

Wie KI & Co den Arbeitsplatz der Zukunft definieren

Dr. Joschka Hüllmann Assistant Professor, Universität Twente

Über mich

Dr. Joschka Hüllmann

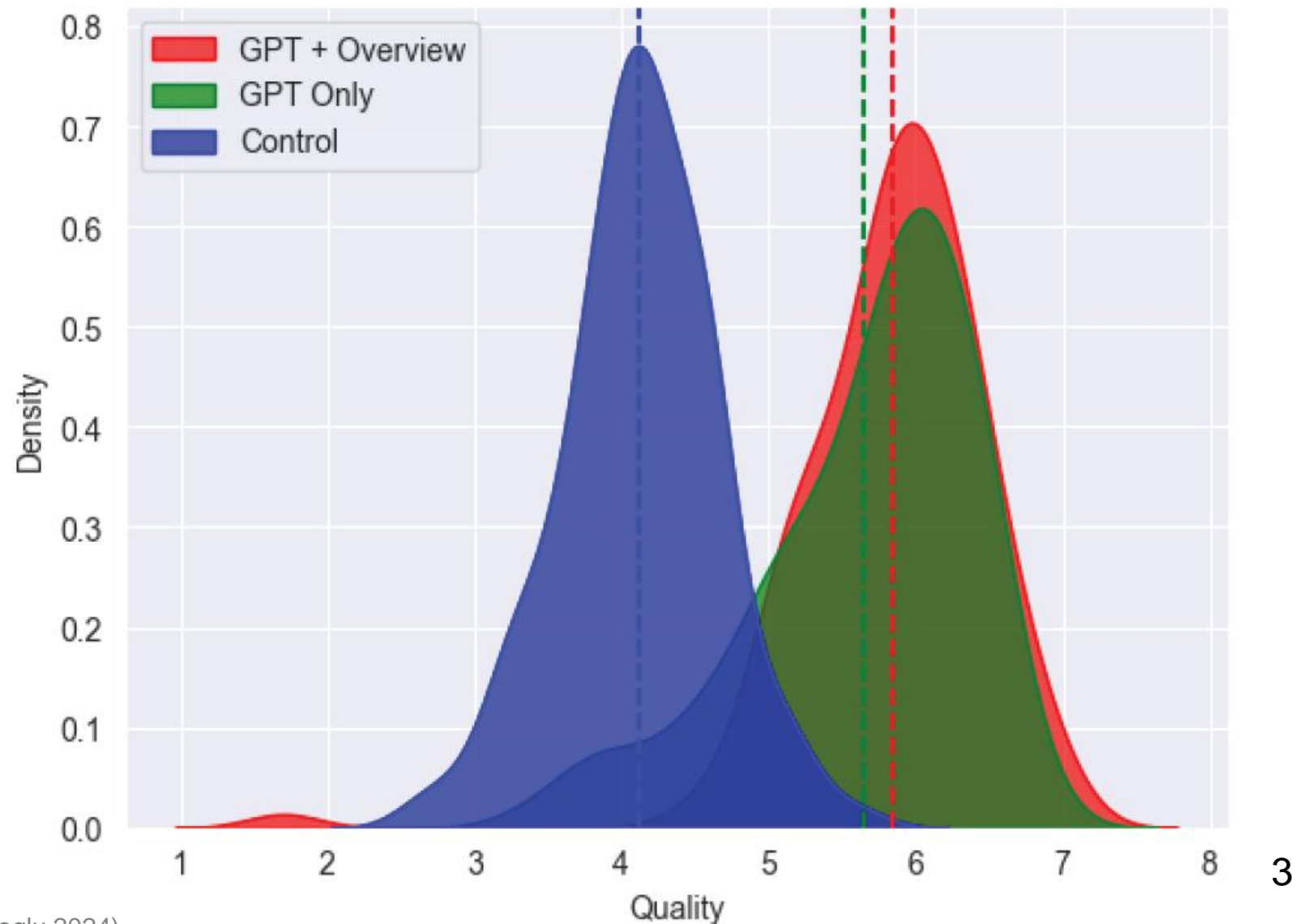
Assistant Professor an der Universität Twente (NL)

Forschungsschwerpunkte:

- Die Zukunft der Arbeit mit neuen Technologien
- People Analytics und Algorithmisches Management
- Analyse Digitaler Fußspuren
- Social Process Mining

Kontakt: www.joschka-huellmann.de

Produktivitätssteigerung in Wissensarbeit



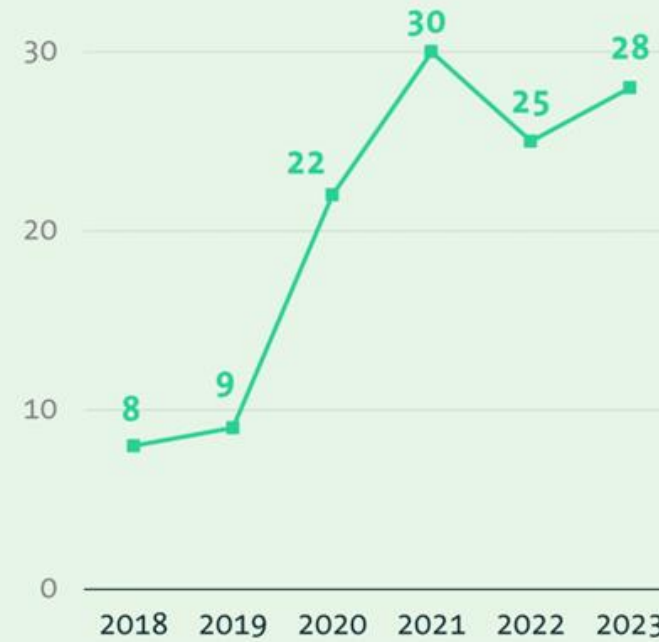
Steigender Bedarf



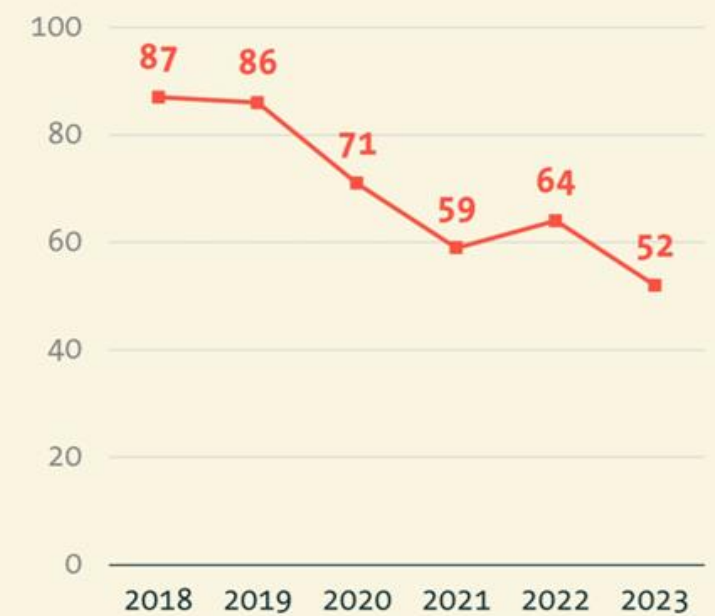
Einsatz



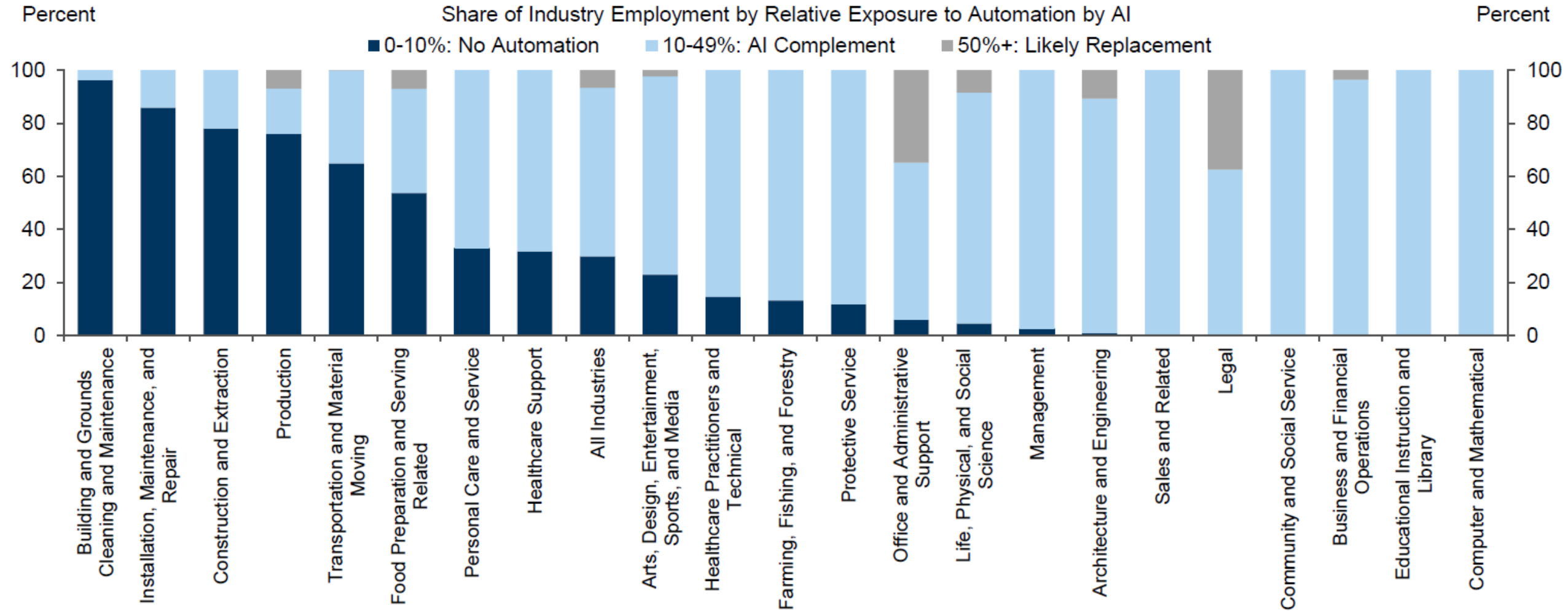
Geplant oder diskutiert



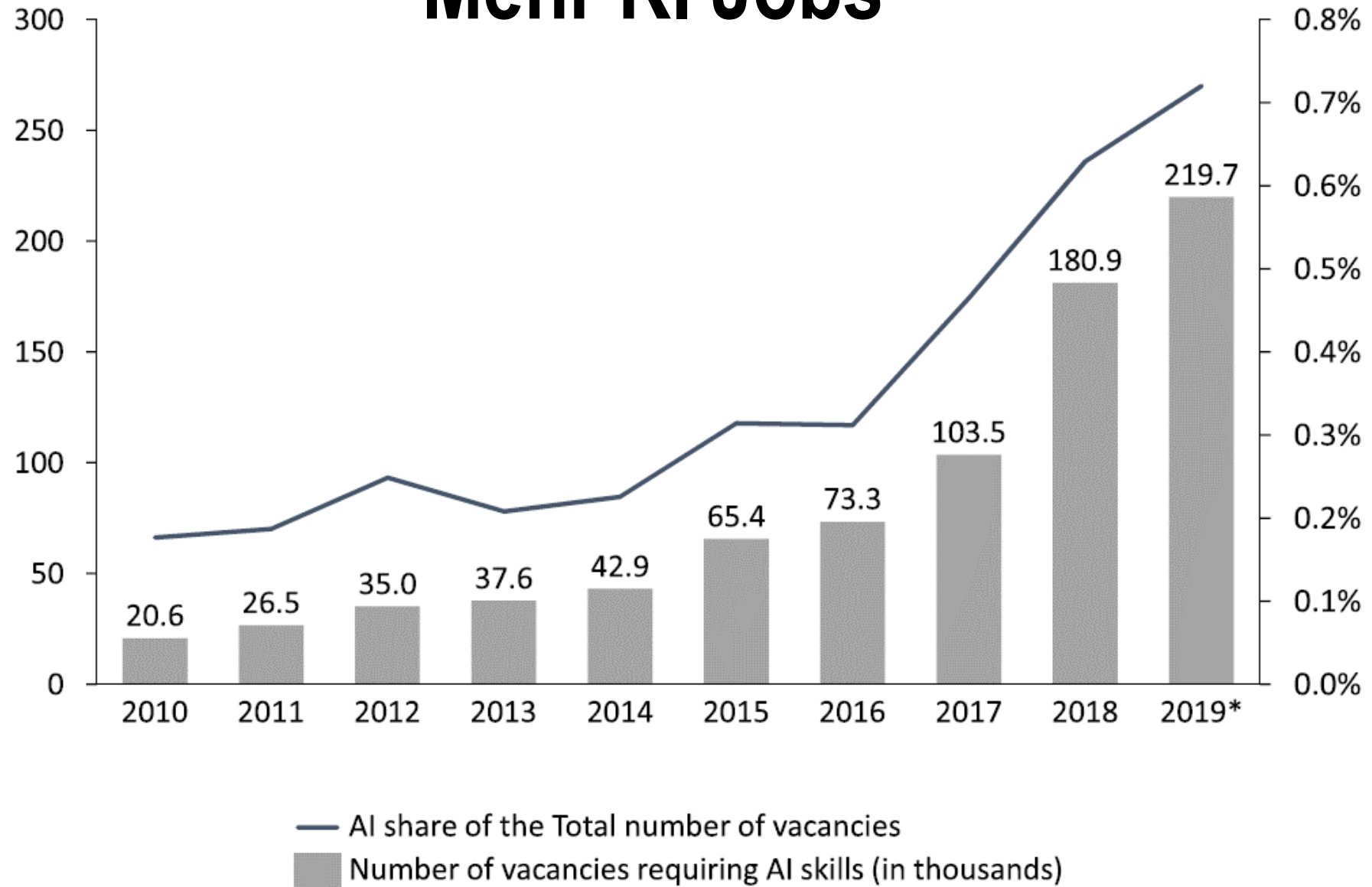
Kein Thema



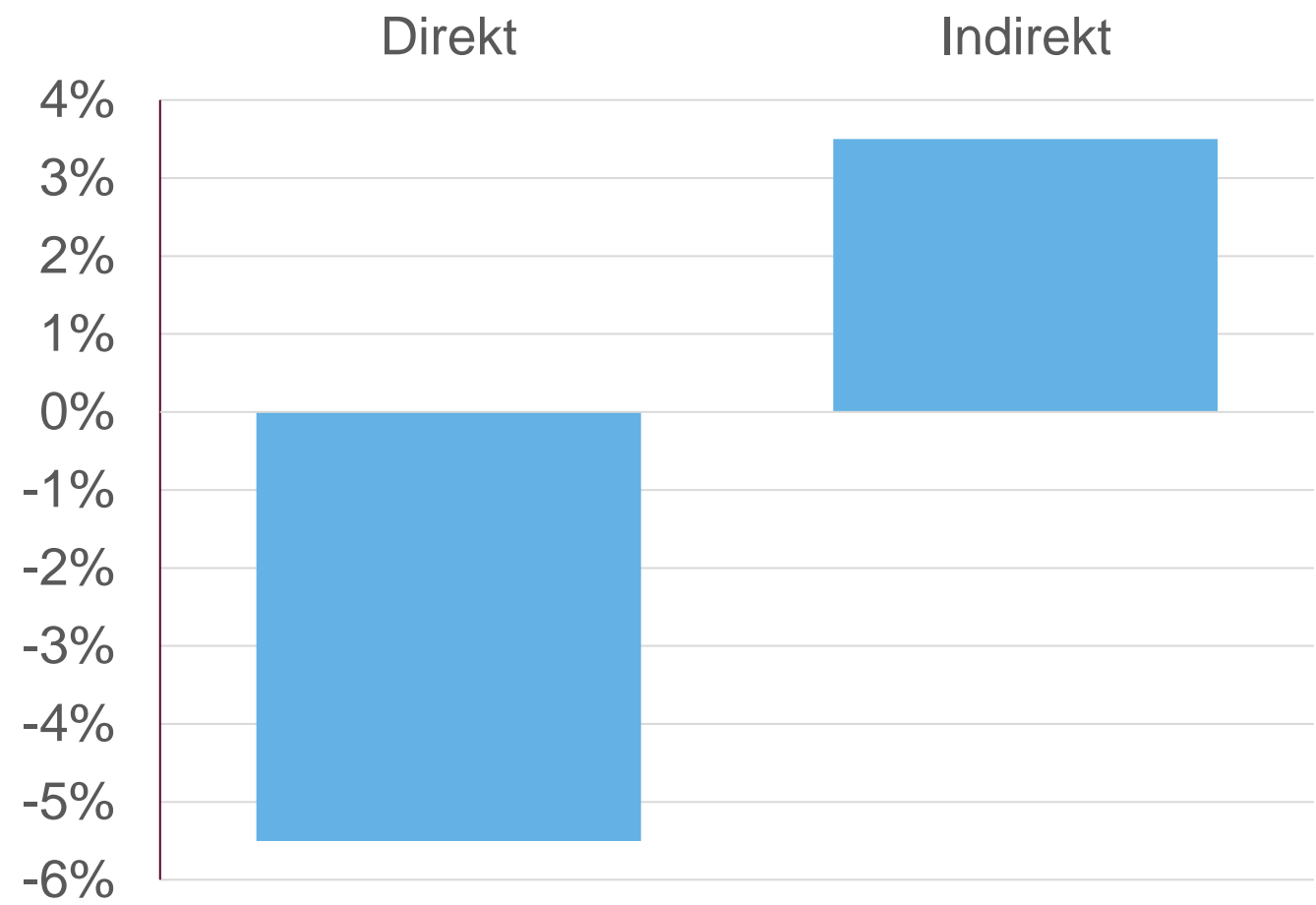
Viele Branchen sind von KI betroffen

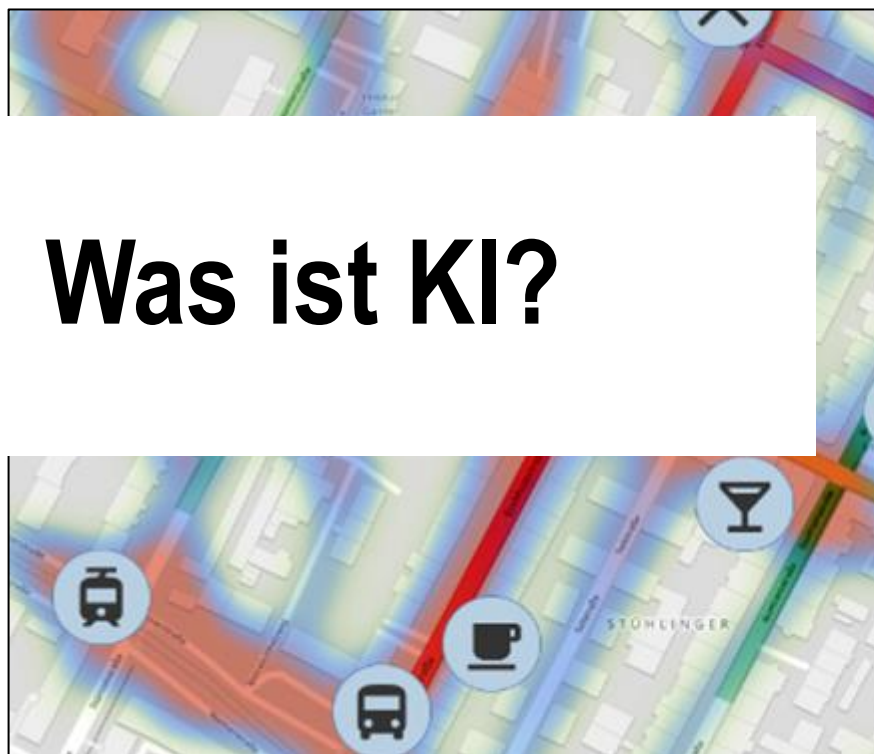
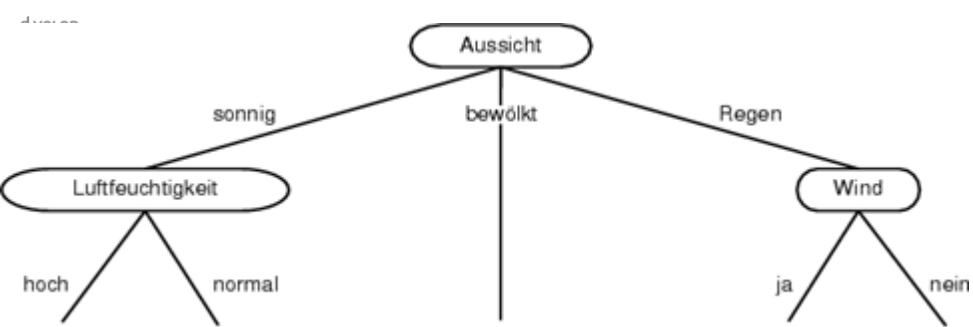


Mehr KI Jobs



Lohn Effekte





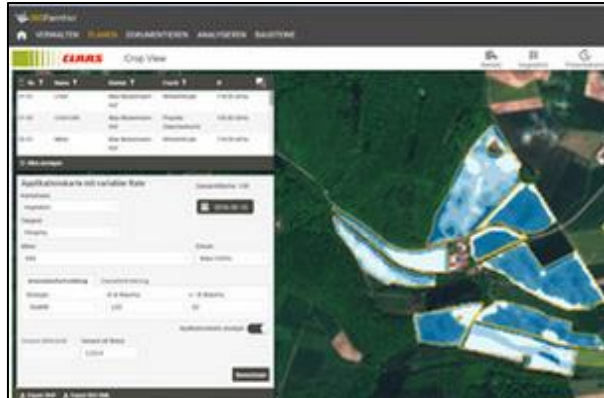
Was ist KI?



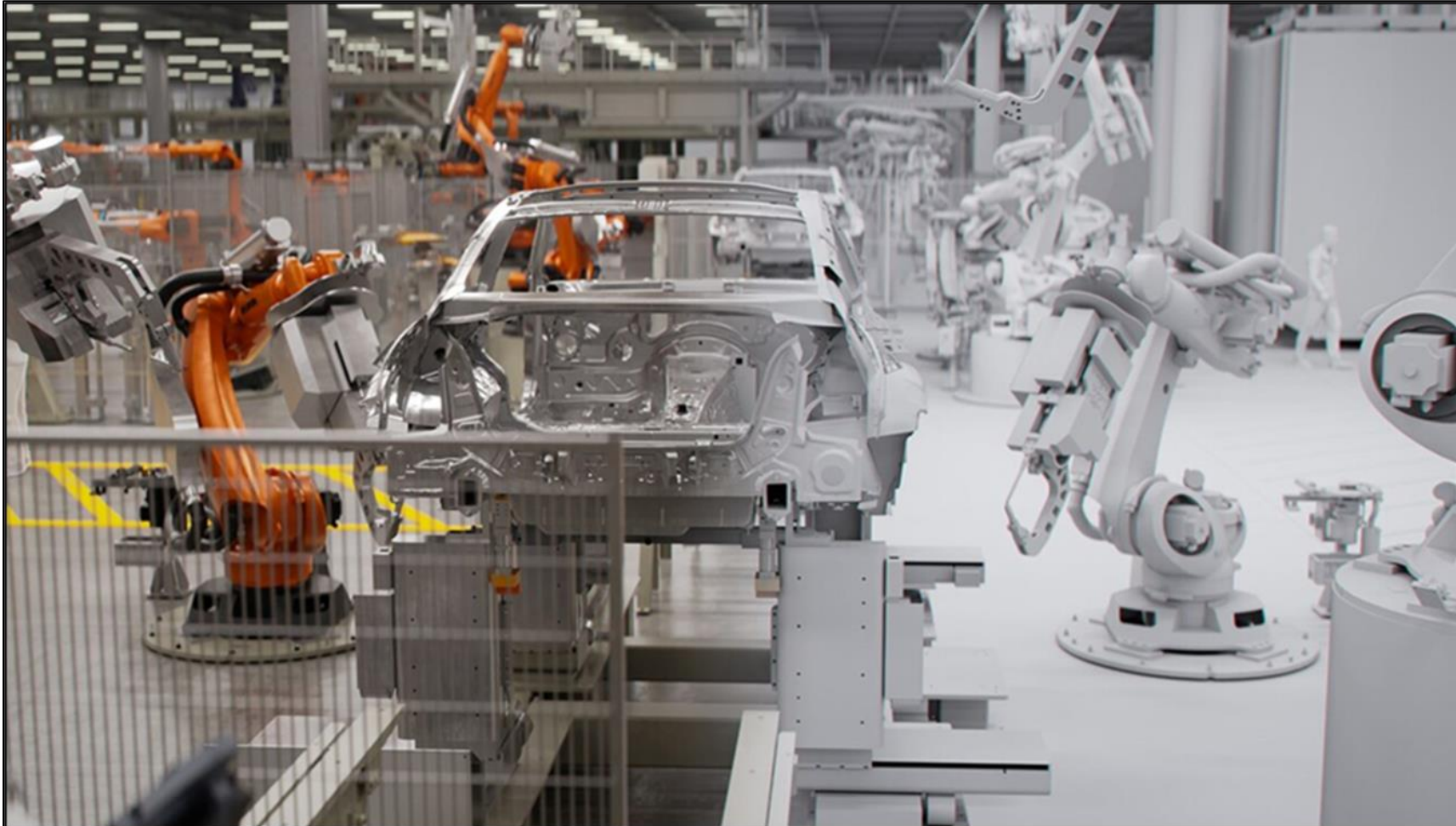


ChatGPT

Smart Farming



Smart Manufacturing



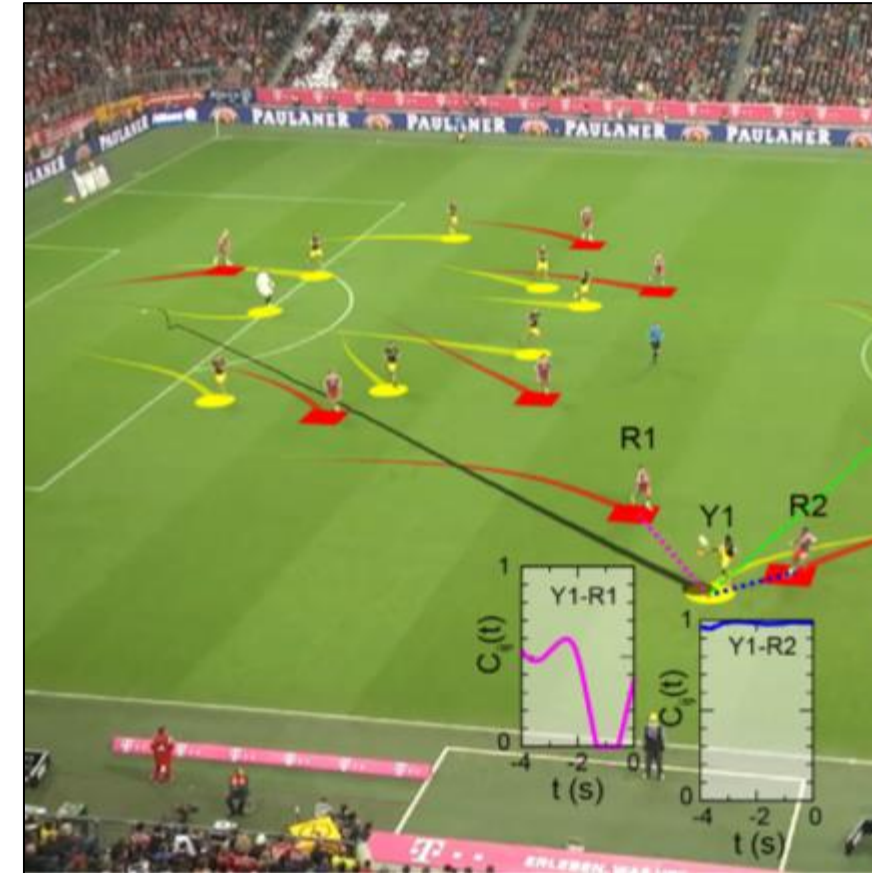
Smart Krankenhaus

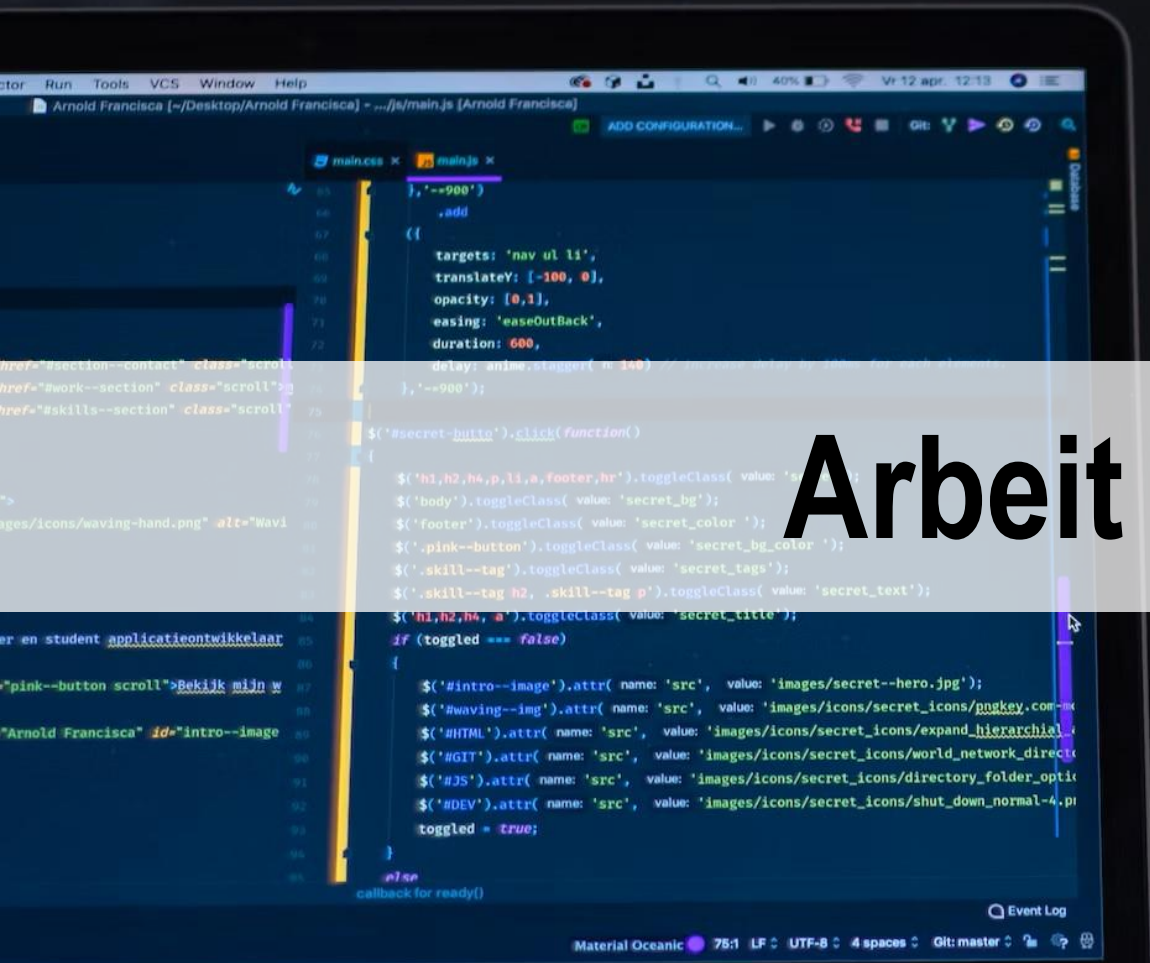


Öffentlicher Verkehr



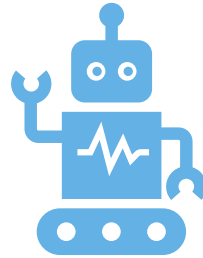
Sport-, Kunden-, People Analytics





Arbeit im Wandel.

Ist KI anders?



KI Eigenschaften

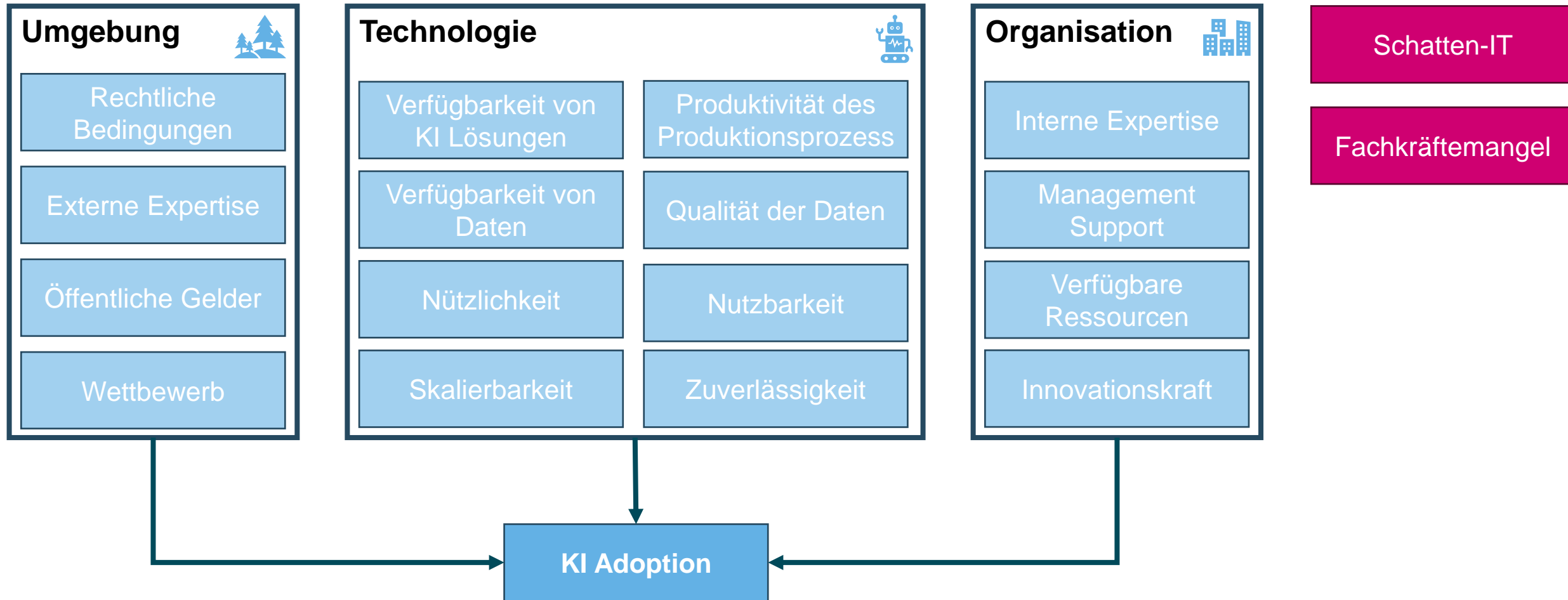
1. KI-Modelle sind eine “Blackbox”.
2. KI-Modelle haben Fehler und Unsicherheiten.
3. KI-Modelle bauen dauert lange.
4. KI-Modelle haben systematische Verzerrungen.



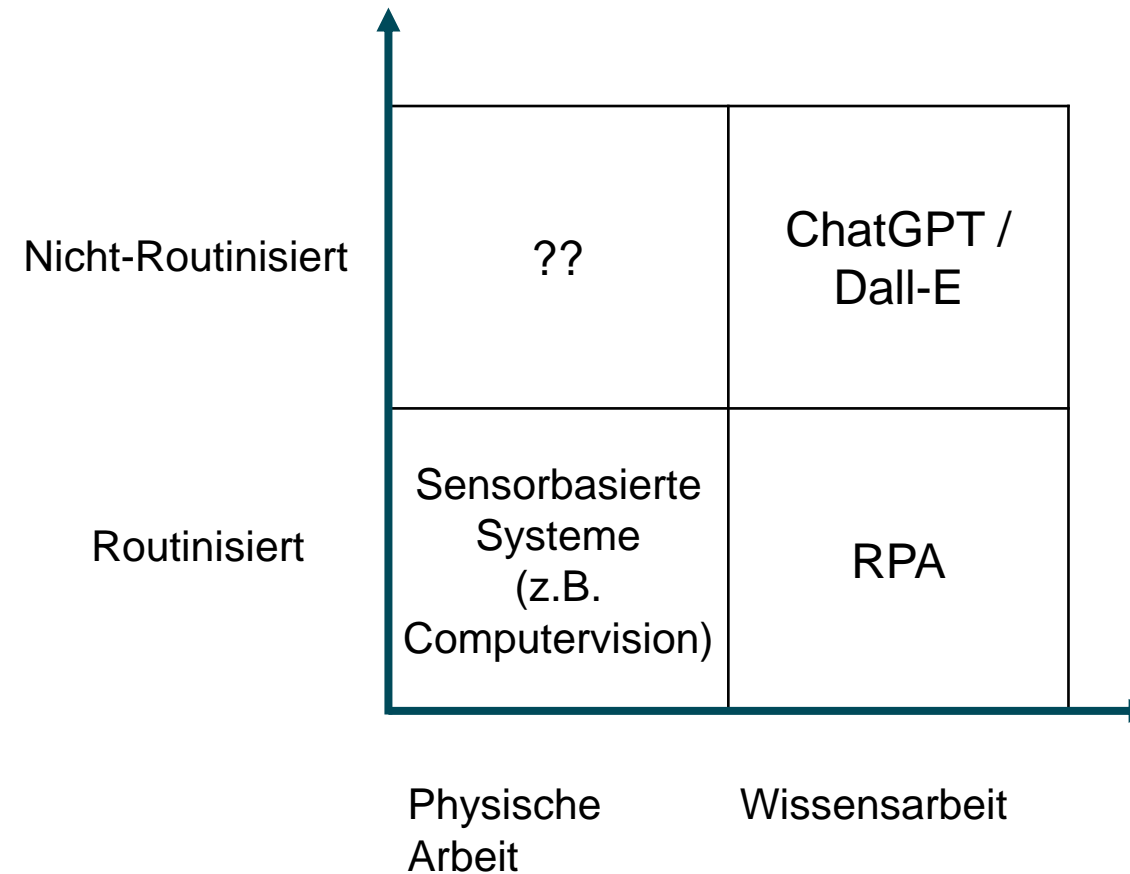
Menschliche Eigenschaften

1. Vertrauen in Mensch vs. Künstliche Intelligenz.
2. Aversion gegen Künstliche Intelligenz.

Adoption von KI (Unternehmenssicht)



Welches KI Tool ist das richtige?



Adoption von KI (Unternehmenssicht)



„Unsere Daten stecken in Silos und haben uneinheitliche Formate.“

„Wir haben nicht das Know-How.“



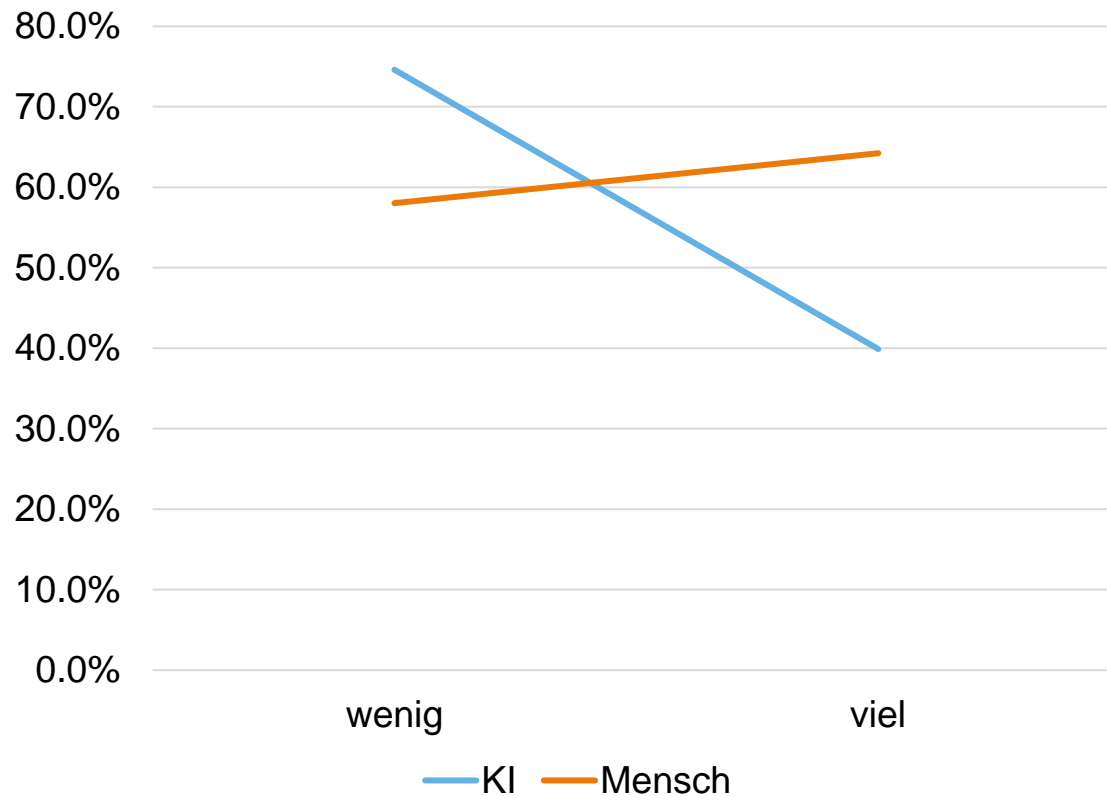
„Die Mitarbeiter bevorzugen bewährte Prozesse.“

„Sorge vor Kontrollverlust und Relevanzverlust.“



Adoption von KI (Nutzersicht)

Kenntnis und Vertrauen in
KI versus Menschen



Mehr Toleranz gegenüber Menschen

Fehler durch KI bleiben hängen.

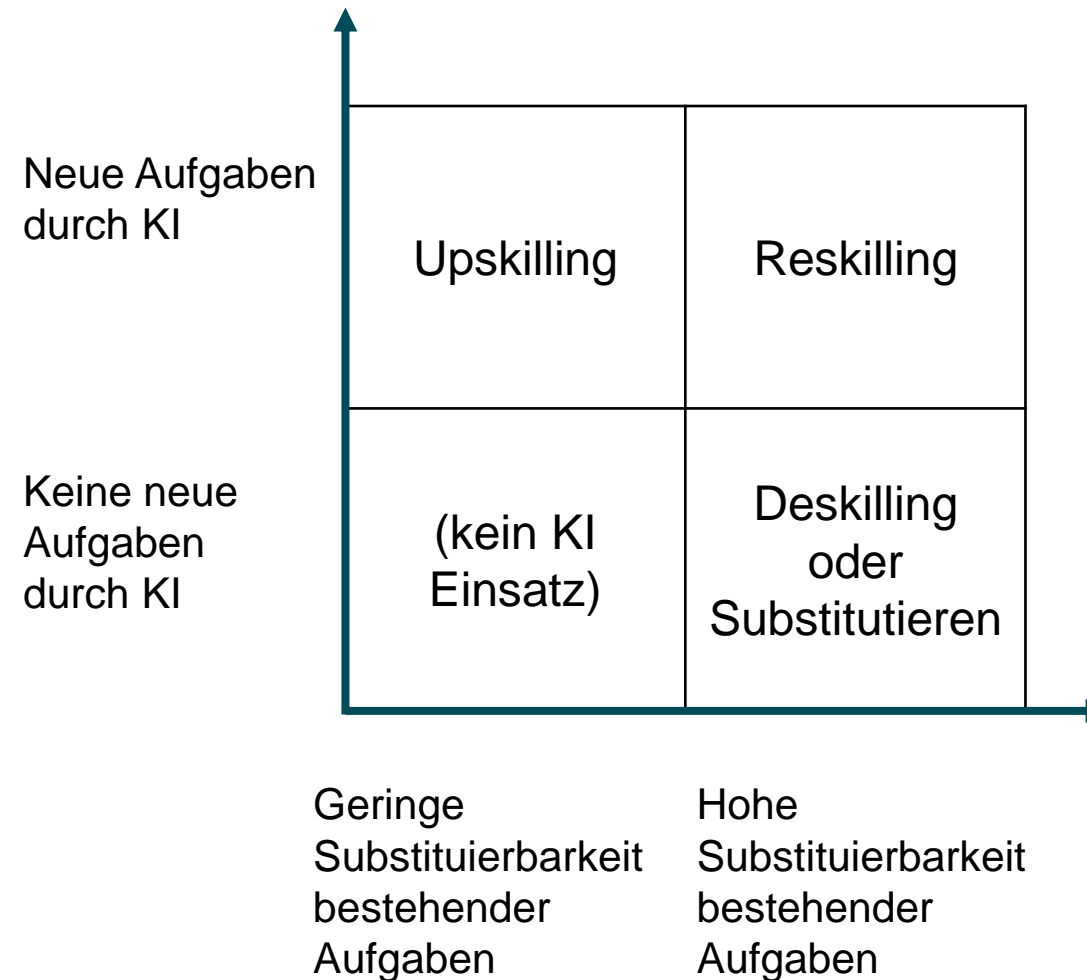
Fehler durch Menschen werden verziehen.

Je mehr man es kennenlernt,
→ desto kritischer werden Nutzer.

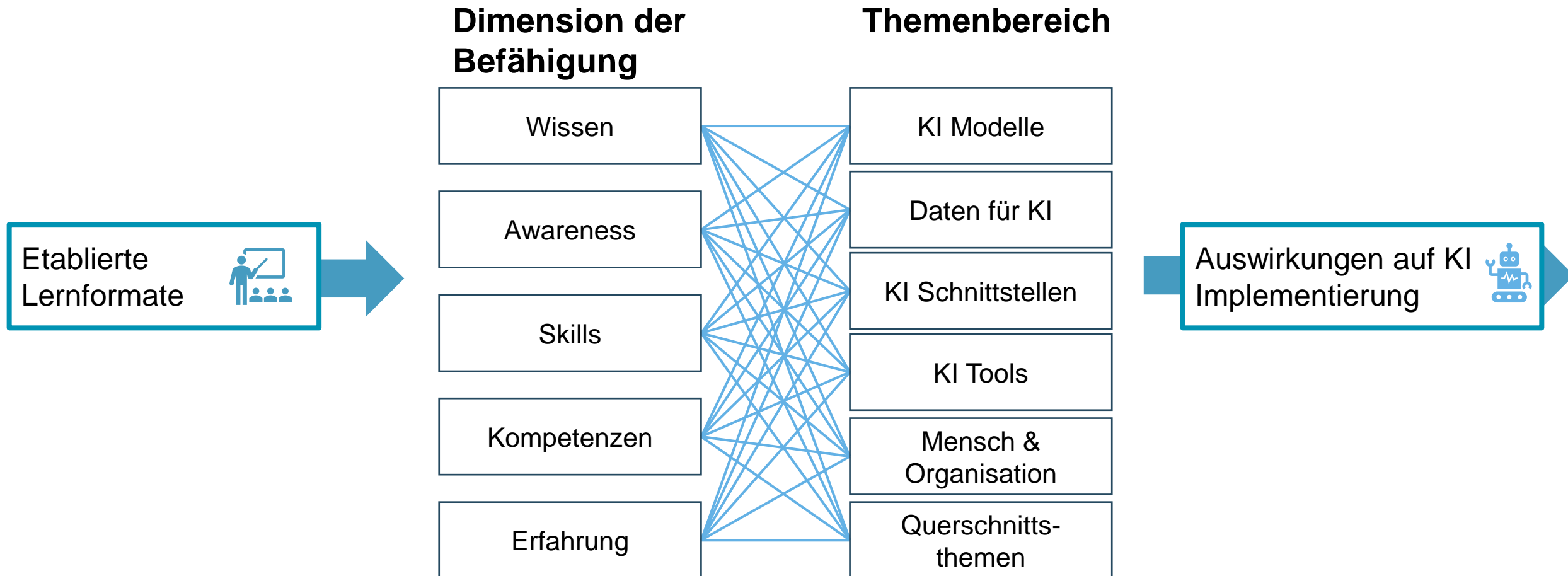
Je besser man es versteht,
→ desto einsichtiger werden Nutzer.

**Vertrauen & Wissen schaffen,
Erwartungen managen!**

Mitarbeiterentwicklung für KI



KI „Literacy“ schaffen



Sinn der Arbeit bei KI

KI Implementierung

1. Substitution
2. Neue Aufgaben (spannend)
3. Neue Aufgaben (langweilig)
4. Verbessern existierender Aufgaben



Bedeutungsvolle Arbeit

1. Integrität der Aufgaben
2. Kompetenzentwicklung und –nutzung
3. Wichtigkeit der Aufgaben
4. Autonomie
5. Zugehörigkeit





Danke.

Jetzt sind Sie dran!

Quellen

1. Abdelwahed, A., van den Berg, P. L., Brandt, T., Collins, J., & Ketter, W. (2020). Evaluating and optimizing opportunity fast-charging schedules in transit battery electric bus networks. *Transportation Science*, 54(6), 1601-1615.
2. Abdelwahed, A., van den Berg, P. L., Brandt, T., Ketter, W., & Mulder, J. (2021). A Boost for Urban Sustainability: Optimizing Electric Transit Bus Networks in Rotterdam. *INFORMS Journal on Applied Analytics*, 51(5), 391-407.
3. Acemoglu, D., Koster, H. R., & Ozgen, C. (2023). Robots and workers: Evidence from the Netherlands (No. w31009). National Bureau of Economic Research.
4. Acemoglu, D., (2024). The Simple Macroeconomics of AI. (Preprint)
5. Alekseeva, L., Azar, J., Gine, M., Samila, S., & Taska, B. (2021). The demand for AI skills in the labor market. *Labour economics*, 71, 102002.
6. Benbya, H., Pachidi, S., & Jarvenpaa, S. (2021). Special issue editorial: Artificial intelligence in organizations: Implications for information systems research. *Journal of the Association for Information Systems*, 22(2), 10.
7. Brynjolfsson, E., & McElheran, K. (2016). The rapid adoption of data-driven decision-making. *American Economic Review*, 106(5), 133-139.
8. Dell'Acqua, F., McFowland, E., Mollick, E. R., Lifshitz-Assaf, H., Kellogg, K., Rajendran, S., ... & Lakhani, K. R. (2023). Navigating the jagged technological frontier: Field experimental evidence of the effects of AI on knowledge worker productivity and quality. *Harvard Business School Technology & Operations Mgt. Unit Working Paper*, (24-013).
9. Esteva, A., Chou, K., Yeung, S., Naik, N., Madani, A., Mottaghi, A., ... & Socher, R. (2021). Deep learning-enabled medical computer vision. *NPJ digital medicine*, 4(1), 5.
10. Hatzius, J. (2023). The Potentially Large Effects of Artificial Intelligence on Economic Growth (Briggs/Kodnani). Goldman Sachs.
11. Hüllmann, J. A., Göritz, L., Hagen, S., Beinke, J. H., & Thomas, O. (2023). Servitization in Automotive: The Digital Transformation of Selling Product-Service Systems at a Large German Car Manufacturer. In *Proceedings of the 31st European Conference on Information Systems (ECIS)*, Kristiansand, Norway.
12. Hüllmann, J. A., Krebber, S., & Troglauer, P. (2021). The IT Artifact in People Analytics: Reviewing the Tools to Understand a Nascent Field. In *Proceedings of the 16th International Conference on Wirtschaftsinformatik*, Duisburg-Essen, Germany.
13. Hüllmann, J. A., Precht, H., & Wübbe, C. (2023). Configurations of Human-AI Work in Agriculture: Adoption and Use of Intelligent Systems by Agricultural Workers. In *Proceedings of the GIL-Jahrestagung 2023*, Osnabrück, Germany.
14. Marcelino, R., Sampaio, J., Amichay, G., Gonçalves, B., Couzin, I. D., & Nagy, M. (2020). Collective movement analysis reveals coordination tactics of team players in football matches. *Chaos, Solitons & Fractals*, 138, 109831.
15. Radford, A., Narasimhan, K., Salimans, T., & Sutskever, I. (2018). Improving language understanding by generative pre-training.
16. Rivas-Blanco, I., Pérez-Del-Pulgar, C. J., García-Morales, I., & Muñoz, V. F. (2021). A review on deep learning in minimally invasive surgery. *IEEE Access*, 9, 48658-48678.
17. Rothmeier, K., Pflanzl, N., Hüllmann, J. A., & Preuss, M. (2020). Prediction of Player Churn and Disengagement Based on User Activity Data of a Freemium Online Strategy Game. *IEEE Transactions on Games*, 13(1), 78-88.
18. Sharp, M., Ak, R., & Hedberg Jr, T. (2018). A survey of the advancing use and development of machine learning in smart manufacturing. *Journal of manufacturing systems*, 48, 170-179.
19. Van Klompenburg, T., Kassahun, A., & Catal, C. (2020). Crop yield prediction using machine learning: A systematic literature review. *Computers and Electronics in Agriculture*, 177, 105709.
20. Wang, J., Ma, Y., Zhang, L., Gao, R. X., & Wu, D. (2018). Deep learning for smart manufacturing: Methods and applications. *Journal of manufacturing systems*, 48, 144-156.
21. Xenopoulos, P., Rulff, J., & Silva, C. (2022). GgViz: Accelerating large-scale esports game analysis. *Proceedings of the ACM on Human-Computer Interaction*, 6(CHI PLAY), 1-22.
22. Zhao, B., Waterman, R. S., Urman, R. D., & Gabriel, R. A. (2019). A machine learning approach to predicting case duration for robot-assisted surgery. *Journal of medical systems*, 43, 1-8.
23. Venkatesh, V. (2022). Adoption and use of AI tools: a research agenda grounded in UTAUT. *Annals of Operations Research*, 308(1), 641-652.
24. Mirbabaie, M., Brünker, F., Möllmann, N. R., & Stieglitz, S. (2022). The rise of artificial intelligence—understanding the AI identity threat at the workplace. *Electronic Markets*, 1-27.
25. Araujo, T., Helberger, N., Kruikemeier, S., & De Vreese, C. H. (2020). In AI we trust? Perceptions about automated decision-making by artificial intelligence. *AI & society*, 35, 611-623.

Quellen

26. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425-478.
27. Berger, B., Adam, M., Rühr, A., & Benlian, A. (2021). Watch me improve—algorithm aversion and demonstrating the ability to learn. *Business & Information Systems Engineering*, 63(1), 55-68.
28. Bitzer, T., Wiener, M., & Morana, S. (2021). The Role of Algorithmic Transparency in Contact-tracing App Adoption. In *ICIS*.
29. Dietvorst, B. J., Simmons, J. P., & Massey, C. (2015). Algorithm aversion: people erroneously avoid algorithms after seeing them err. *Journal of Experimental Psychology: General*, 144(1), 114.
30. Kocielnik, R., Amershi, S., & Bennett, P. N. (2019, May). Will you accept an imperfect ai? exploring designs for adjusting end-user expectations of ai systems. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).
31. Logg, J. M., Minson, J. A., & Moore, D. A. (2019). Algorithm appreciation: People prefer algorithmic to human judgment. *Organizational Behavior and Human Decision Processes*, 151, 90-103.
32. Moussawi, S., Koufaris, M., & Benbunan-Fich, R. (2023). The role of user perceptions of intelligence, anthropomorphism, and self-extension on continuance of use of personal intelligent agents. *European Journal of Information Systems*, 32(3), 601-622.
33. Pinski, M., & Benlian, A. (2024). AI literacy for users—A comprehensive review and future research directions of learning methods, components, and effects. *Computers in Human Behavior: Artificial Humans*, 100062.
34. Morris, M. G., & Venkatesh, V. (2000). Age differences in technology adoption decisions: Implications for a changing work force. *Personnel psychology*, 53(2), 375-403.
35. Morris, M. G., Venkatesh, V., & Ackerman, P. L. (2005). Gender and age differences in employee decisions about new technology: An extension to the theory of planned behavior. *IEEE transactions on engineering management*, 52(1), 69-84.
36. Heß, M. (2024). Altersdiskriminierung am Arbeitsplatz –wie gehen wir damit um? In: Navigate 2024 Konferenz.
37. Easterlin, R. A., & O'Connor, K. J. (2022). The easterlin paradox. In *Handbook of labor, human resources and population economics* (pp. 1-25). Cham: Springer International Publishing.
38. Blömer, M., Fischer, L., Pannier, M., & Peichl, A. (2024). " Lohnt" sich Arbeit noch? Lohnabstand und Arbeitsanreize im Jahr 2024. *ifo Schnelldienst*, 77(01), 35-38.
39. Garnitz, J., Schaller, D., & Selleng, N. (2024). Arbeitswelt im Wandel: Herausforderungen des Arbeitskräftemangels und die Dynamik des hybriden Arbeitens. *ifo Schnelldienst*, 77(01), 49-54.
40. Krause, S., Trumpp, A., Dichtl, T., Kiese, S., & Rutsch, A. (2024). Neue Arbeitswelt, neue Arbeitsorte: Auswirkungen von Homeoffice auf den Büroimmobilienmarkt. *ifo Schnelldienst*, 77(03), 63-73.
41. Bailey, C., Yeoman, R., Madden, A., Thompson, M., & Kerridge, G. (2019). A review of the empirical literature on meaningful work: Progress and research agenda. *Human Resource Development Review*, 18(1), 83-113.
42. Bankins, S., & Formosa, P. (2023). The ethical implications of artificial intelligence (AI) for meaningful work. *Journal of Business Ethics*, 185(4), 725-740.
43. Lipschitz, J. M., Pike, C. K., Hogan, T. P., Murphy, S. A., & Burdick, K. E. (2023). The engagement problem: A review of engagement with digital mental health interventions and recommendations for a path forward. *Current treatment options in psychiatry*, 10(3), 119-135.
44. Thiebes, S., Lins, S., & Sunyaev, A. (2021). Trustworthy artificial intelligence. *Electronic Markets*, 31, 447-464.
45. Ångström, R. C., Björn, M., Dahlander, L., Mähring, M., & Wallin, M. W. (2023). Getting AI Implementation Right: Insights from a Global Survey. *California Management Review*, 66(1), 5-22.
46. Demlehner, Q., & Laumer, S. (2020). Shall We Use It or Not? Explaining the Adoption of Artificial Intelligence for Car Manufacturing Purposes.
47. Dornelles, J. D. A., Ayala, N. F., & Frank, A. G. (2023). Collaborative or substitutive robots? Effects on workers' skills in manufacturing activities. *International Journal of Production Research*, 61(22), 7922-7955.
48. Tornatzky, L. G., Fleischer, M., & Chakrabarti, A. K. (1990). The processes of technological innovation. Lexington, Massachusetts: Lexington Books.
49. Brynjolfsson, E., & Mitchell, T. (2017). What can machine learning do? Workforce implications. *Science*, 358(6370), 1530-1534.
50. Crowston, K., & Bolici, F. (2019). Impacts of machine learning on work. HICSS proceedings.
51. Kanitz, R., & Gonzalez, K. (2021). Are we stuck in the predigital age? Embracing technology-mediated change management in organizational change research. *The Journal of Applied Behavioral Science*, 57(4), 447-458.
52. Brechtelsbauer, B., & Laumer, S. (2024). Risks and Benefits of Technologies for Organizational Change Enablement-A Role Theory Perspective. HICSS Proceedings.