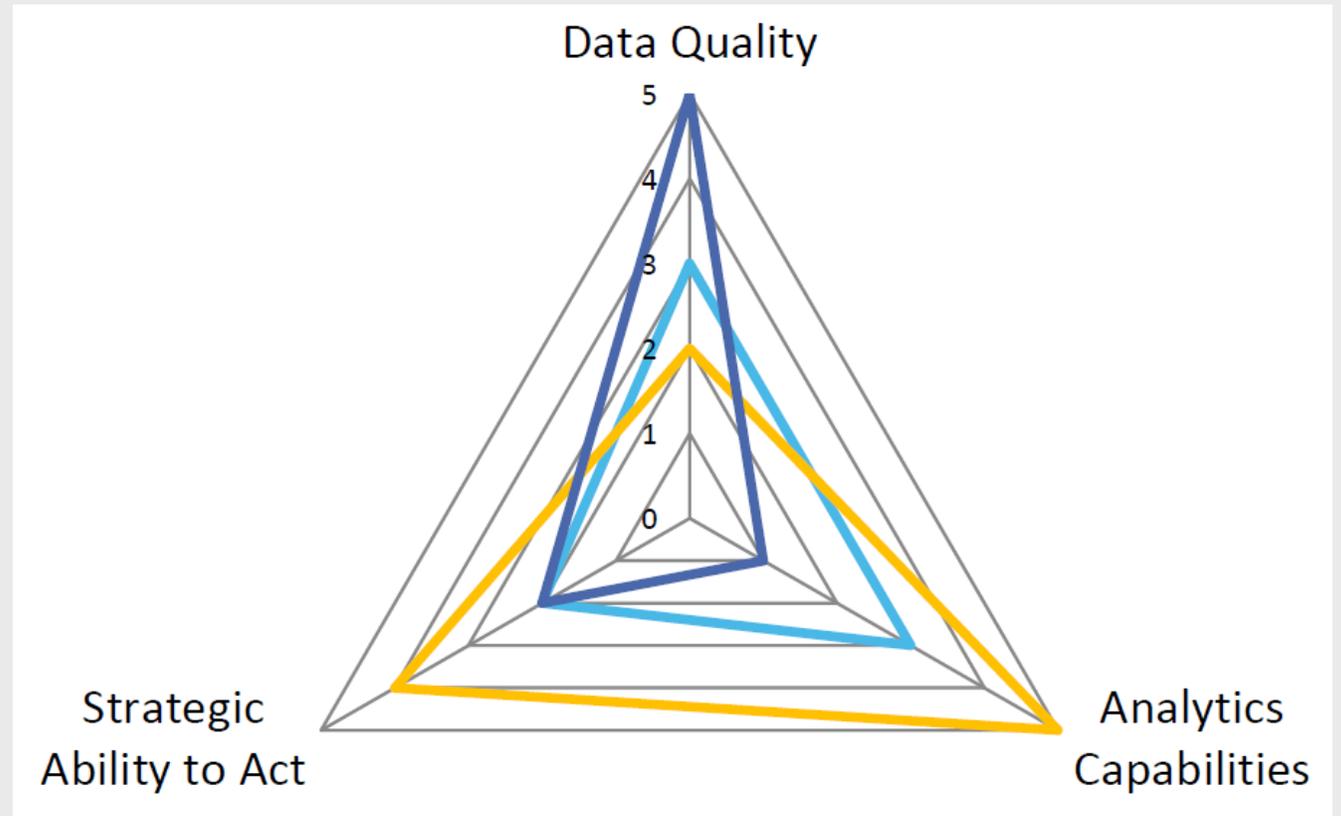
### Health & Work-Life Balance

What are effective ways to improve our employees' health?  
Are work-family conflicts a problem?



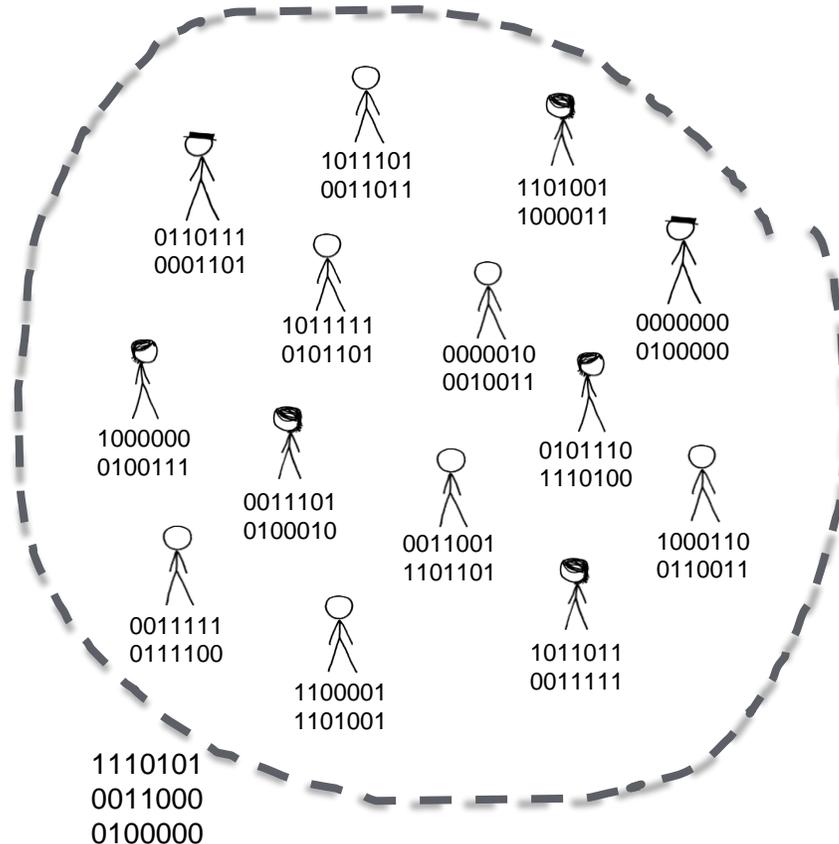
# Organizational Capabilities for People Analytics

- **Data quality**
  - Quality, availability, and quantity of HR data in your company
- **Analytics capabilities**
  - Your statistical skills and those of your team, your abilities and those of your team to visualize and communicate the results
- **Strategic ability to act**
  - Whether top management supports people analytics projects and whether the results of such projects are used for change management



Human Capital Analytics Group, 2016  
Hamilton & Sodeman, 2020

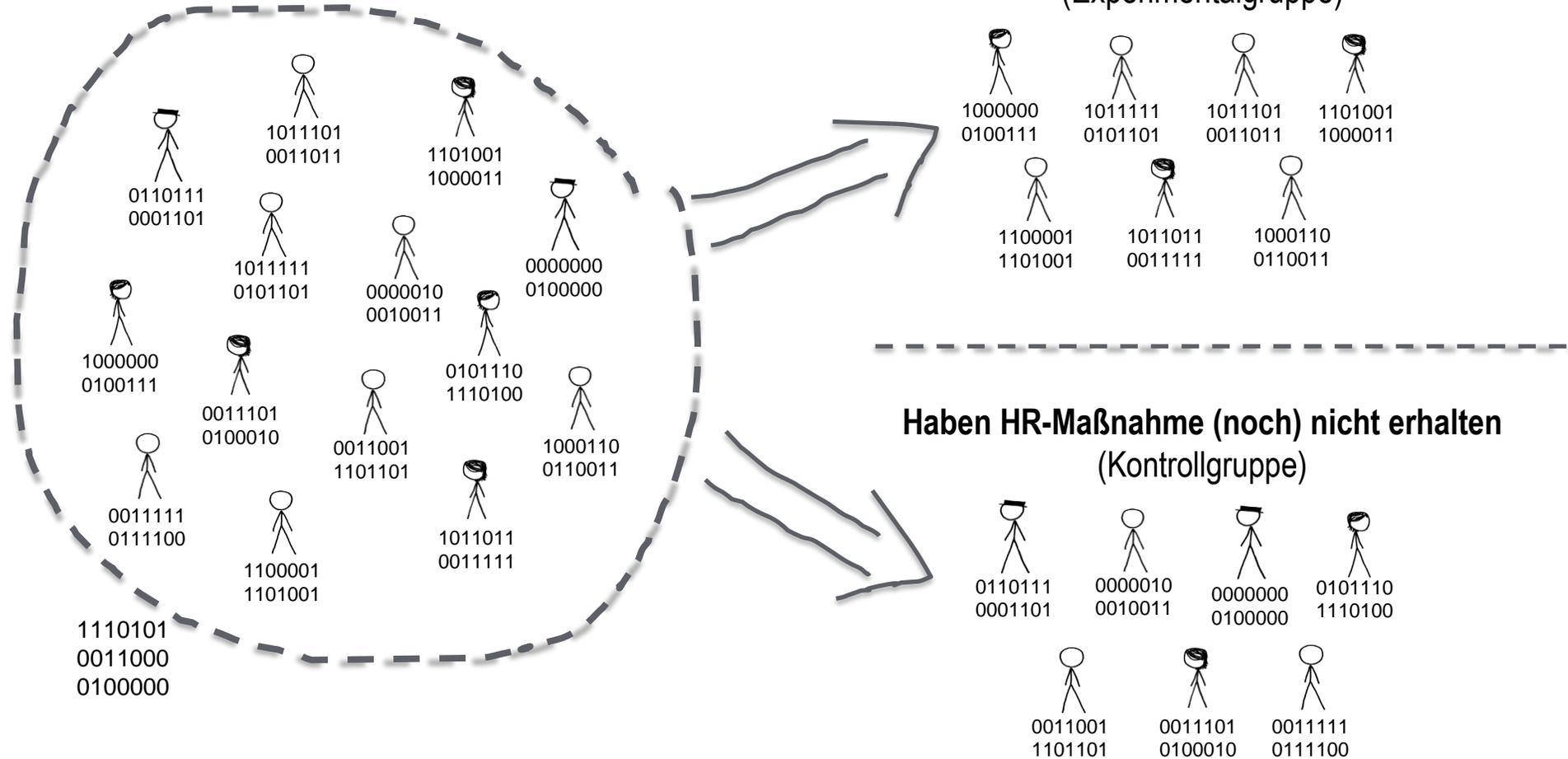
# Wie kann HR Analytics genutzt werden?



## Zwei zentrale Fragestellungen:

1. Welche HR-Maßnahme für welche Mitarbeiter?
2. Wirkt eine HR-Maßnahme?

# Mit People Analytics kann getestet werden, ob eine HR-Maßnahme wirksam ist



# Beispiel: Evaluation von Shopfloor Meetings



- In 2013 Einführung von Shopfloor Meetings
- **Tägliche Meetings, ca. 15 Minuten**
- **Teamleiter und ein weiteres Mitglied aus jedem Team**
- **Fragestellung:** Erhöhen diese Meetings die Produktivität?
- **Vorgehen:** Vergleich der Produktivität aller Teams vor und nach der Einführung von Shopfloor Meetings
- **Nutzung von Zahlen zur Produktivitätsentwicklung ab 2005**
- **Keine gleichzeitige Einführung im gesamten Unternehmen**

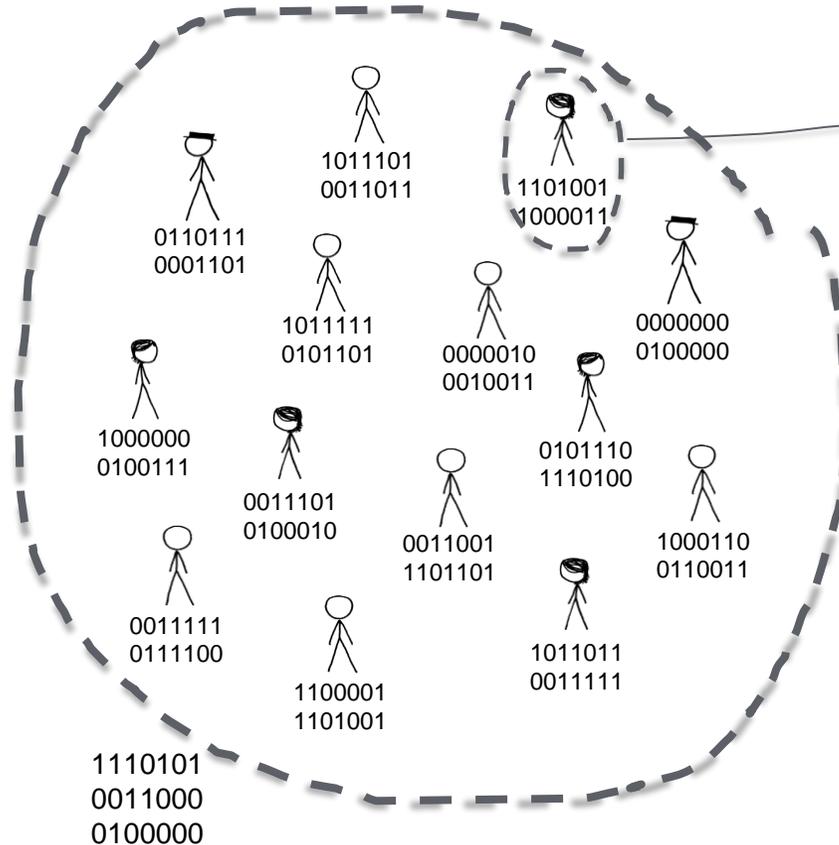


**JOHN DEERE**



Beispiel für ein Shopfloor Meeting [aus anderem Unternehmen] <http://www.staufen.ag/uploads/media/pict-mission.jpg>

# Mit HR Analytics können Mitarbeiter identifiziert werden, die eine HR-Maßnahme bekommen sollen



## Sollen Mitarbeiter eine HR-Maßnahme erhalten

weil bestimmte Charakteristika vorhanden sind? z.B.:

- Aufnahme in Talent-Pool
- Bonus
- Trainingsmaßnahme
- ...

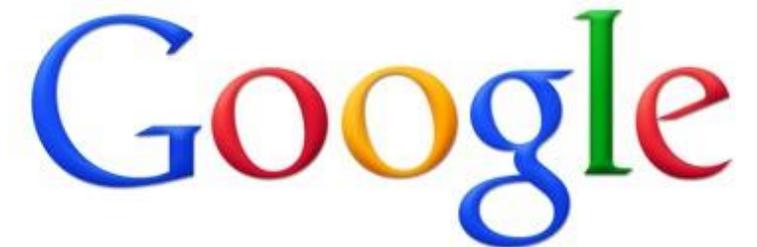
# Beförderungsentscheidungen bei Google

- Vorher: Mittleres / Topmanagement trifft sich zweimal pro Jahr
- **Diskussionen über Beförderungen in Kleingruppen**
- People-Analytics-Team: Können wir diesen Prozess effizienter machen?
- Datenbasiertes Modell für Beförderungsentscheidungen:

$$Odds = e^{-22.216 + (5.227 * AvrgPerf) + (2.732 * MgrRecom) + (0.971 * SelfRecom)}$$

$$Probability(\%) = \frac{Odds}{1 + Odds}$$

- Modell hatte eine hohe Genauigkeit, aber Manager argumentierten:  
„People should make people decisions“



# Algorithmus versus Experte

|               | N<br>(Stichprobengröße) | K<br>(Anzahl Studien) | $r_{\text{Algorithmus}}$ | $r_{\text{Experten}}$ |
|---------------|-------------------------|-----------------------|--------------------------|-----------------------|
| Leistung      | ca. 1200                | 9                     | <b>0.40</b>              | <b>0.28</b>           |
| Beförderungen | 683                     | 5                     | <b>0.36</b>              | <b>0.36</b>           |
| Training      | 188                     | 2                     | <b>0.31</b>              | <b>0.16</b>           |

101010001  
0101010  
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vs.



- “In hiring, Algorithms beat instinct.” (Kuncel, Ones, & Klieger, 2014, Harvard Business Review)
- Ähnliche Ergebnisse für andere diagnostische Entscheidungen

Kuncel, N. R., Klieger, D. M., Connelly, B. S., & Ones, D. S. (2013). Mechanical versus clinical data combination in selection and admissions decisions: A meta-analysis. *Journal of Applied Psychology*, 98(6), 1060.

- Projekt in Zusammenarbeit mit dem Personalmagazin, Prof. Heiko Weckmüller (Hochschule Koblenz) und Prof. Friedemann Kainer (Universität Mannheim)
- Online-Fragebogen mit sechs Modulen, darunter „empirische Evidenz“
- Teilnehmer waren mehr als 500 HR-Manager

## Der große HR-Wissenstest

erstellt von Prof. Dr. Torsten Biemann, Prof. Dr. Heiko Weckmüller und Prof. Dr. Friedemann Kainer

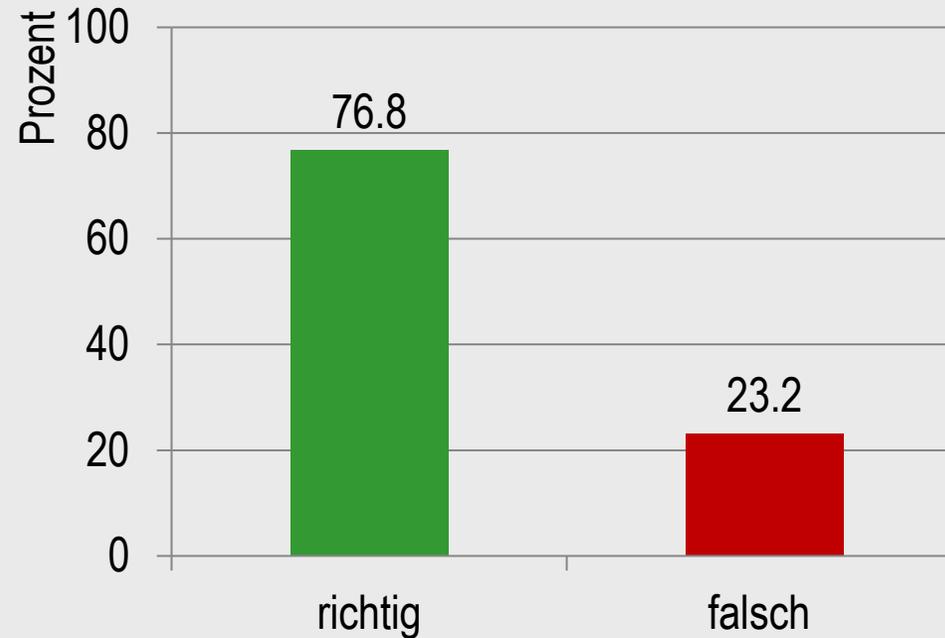


in Zusammenarbeit mit:

personal.  
magazin



“Arbeitnehmer der Generation Y haben grundlegend andere arbeitsbezogene Einstellungen und Wertvorstellungen als Arbeitnehmer der Vorgängergeneration.”



➤ **Generations:**

- Baby Boomer (1955-1964)
- Generation X (GenX; 1965-1981)
- Generation Y (GenY; 1982-1999)

➤ **Study on changing work values:**

- Extrinsic rewards
- Intrinsic rewards
- Altruistic motives
- Leisure orientation

## GENERATION



Twenge et al. (2010)

# Arbeitsbezogene Wertvorstellungen haben sich kaum verändert

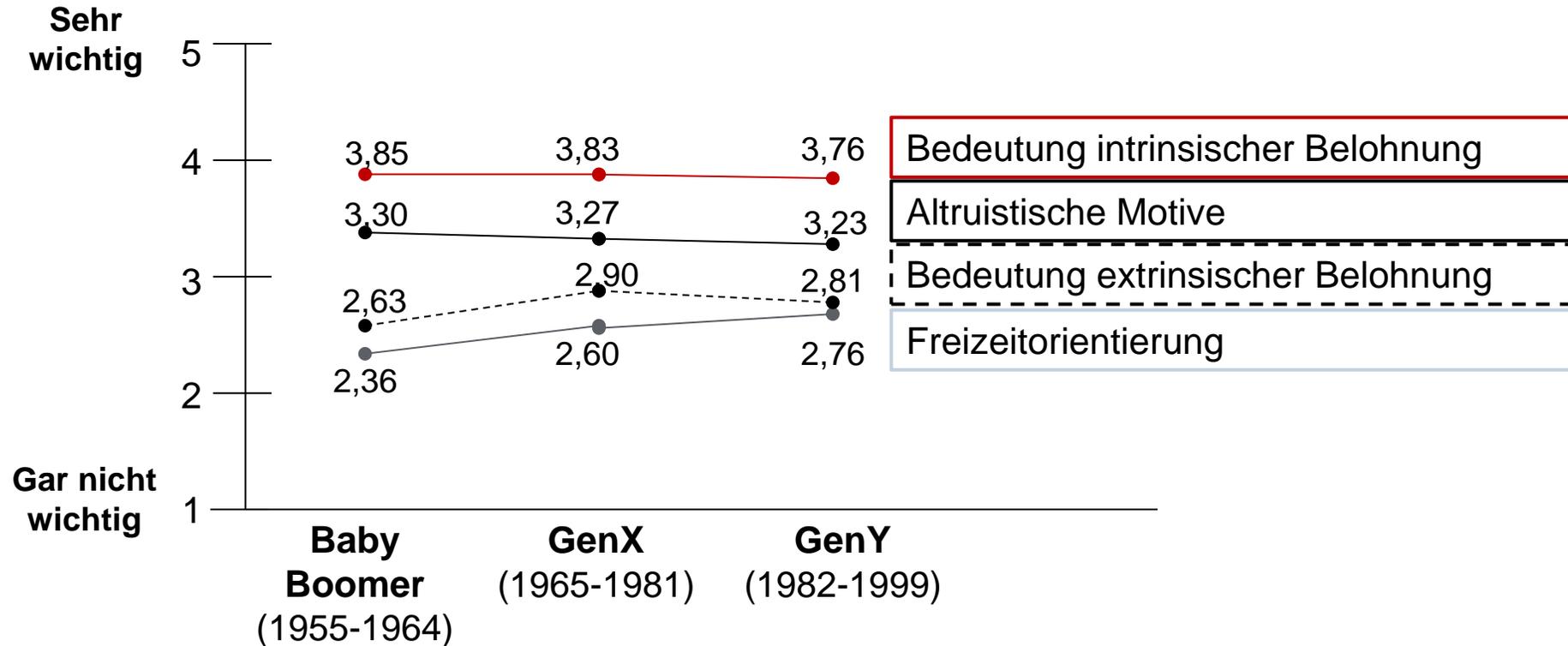


Abbildung: Biemann/Weckmüller (2013), basierend auf Daten in Twenge et al. (2010): 1127-1129 (Tabelle 1)

# Generationsunterschiede: Ein paar ergänzende Befunde

Zabel et al. (2017), **Generational differences in work ethic: Fact or fiction?** *Journal of Business and Psychology*, 32(3), 301-315.

- Meta-Analyse mit 105 Studien
- “... found no effect of generational cohort on work ethic endorsement.”

Wetzel et al. (2017), **The narcissism epidemic is dead; long live the narcissism epidemic**, *Psychological Science*

- Analyse von drei Kohorten Studierender (1990er: N = 1 166; 2000er: N = 33 647; 2010er: N = 25 412)
  - › Messung über NPI:
    - „Ich wünschte, jemand würde eines Tages meine Biografie schreiben.“
    - „Es fällt mir leicht, andere zu manipulieren.“
- “... small *decline* in overall narcissism levels from the 1990s to the 2010s”

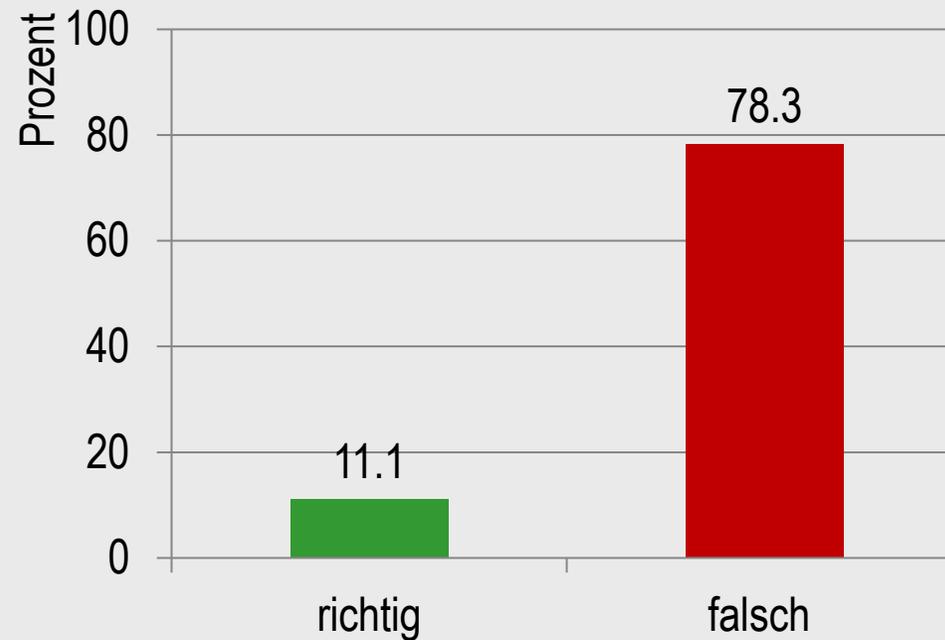
Die Jugend von heute liebt den Luxus, hat schlechte Manieren und verachtet die Autorität. Sie widersprechen ihren Eltern, legen die Beine übereinander und tyrannisieren ihre Lehrer.

(Sokrates zugeschrieben, 470-399 v.Chr.)

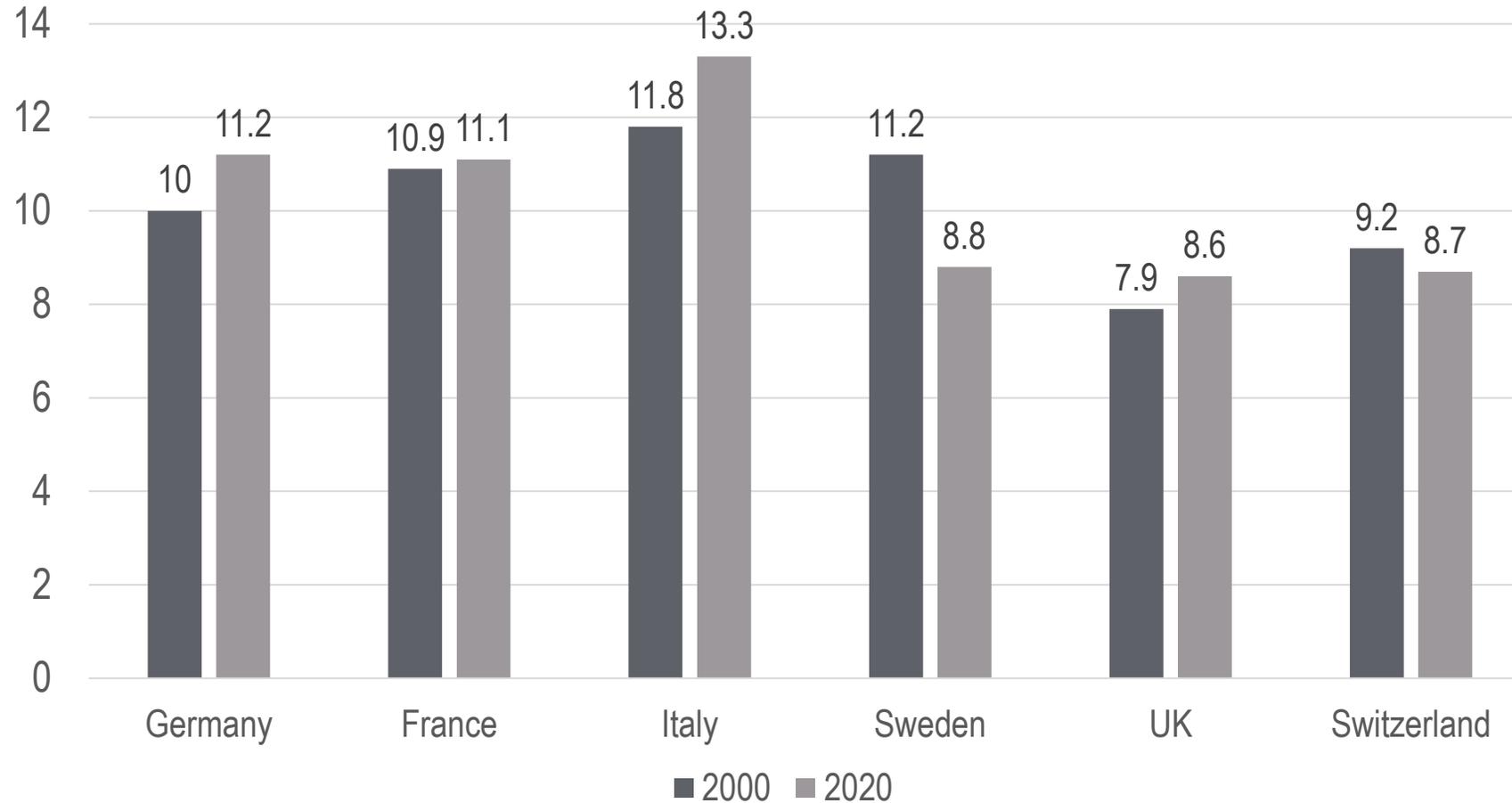


Im Bild: ein anderer Sokrates

“Die Stabilität von Beschäftigungsverhältnissen (gemessen als Dauer der Betriebszugehörigkeit) hat sich in den letzten 20 Jahren kaum verändert.”



# Average number of years an employee stays in an organization

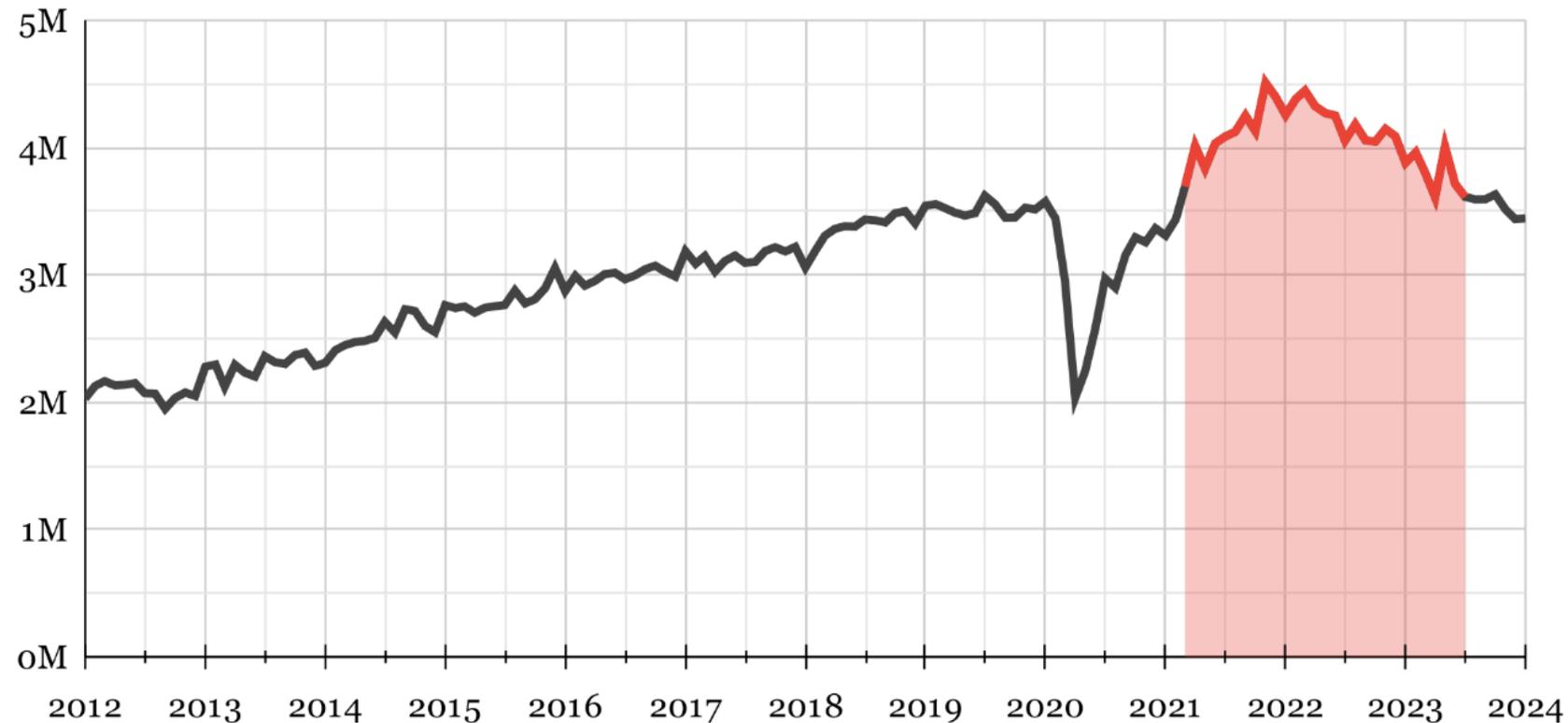


Source: [https://stats.oecd.org/Index.aspx?DataSetCode=TENURE\\_AVE](https://stats.oecd.org/Index.aspx?DataSetCode=TENURE_AVE)

# Unternehmenswechsel nach Corona – The Great Resignation?

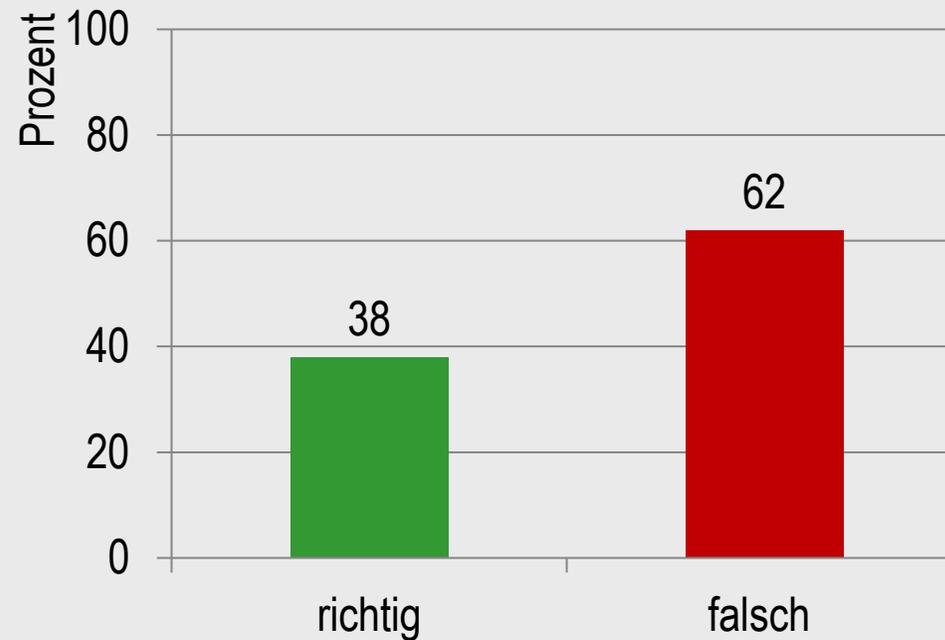
## Monthly quits in the United States

January 2012 to January 2024

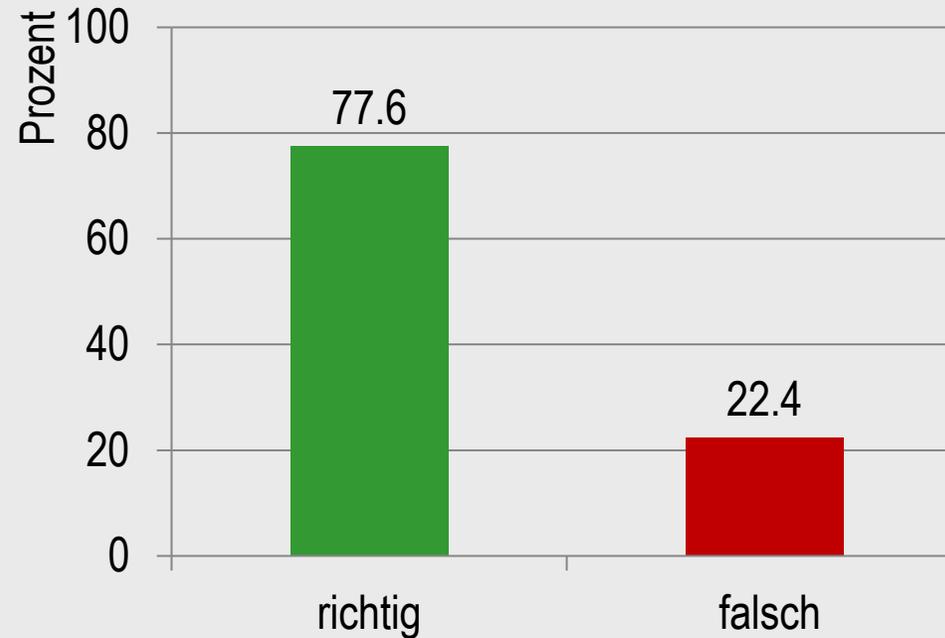


[https://en.wikipedia.org/wiki/Great\\_Resignation](https://en.wikipedia.org/wiki/Great_Resignation)

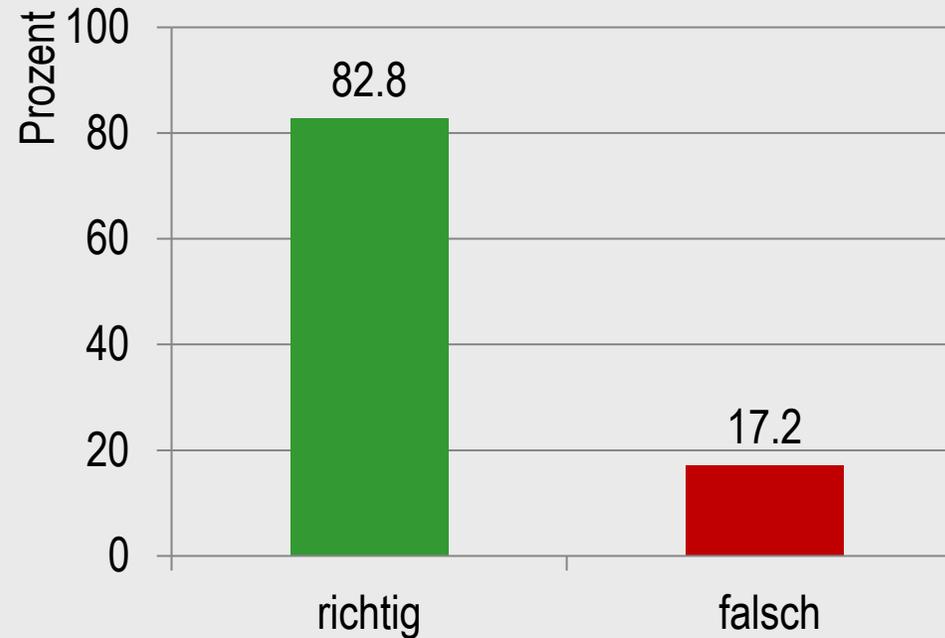
“Im Durchschnitt sind allgemeine Intelligenztests zur Personalauswahl sehr gut geeignet, um den späteren Berufserfolg zu prognostizieren.”



“Heterogene Teams mit Männern und Frauen haben eine höhere Teamleistung als homogene Teams (nur Männer oder nur Frauen).”

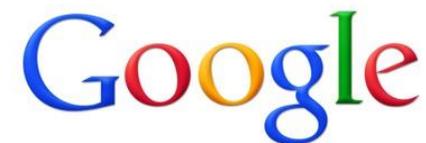


# „Es besteht ein sehr starker Zusammenhang zwischen Mitarbeiterzufriedenheit und Leistung.“

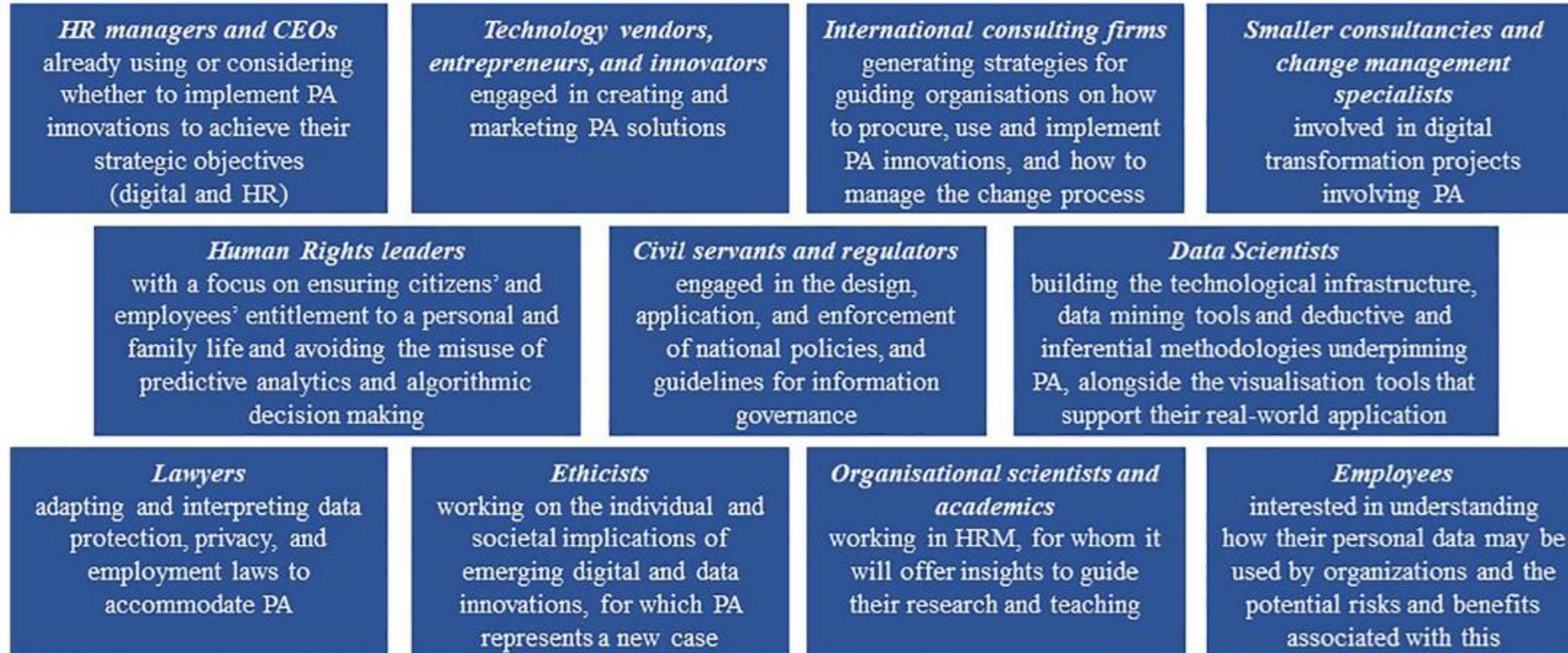


“Whenever we are faced with a new people issue at Google now, we don’t ask ourselves, what does successful organization X do, instead we ask ourselves **what does the literature say?**”

Prasad Setty  
Vice President People Operations



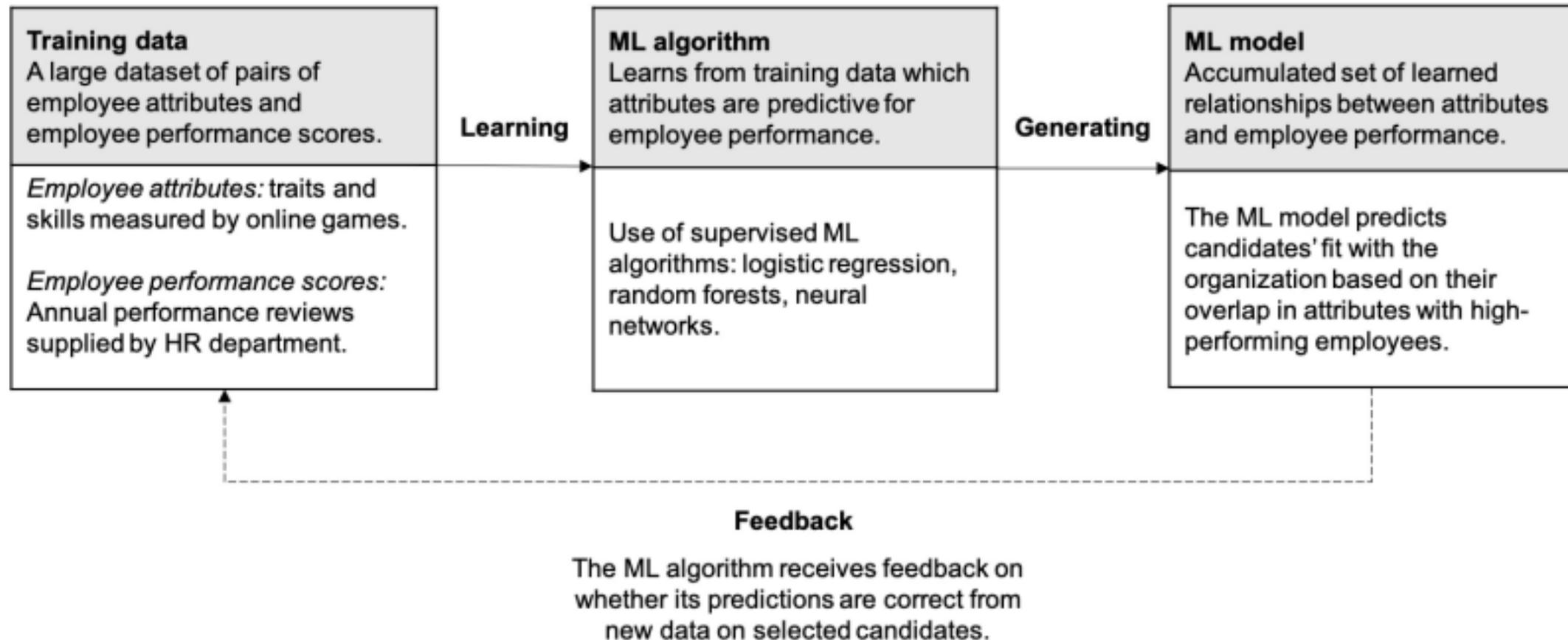
# Key stakeholder groups in PA



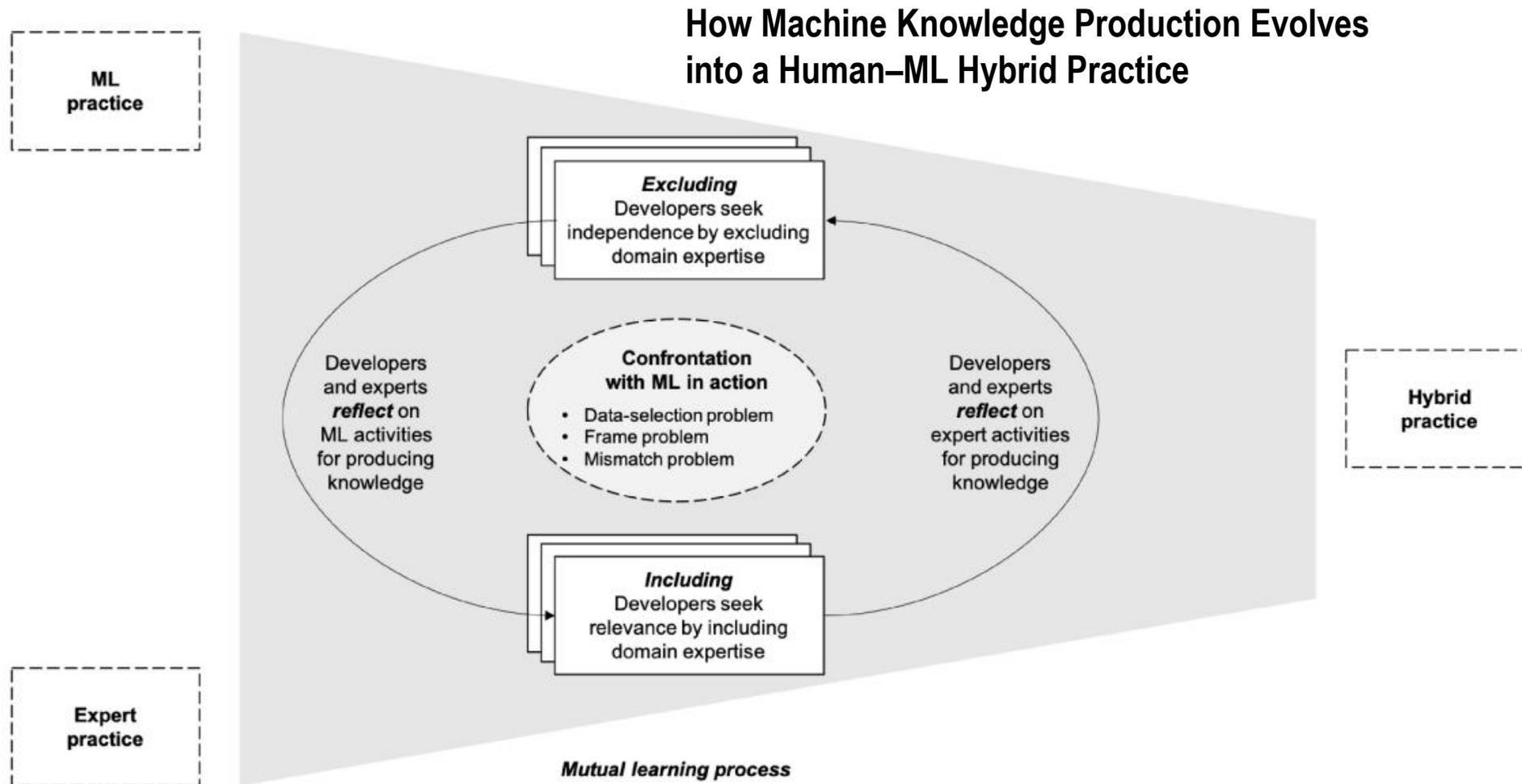
Tursunbayeva, A., Pagliari, C., Di Lauro, S., & Antonelli, G. (2022). The ethics of people analytics: risks, opportunities and recommendations. *Personnel Review*, 51(3), 900-921.

# Example PA ownership: ML System for Hiring (1/2)

ML = machine learning

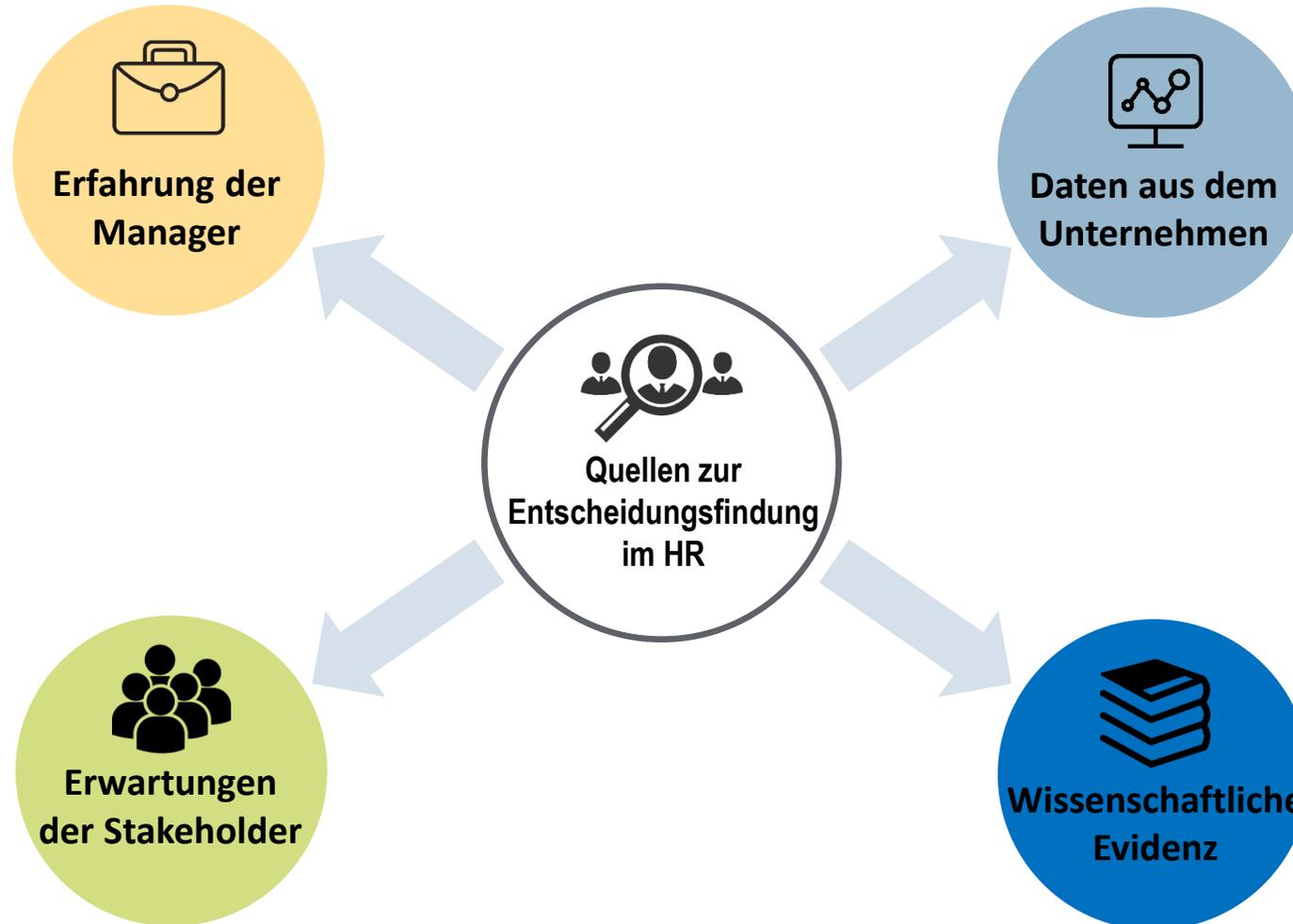


van den Broek, E., Sergeeva, A., & Huysman, M. (2021). When the Machine Meets the Expert: An Ethnography of Developing AI for Hiring. *MIS quarterly*, 45(3).



van den Broek et al. (2021)

# Evidence-Based Management: Quellen zur Entscheidungsfindung im HR

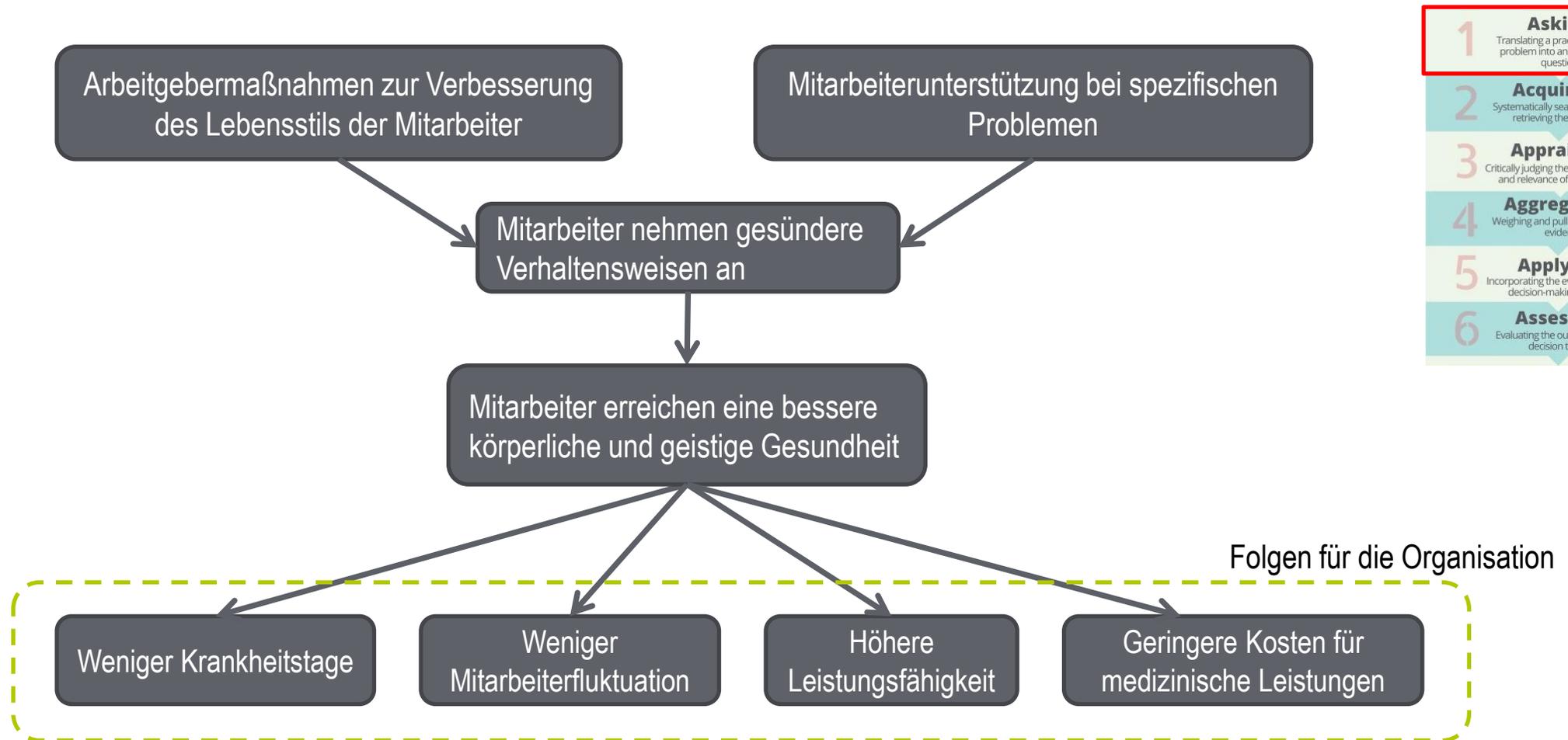


# Vorgehen beim Evidence-based Management



<https://scienceforwork.com/blog/evidence-based-management-training/>

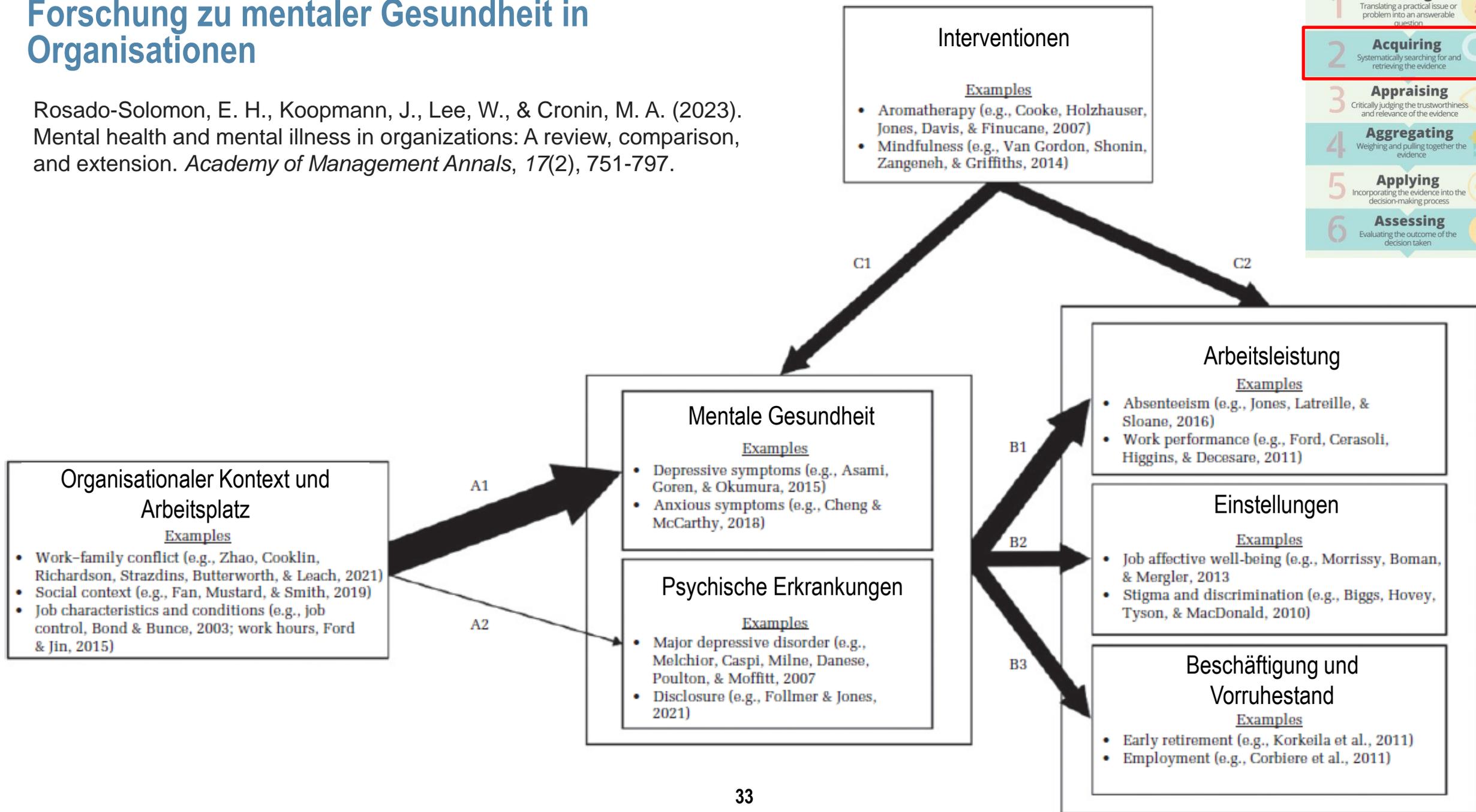
# Mentale Gesundheit der Mitarbeiter hat positive Folgen für die Organisation



- 1 Asking**  Translating a practical issue or problem into an answerable question
- 2 Acquiring**  Systematically searching for and retrieving the evidence
- 3 Appraising**  Critically judging the trustworthiness and relevance of the evidence
- 4 Aggregating**  Weighing and pulling together the evidence
- 5 Applying**  Incorporating the evidence into the decision-making process
- 6 Assessing**  Evaluating the outcome of the decision taken

# Forschung zu mentaler Gesundheit in Organisationen

Rosado-Solomon, E. H., Koopmann, J., Lee, W., & Cronin, M. A. (2023). Mental health and mental illness in organizations: A review, comparison, and extension. *Academy of Management Annals*, 17(2), 751-797.



# Example: Workplace interventions for common mental disorders: a systematic meta-review (Joyce et al., 2016)

Joyce, S., Modini, M., Christensen, H., Mykletun, A., Bryant, R., Mitchell, P. B., & Harvey, S. B. (2016). Workplace interventions for common mental disorders: a systematic meta-review. *Psychological medicine*, 46(4), 683-697.



| Interventions              | Symptom reduction | Occupational outcomes | Main conclusions and comments   |
|----------------------------|-------------------|-----------------------|---|
| Increased employee control | ★ ★               | ?                     | Some interventions, such as problem solving committees, stress reduction committees, self-scheduling of shifts and gradual/partial retirement appear to increase employee control and reduce mental health symptoms |
| Physical activity          | ★ ★               | ★                     | May have an effect on employee mental health but type, amount and intensity of activity required is unclear. Mixed findings regarding effect on organizational outcomes.  |
| Counselling                | ★                 | ★                     | Strong evidence of customer satisfaction, but objective evidence of benefits remain unclear. Significant methodological limitations in research   |
| Medication                 | ★ ★ ★             | ?                     | Strong evidence that medication can reduce symptoms of established depression and anxiety disorders. Inconclusive results of the effect of antidepressants on organizational outcomes for depressed workers         |

- Umbrella Review: Arbeitsbedingungen und psychische Störungen (Rugulies et al., 2023):
  - Kausaler Zusammenhang zwischen der Exposition gegenüber ungünstigen Arbeitsbedingungen und dem Risiko depressiver Störungen
  - Arbeitsbedingungen möglicherweise wichtige veränderbare Determinanten der psychischen Gesundheit
- **Filter bei der Literatursuche** (auch über Google Scholar)
  - <https://cebma.org/resources/tools/cebma-methodological-search-filters/>
- **CAT manager App**
  - <https://cebma.org/resources/tools/cat-manager-app/>

## Panel 3: Certainty of the evidence

### Factors that increase confidence in the estimates presented in the figure:

- The quality of most reviews was high, and the reviews had thoroughly examined the risk of bias in the primary studies

...

### Factors that decrease confidence in the estimates are:

- Except for workplace bullying, all pooled estimates of the association between workplace factors and risk of mental disorders were smaller than 2.0, thus residual confounding remains a concern

...



Rugulies, R., Aust, B., Greiner, B. A., Arensman, E., Kawakami, N., LaMontagne, A. D., & Madsen, I. E. (2023). Work-related causes of mental health conditions and interventions for their improvement in workplaces. *The Lancet*, 402(10410), 1368-1381.

# Evaluation

- Evaluation criterion (Kirkpatrick, 1959):
  1. Reaction (subjective assessment of satisfaction)
  2. Learning (assessment of training success)
  3. Behavioral (assessment of transfer success)
  4. Result (assessment of impact)
- **no positive relationship between reaction and other three criteria**



# Probleme und Risiken

1

## Asking

Translating a practical issue or problem into an answerable question



- Identifikation *relevanter* Probleme in der Organisation

2

## Acquiring

Systematically searching for and retrieving the evidence



- Datenschutz
- Literaturzugang und Suchstrategien

3

## Appraising

Critically judging the trustworthiness and relevance of the evidence



- Datenverfügbarkeit
- Kompetenzen bei der Datenanalyse
- „Korrelation ist nicht Kausalität“

4

## Aggregating

Weighing and pulling together the evidence



- Widerstand gegen Wandel

5

## Applying

Incorporating the evidence into the decision-making process



- Datenschutz
- Kommunikation der Ergebnisse

6

## Assessing

Evaluating the outcome of the decision taken



**Vielen Dank für die Aufmerksamkeit!**

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